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1/1

UST CLOSURE SITE ASSESSMENT
&
INTERIM REMEDIATION REPORT

NACHES CHEVRON
HIGHWAY 12 & CANAL AVENUE
NACHES, WASHINGTON

Prepared for:
APPLELAND PUMP & EQUIPMENT CO., INC.
P.O. BOX 3011
WENATCHEE, WA 98807-3011

March, 1994

WHITE SHIELD INC.

P.O. BOX 477, 801 GRANDRIDGE ROAD, GRANDVIEW, WA 98930
TELEPHONE: (509) 882-1144 VOICE (509) 882-4566 FAX

WHITE SHIELD, INC.

P.O. BOX 477 • GRANDVIEW, WA 98930 • (509) 882-1144
FAX (509) 882-4566

March 16, 1994

Ms. Diane Gamel
Appleland Pump and Equipment Company
P.O. Box 3011
Wenatchee, WA 98807-3011

SUBJECT: UST CLOSURE SITE ASSESSMENT AND INTERIM REMEDIATION REPORT- NACHES CHEVRON, NACHES, WASHINGTON

Dear Ms. Gamel:

Enclosed, please find two copies of a UST Closure Site Assessment Report and Interim Remediation Report for the above referenced site. The report is prepared to comply with the regulatory requirements set forth in Chapter 173-360 WAC and Chapter 173-340 WAC of the State of Washington.

Based on the data and findings reported herein, we find no petroleum contamination in the soil around the UST excavation. However, the laboratory analysis of the groundwater sample from beneath the USTs reveals gasoline contamination at 2300 ppm, which is above the Washington State Department of Ecology Cleanup level.

The WSDOE requires that you retain this report for a minimum of ten years. We recommend that you retain it indefinitely. The WSDOE also requires us to submit a copy of the Underground Storage Tank Site Check/Site Assessment Checklist to the Olympia office. It is included as Appendix C of this report.

Since your company provided the decommissioning services, please send a copy of the Underground Storage Tank Temporary/Permanent Closure and Site Assessment Notice as required to the WSDOE.

We appreciate the opportunity to provide you with technical assistance for your UST decommissioning. Please call us at (509) 882-1144 should you have any questions or need any additional information.

Respectfully Yours,
WHITE SHIELD, INC.

Charles O. Robinson by Terry Miller

Charles O. Robinson,
Environmental Technician

Project Number: APE-3694

EXECUTIVE SUMMARY

White Shield, Inc. (WSI) provided site assessment services upon removal of two 10,000 gallon gasoline Underground Storage Tanks (USTs) and one 5,000 gallon gasoline UST. The USTs were taken out of service on February 23 and 24, 1994. The WSDOE UST Site ID Number is 002467.

The site is a retail gasoline station and automobile service facility located at 10171 Highway 12, at the northwest corner of Highway 12 and Canal Avenue in Naches, Washington.

In August, 1992, a leak was detected in the super unleaded fuel line to the 5,000 gallon UST and a site check was performed to investigate the leak. A report by Sage Earth Sciences, Inc., dated October, 1992, documented soil and groundwater petroleum contamination (Appendix E). After the leak was repaired, the excavation remained open for approximately 15 months, then the excavation was backfilled around the existing USTs. In February, 1994, the USTs were removed to be replaced with fiberglass USTs. White Shield, provided the site assessment services.

There are currently two product dispenser islands in service at the site. The dispensers located on the south side of the building had been in service since the 1930s. The dispensers and all piping were removed and replaced in 1992. A new dispenser located southeast of the building, immediately south of the USTs was installed in 1992 at the same time.

Approximately 350 cu. yds. of soil were removed from the UST excavation and stockpiled on the paved parking area surrounding the facility. The laboratory analytical report for the samples from the stockpiles revealed no petroleum contamination above the MTCA Cleanup Levels.

Based on our visual observations, the analytical laboratory results, and site information, there is no petroleum contamination exceeding MTCA Method A Cleanup Levels remaining in the soil at this site, however analytical results indicate 2300 ppm gasoline remaining in the groundwater at the site.

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1.0 Introduction

1.1 Purpose

This report describes findings and actions taken for work associated with the decommissioning of three underground storage tanks. The work and investigation complies with the regulatory requirements set forth by the United States Environmental Protection Agency (EPA) and complies with Chapter 173-360 WAC and Chapter 173-340 WAC of the State of Washington. It was performed in accordance with the Department of Ecology (WSDOE) Guidance for Site Checks and Site Assessments for Underground Storage Tanks, Revised October, 1992.

1.2 Scope of Work

This report completes site assessment services provided by White Shield, Inc. (WSI), for two 10,000 gallon and one 5000 gallon undeground storage tanks (USTs). The services provided include collecting 15 soil and one water sample for field screening and laboratory analysis, and submitting one water sample and 13 soil samples to the laboratory for analysis. Appleland Pump and Equipment Company (Appleland) provided the UST decommissioning services. The laboratory analyses of the soil and water samples were provided by Superior Precision Analytical, Inc. (Superior), Martinez, California.

2.0 Background Information

2.1 Site Location

The UST site is located at the NW corner of Highway 12 and Canal Avenue, Naches, WA. Casper Restaurant is located west of the site, The Pit Stop Convenience Store is located to the east. A Texaco gasoline station is located southeast of the site, and a private residence is south of the site across Highway 12. The residence of the owner, Mike Abhold, is located immediately behind the service building, northwest of the UST site. The Naches River is located approximately ½ mile south of the site. The site is approximately 1480 feet above mean sea level, and approximately 60 feet above normal water level of the Naches River.

The site is described as the northeast ¼ of the southeast ¼, Section 4, T14N, R17E, WM. Refer to Figure 1, Site Location Map & Figure 2, Site Plan.

2.2 Site Description and History

Naches Chevron has been in service as a retail gasoline station since the 1930s. The USTs were decommissioned and removed on February 23 and 24, 1994.

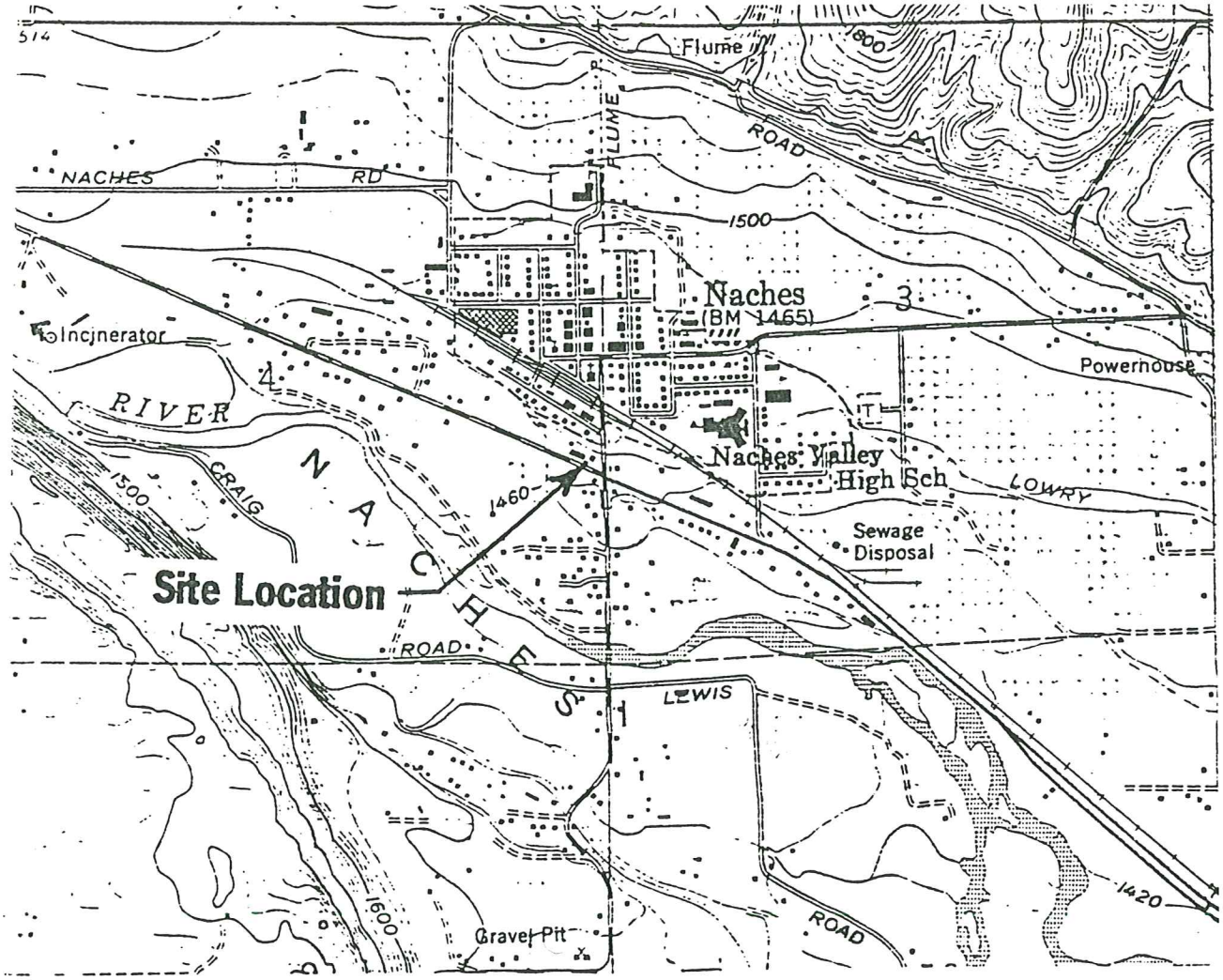


Figure 1 Site Location Map

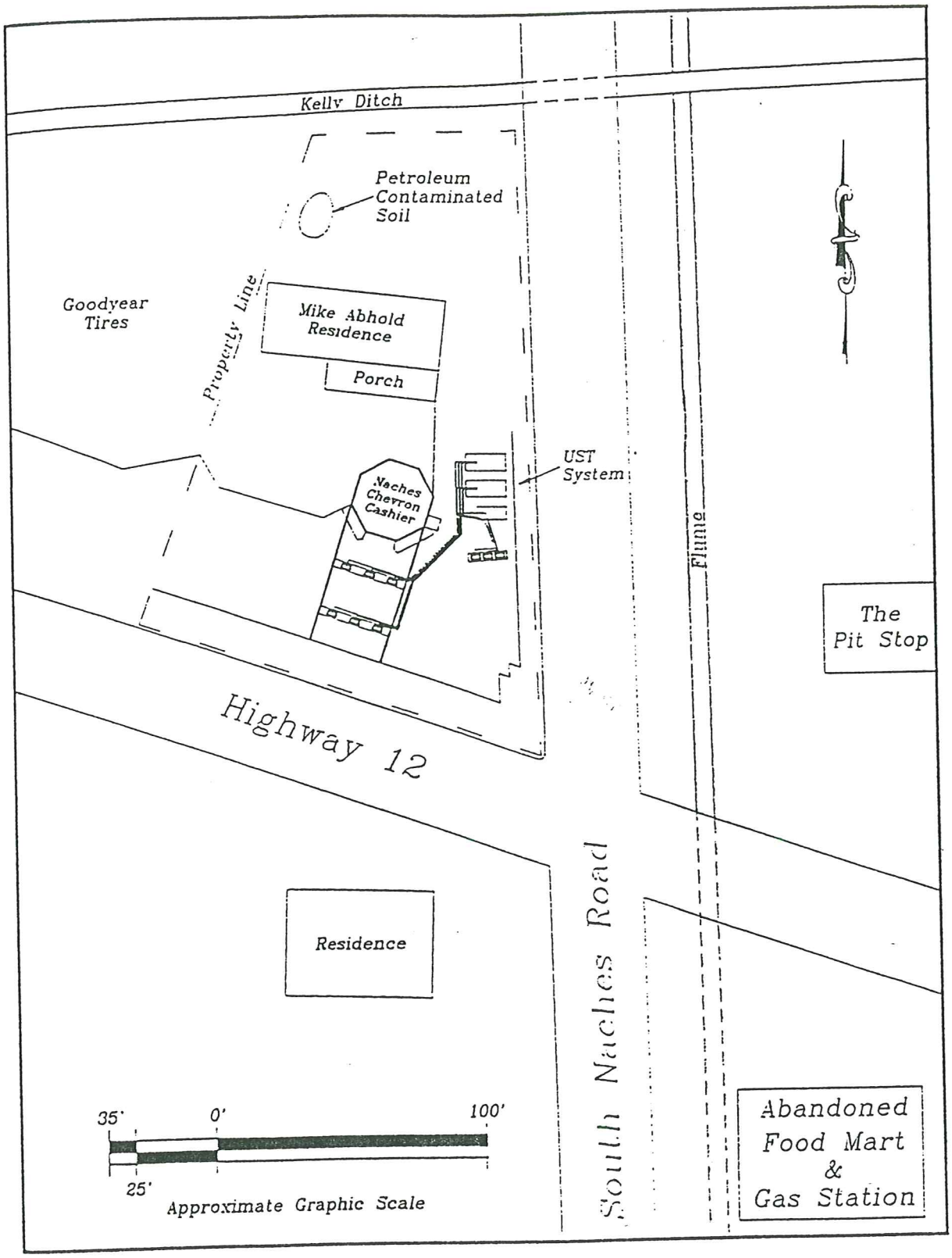


Figure 2 Site Sketch

There are currently two product dispenser islands in service at the site. The dispensers which were located on the south side of the building had been in service since the 1930s. The dispensers and all piping were removed and replaced in 1992. A new dispenser located southeast of the building, immediately south of the USTs was installed in 1992 at the same time.

In August of 1992, Appleland performed a tightness test of USTs and lines and discovered a leak in the super unleaded fuel line from the 5000 gallon UST. Mr. Mike Abhold, an owner of the facility, contacted Sage Earth Sciences, Inc., (Sage) to provide site check services upon discovery of the leak. The leak apparently had resulted from a loose fitting of the super unleaded fuel line coupler. Sage provided field screening services and determined that volatile organic compounds (VOCs) were present. Mr. Willis Colwell, Appleland, removed approximately 12 cubic yards of petroleum contaminated soils (PCS) adjacent to the super unleaded gasoline tank. Sage collected soil samples, and one water sample to determine levels of petroleum and lead concentrations. The samples were sent to Material Testing & Consulting, Inc., Mt. Vernon, Washington. A water sample of petroleum the sheen was also submitted to Friedman & Bruya, Inc., Seattle, for fingerprint characterization. The laboratory analyses of those samples indicated the presence of aged gasoline, aromatic hydrocarbons and lead concentrations exceeding the clean up levels. The results of Sage's investigation was compiled in a report dated October, 1992, and is included in this report as Appendix E.

After the leak was repaired, the site remained open for approximately 15 months, at which time the excavation was backfilled around the existing USTs. In February, 1994, the USTs were removed to be replaced with fiberglass USTs. White Shield, provided the site assessment services.

2.3 Soils Description

The soil in the excavation is a very cobbly brown sandy loam with approximately 80% gravel and cobbles to 6 inches in diameter. The backfill material was a sandy gravel. The native material is coarse sand, cobbles, and boulders.

3.0 Field Activities

3.1 General Investigative Methods

We visually inspected each UST, the native soil and the backfill material. We also used field screening, analytical laboratory analyses and interviews for data. The methods and general conclusions are discussed below.

3.2 Tank Inspection

We removed attached soil and scale to completely expose the tanks. With the soil and scale removed, we carefully examined each tank. The tanks were in good condition. The tanks exhibited slight evidence of corrosion and pitting, and no apparent holes. Our inspection of the tanks revealed no evidence of leaking or spills associated with petroleum products. Appleland personnel cut open and cleaned each tank prior to removing the tanks from the excavation and found the tanks to be in good condition. Refer to Site Photographs 1 and 2.

3.3 Site Assessment/Sampling

Charles Robinson and Hari Sharma, site assessors registered with the Washington State Department of Ecology Underground Storage Tank Program, performed the site assessment on February 23, and 24, 1994 during the removal of the USTs. All three of the USTs were located in a single excavation, measuring approximately 40 feet x 40 feet by 13 feet in depth. The USTs had approximately four feet of cover. The Organic Vapor Analyzer (OVA) background reading at the site was 3.5 ppm. Immediately following the decommissioning and site assessment, Appleland began preparation to install the new fiberglass USTs.

3.3.1 Tank #1

Tank #1, which contained leaded gasoline, measured approximately 28 feet in length and 95 inches in diameter with a capacity of 10,000 gallons. Sample APE- 3694-110 was collected from approximately 2 feet below the bottom of the tank at a depth of 12 feet. Soil samples APE-3694-113, 114, and 115 were collected at a depth of 9′ from the west wall, north wall, and east wall, respectively. Each of the samples were field screened with the OVA as described in section 4.1, Field Screening. The field screening of sample APE-3694-115 indicated 15 ppm volatile organics. The other samples had no detectable level of volatile organics. The sample locations are shown on the Sampling Plan, Figure 3, and the Field Sampling Log, Appendix A.

The field screening results and laboratory analytical results are summarized in Table I, Field Screening and Laboratory Analytical Results. Refer also to the laboratory analytical reports, Appendix B.

3.3.2 Tank #2

Tank #2, unleaded gasoline, measured approximately 28 feet in length and 95 inches in diameter with a capacity of 10,000 gallons. Sample APE-3694-111 was taken from 2 feet below the bottom of the tank at a depth of 12 feet. Samples APE-3694-120, and 116 were taken from the west wall, and the east wall respectively. The field screening of sample APE-3693-116 revealed 24 ppm. The other two samples had no detectable level

Site Photograph 1 - Looking North-East. Tanks before removal.

Site Photograph 2 - Looking South-West

Site Photograph 3 -Removing Tank #3

Figure 3 Site Photograph

Site Photograph 4 -
Removing Tank #2

Site Photograph 5 -
Excavation site looking
west, shows groundwater.

Site Photograph 6 -
Construction phase of new
station showing product
sumps, FLEX II HDPE
product line and collector
sump.

WHITE SHIELD INC.
P.O. BOX 477, 801 GRANDRIDGE ROAD, GRANDVIEW, WA 98930
TELEPHONE: (509) 882-1144 VOICE (509) 882-4566 FAX

JOB APE 3694
SHEET NO. _____ OF _____
CALCULATED BY _____ DATE _____
CHECKED BY _____ DATE 3/13/94
SCALE NTS

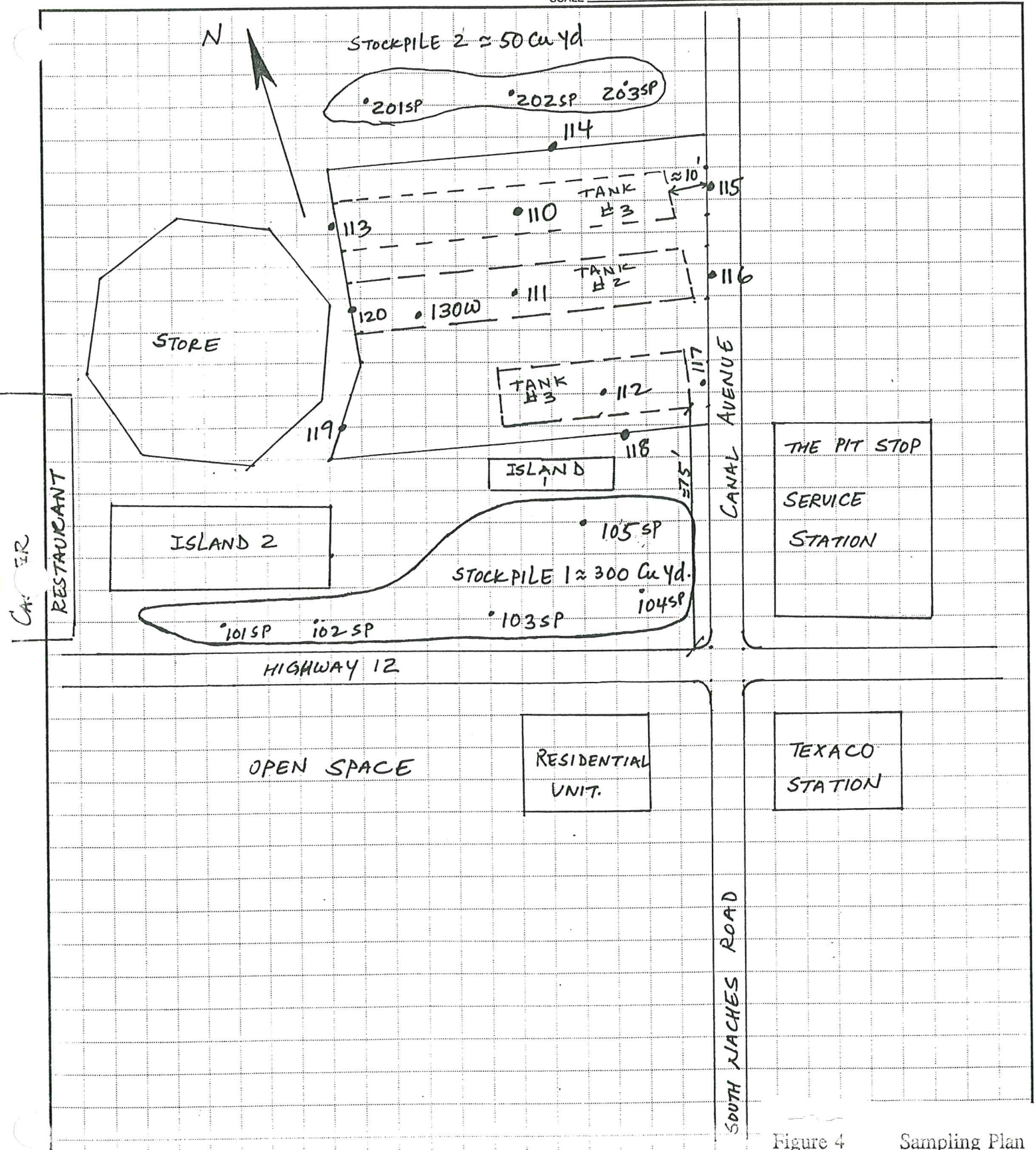


Figure 4 Sampling Plan

3.3.5 Product Pipeline

The product pipelines between the USTs and Island #1 are approximately 5 feet long, running southerly from the USTs to the dispensers. The pipelines to Island #2 are approximately 30 feet long, running approximately 10 feet south to a bend, then approximately 20 feet southwest to the dispensers. The pipelines have all been replaced. Appleland personnel indicated that there was no evidence of petroleum contamination when the piping was replaced two years ago. Sampling beneath the new pipeline was not within the scope of the current project.

3.3.6 Stockpiles

Two stockpiles of soil were generated during the UST excavation. Stockpile #1 consisting of approximately 300 cubic yards of soil, was placed on the the asphalt paving south of the two fuel dispenser islands. Stockpile #2 consisting of approximately 50 cubic yards was placed on the asphalt paving north of the UST excavation.

Samples APE-3694-101SP through 105SP were collected from Stockpile #1. The OVA field screening revealed petroleum contamination up to 82 ppm. Samples APE-3694-201SP through 203SP were collected from Stockpile #2. The OVA field screening revealed no petroleum contamination.

Since the field screening revealed no evidence of petroleum contamination above MTCA Cleanup levels, the two stockpiles were considered as one stockpile of 350 cu. yds. for laboratory analytical purposes. Stockpile #1 samples, Samples APE-3694-101SP and 102SP and APE-3694-104SP and 105SP, were analyzed as two composite samples by Superior. Stockpile #2 samples, APE-3694-201SP and 202SP, were analyzed as a composite samples by Superior. The laboratory results revealed no petroleum contamination above the MTCA Cleanup Level.

The sample locations are shown on the Sampling Plan, Figure 4, and the Field Sampling Log, Appendix A.

The field screening results and laboratory analytical results are summarized in Table I, Field Screening and Laboratory Analytical Results. Refer also to the laboratory analytical reports, Appendix B.

4.0 Investigative Methods

4.1 Field Screening

For field analysis of compounds containing volatile organics, WSI uses a Foxboro Organic Vapor Analyzer (OVA) in conjunction with the interim headspace method as recommended by the manufacturer. This method is used to confirm the presence or

absence of volatile components in the soil and provides only a rough indication of the contaminant concentrations. The analysis procedure involves:

1. Selecting a clean, wide mouth jar (1 qt.) and filling the bottom 1/3 with a discrete soil sample.
2. Place aluminum foil over the top of the jar and place a ring over the jar to create a seal.
3. Boil the sample for 10 minutes. This causes the volatile compounds to become vapors 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 for vapor analysis.
5. Record the instrument response on the Field Form.

4.2 Soil Sampling

The Sampling Plan (Figure 4) and the attached Field Sampling Log (Appendix A) show the location, depth and types of samples taken. In general, sample collection and control followed the following protocol:

1. Select a laboratory certified clean sample jar for sample collection.
2. Using clean latex gloves and clean sampling utensils (tri-sodium phosphate, chlorine solution, tap water rinse and distilled water rinse cycle) tightly pack the soil sample in the sample jar (4 oz.) to the top of the jar to prevent any airspace.
3. Label the jar with the soil sample number, the type of laboratory test required, the date, name of site and sampler. The sample is then entered on the chain of custody form.
4. Cool the sample in wet ice to approximately 4 degrees centigrade.
5. Repack the samples for shipment to the laboratory in blue ice and a cooler.
6. Relinquish sample to courier for shipment to the laboratory.

4.3 Water Sampling

WSI used the same general protocol for water sampling, except the containers were placed in the water and the cap placed on the container under the water to eliminate headspace in the container.

5.0 End Use of Soil

Approximately 300 cubic yards of soil from the tank excavation were stockpiled on the asphalt paving south of the excavation and approximately 50 cubic yards north of excavation. The laboratory analytical results of composite soil samples APE-3694-101SP/102SP, APE-3694-104SP/105SP, and APE-3694-201SP/202SP revealed no petroleum contamination above the MTCA Cleanup levels. The field screening results

and laboratory analytical results are summarized in Table I, Field Screening and Laboratory Analytical Results. Refer also to the laboratory analytical reports, Appendix B.

Based on the laboratory analytical results, the stockpiled soil is classified as a Class 1 soil. The WSDOE Guidance for Remediation of Releases from Underground Storage Tanks states that a Class 1 soil may be used for any purpose which will not cause a threat to human health or to the environmment. However, we recommend that the soil be treated as a Class 2 soil and used as backfill at the cleanup site, fill in commercial or industrial areas, or road subgrade or other road construction fill. Fill in or near wetland, surface water, or residential areas is not recommended. Refer to Appendix C, Table V. End Use Criteria for Petroleum Contaminated Soils, from the WSDOE Guidance for Remediation of Releases from Underground Storage Tanks, dated July, 1991.

6.0 Groundwater/Well logs

Well Logs within 1 1/2 miles of the site show static water levels of 4 feet to 11 feet. Copies of the Well Logs from the WSDOE Department of Water Resources are included in Appendix D.

The laboratory analysis of groundwater Sample APE-3694-130W revealed gasoline contamination in the water beneath the site. A detailed groundwater characterization must be completed to determine the extent of the groundwater contamination in order to plan a cleanup strategy.

7.0 Conclusion/Recommendation

7.1 Summary

WSI finds no significant evidence of petroleum concentrations remaining in the soil on the site in excess of the Cleanup Levels as established by the Model Toxics Control Act (WAC 173-340-720). There is evidence of petroleum contamination in the groundwater at this site.

7.2 Recommendation

WSI recommends a detailed groundwater characterization to determine the extent of the groundwater contamination, including installing groundwater monitoring wells. Based upon the findings of the groundwater investigation, we recommend installing and appropriate groundwater extraction and/or treatment.

8.0 Limitations

In performing our professional services, WSI uses a degree of care ordinarily exercised under similar circumstances by members of our profession. No warranty, expressed or implied, is made or intended. Our conclusions and recommendations, developed from our field and laboratory investigation reported herein, are based upon this firm's understanding of the project and are in concurrence with generally accepted practice.

APPENDIX A
FIELD SAMPLING LOGS

APE 36941 - Nardes Chevron 2/23/94

8:30 Lv. office

9:40 ARRIVED AT WORKSITE.

About 2 years ago, noticed a leak in the line. Stayed open approximately 15 months. Sage environmental Conducted site assessment. ~~2/22/94~~ - noticed traces of contamination at soil water interface by APPLE Land employees about 2 years ago. Ground water at approximately 13' depth.

Tanks installed in 1976 - station here since 1930's
- Island closest to tank is new
- Island in front replaced about 2 year ago - site assessment by Sage indicated soil clean around front islands

So.1 Very cobbly ~~silt~~ sandy loam w/ cobbles to 6" ~ 80%

Stockpile ~ 300 yds.

11:15 Field screened 5 stockpile samples. The highest reading is 82 ppm.
Willis said he needs to remove stockpile in order to create space to work. Chuck said that stockpile might be class 2 material, and suggested that its removal should be delayed until the Lab results come back. Chuck said they could stockpile at another location but it shouldn't be used.

1:15 The tanks are clean and they are ready to pull them out.
USED 690 D-LC John Deere trackhoe to pull the tanks.
Tanks Description: Minor corrossion, minor Pitting. Appear to be in good condition.

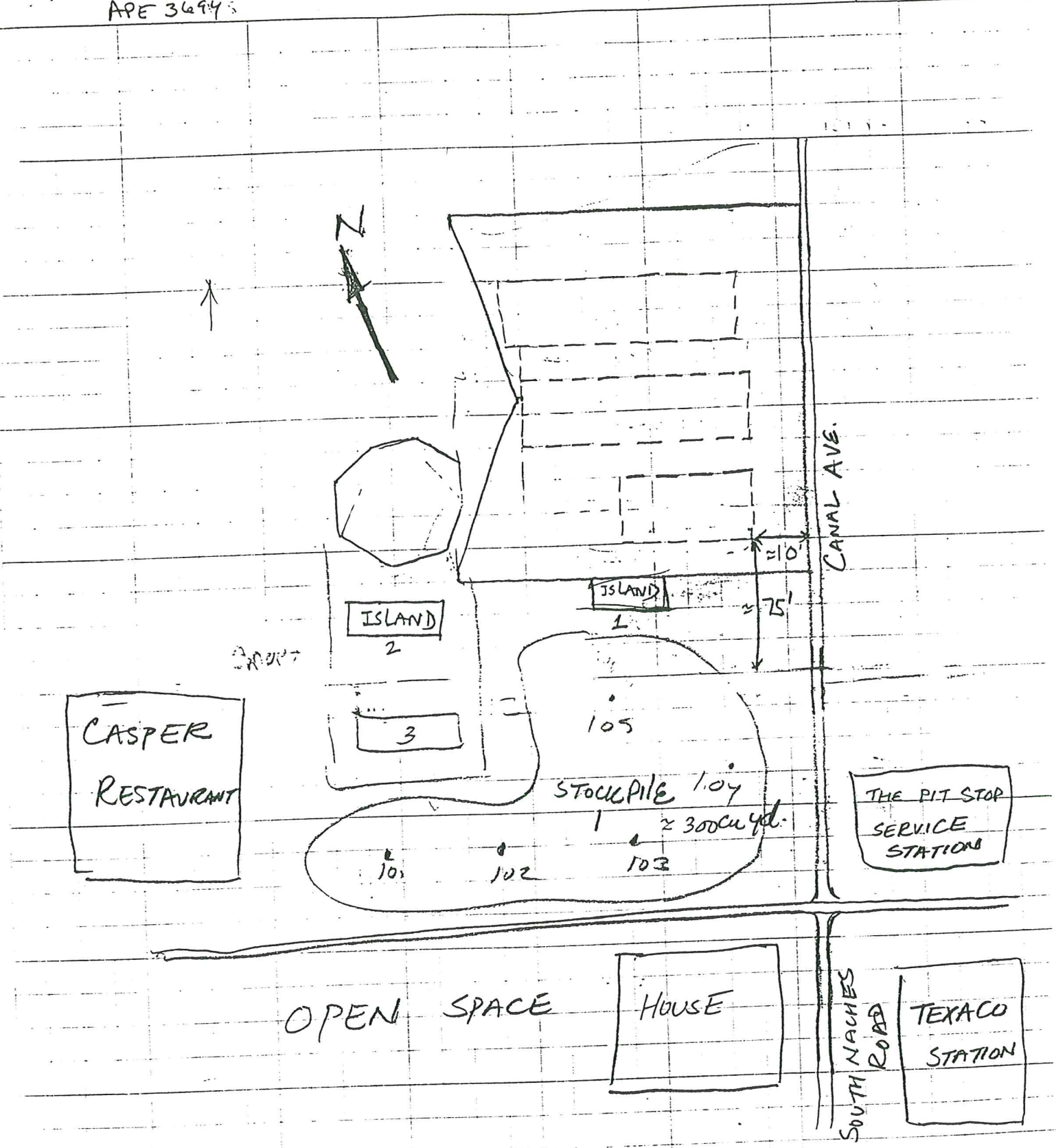
:25 Pulled out tank #3. TANK IS IN GOOD CONDITION. EXCEPT FOR MINOR CORROSSION and PITTING NO OTHER DEFECTIVE CONDITIONS.

3:00 Pulled out tank #2.

45 Sampled tank #2 - Having trouble pulling #3

APE 3694

2/23/94

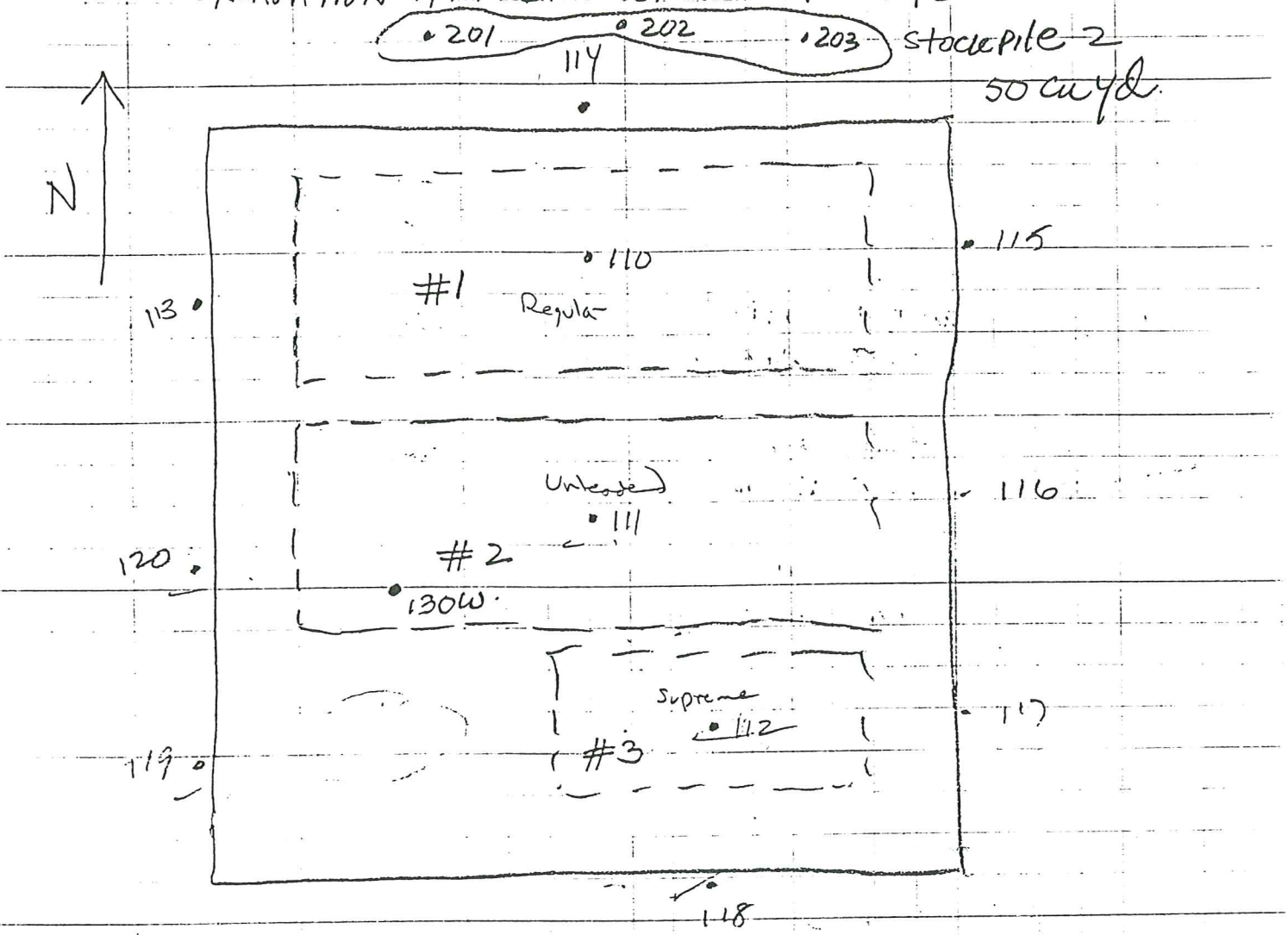


APE 3694 - Wades Chevron 2/23/94

SAMPLE #	LOCATION	Depth	OVA	
APE3694-101SP	Stockpile 1	—	60	
102SP	"		82	
103SP	"		16	
104SP	"		28	
105SP	"		47	
APE 3694 110	BOTTOM OF TANK 1	12'	ND	
111	BOTTOM TANK 2	12'	ND	2/23/94
112	BOTTOM OF TANK #3.	12'	50	2/28/94
113	WEST WALL TANK 1	9'	ND	
114	N. WALL TANK 1	9	ND	
115	E. WALL TANK 1	9	15	
116	E. WALL TANK 2	9	24	
117	E. WALL TANK 3	9	ND	
118	S. WALL TANK 3	9	(ND.	(?)
119	W. WALL TANK 3	9	ND	
120	W. WALL TANK 2	9	ND	2/23/94
694 130W	WATER			
201SP	Stockpile 2	—	ND	
202SP	"		ND	
203SP	"		ND	

APE 3693 - Naches Chevron 2/23/94

EXCAVATION PIT DIMENSION 45' x 45'



APE 3694. NACHES CHEVRON. 2/24/94

9:30 LEFT FOR JOBSITE.

10:45 ARRIVÉ

Collected water sample at 11:15. Slight sheen noticed. Jim put in an absorbent pad in the water and picked up nothing.

Then bottom samples were collected from about 2' below the bottom of the tank. At that level, the backfill material was present. We could n't excavate further down for soil sample because of the water table. Later Jim and willis excavated material below water and stockpiled it at the North side!

Sample #118, taken from South wall was about 5' North of #1 Island, and represents as the sample under that Island.

Jim Gamble said he would place two access wells at North end of the pit when as the pit is backfilled.

Mike, the owner of the gas station, said the islands #2 and 3 were installed 2 years ago. He said no contamination was detected at that time.

00 to 3:00 Waited for Willis and Jim to excavate the material from the bottom of the pit.

STARTED Sampling at 3:00 PM.

Sampled: 3 samples from N. stockpile.

4:15 Left site.

APPENDIX B
LABORATORY RESULTS
&
CHAIN OF CUSTODY

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 ▪ Martinez, California 94553 ▪ (510) 229-1512 / fax (510) 229-1526

WHITE SHIELD INC.
Attn: C.ROBINSON

Project APE 3694
Reported 07-March-1994

WASHINGTON TOTAL PETROLEUM HYDROCARBONS - GASOLINE (WTPH-G) and Benzene, Toluene, Ethyl Benzene, and Xylenes

Chronology

Laboratory Number 91203

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
APE-3694-110	02/25/94	02/26/94	03/02/94	03/02/94		1
APE-3694-111	02/25/94	02/26/94	03/03/94	03/03/94		2
APE-3694-112	02/25/94	02/26/94	03/03/94	03/03/94		3
APE-3694-114,115	02/25/94	02/26/94	03/04/94	03/04/94		4
APE-3694-118,119	02/25/94	02/26/94	03/03/94	03/03/94		5
APE-3694-101SP,102SP	02/25/94	02/26/94	03/03/94	03/03/94		6
APE-3694-104SP,105SP	02/25/94	02/26/94	03/03/94	03/03/94		7
APE-3694-201SP,202SP	02/25/94	02/26/94	03/03/94	03/03/94		8

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WHITE SHIELD INC.
Attn: C.ROBINSON

Project APE 3694
Reported 07-March-1994

WASHINGTON TOTAL PETROLEUM HYDROCARBONS - GASOLINE
(WTPH-G)

Laboratory Number	Sample Identification	Matrix
91203- 1	APE-3694-110	Soil
91203- 2	APE-3694-111	Soil
91203- 3	APE-3694-112	Soil
91203- 4	APE-3694-114,115	Soil
91203- 5	APE-3694-118,119	Soil
91203- 6	APE-3694-101SP,102SP	Soil
91203- 7	APE-3694-104SP,105SP	Soil
91203- 8	APE-3694-201SP,202SP	Soil

RESULTS OF ANALYSIS

Laboratory Number:	91203- 1	91203- 2	91203- 3	91203- 4	91203- 5
Gasoline:	ND<1	ND<1	ND<1	ND<1	ND<1
Benzene:	ND<.005	ND<.005	ND<.005	ND<.005	ND<.005
Toluene:	ND<.005	ND<.005	ND<.005	ND<.005	ND<.005
Ethyl Benzene:	ND<.005	ND<.005	ND<.005	ND<.005	ND<.005
Total Xylenes:	ND<.005	ND<.005	ND<.005	ND<.005	ND<.005
Concentration:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
-- Surrogate % Recoveries --					
Trifluorotoluene (SS):	93	98	69	105	105

Laboratory Number:	91203- 6	91203- 7	91203- 8
Gasoline:	ND<1	ND<1	1
Benzene:	ND<.005	ND<.005	ND<.005
Toluene:	ND<.005	ND<.005	0.025
Ethyl Benzene:	ND<.005	ND<.005	ND<.005
Total Xylenes:	ND<.005	ND<.005	0.016
Concentration:	mg/kg	mg/kg	mg/kg
-- Surrogate % Recoveries --			
Trifluorotoluene (SS):	88	91	109

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825 Arnold Drive, Suite 114 ▪ Martinez, California 94553 ▪ (510) 229-1512 / fax (510) 229-1526

WASHINGTON TOTAL PETROLEUM HYDROCARBONS - GASOLINE (WTPH-G)

Quality Assurance and Control Data - Soil/Water

Laboratory Number 91203

Compound	Method Blank (mg/kg)	RL (mg/kg)	Spike Recovery (%)	Limits (%)	RPD (%)
Gasoline:	ND<1	1	88/97	70-130	10%
Benzene:	ND<.005	.005	82/95	70-130	15%
Toluene:	ND<.005	.005	90/103	70-130	13%
Ethyl Benzene:	ND<.005	.005	70/90	70-130	25%
Total Xylenes:	ND<.005	.005	87/102	70-130	16%

Definitions:
ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
mg/kg = Parts per million (ppm)
QC File No. 91203

Senior Chemist
Account Manager

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 ▪ Martinez, California 94553 ▪ (510) 229-1512 / fax (510) 229-1526

WHITE SHIELD INC.
Attn: C.ROBINSON

Project APE 3694
Reported 07-March-1994

ANALYSIS FOR TCLP LEAD
by EPA Method 1311 & SW-846 6010
Extraction by Toxicity Characteristic Leachate Procedure

Chronology

Laboratory Number 91203

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
APE-3694-110	02/25/94	02/26/94	03/01/94	03/04/94		1
APE-3694-101SP,102SP	02/25/94	02/26/94	03/01/94	03/04/94		6

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WHITE SHIELD INC.
Attn: C.ROBINSON

Project APE 3694
Reported 07-March-1994

ANALYSIS FOR TCLP LEAD

Laboratory Number	Sample Identification	Matrix
91203- 1	APE-3694-110	Soil
91203- 6	APE-3694-101SP, 102SP	Soil

RESULTS OF ANALYSIS

Laboratory Number:	91203- 1	91203- 6
Soluble Lead (Pb):	ND<0.5	ND<0.5
Concentration:	mg/L	mg/L

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 ▪ Martinez, California 94553 ▪ (510) 229-1512 / fax (510) 229-1526

ANALYSIS FOR TCLP LEAD
Quality Assurance and Control Data - Extract

Laboratory Number 91203

Compound	Method Blank (mg/L)	RL (mg/L)	Spike Recovery (%)	Limits (%)	RPD (%)
Soluble Lead (Pb):	ND<0.5	0.5	92/92	75-125	0%

Definitions:
ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
mg/L = Parts per million (ppm)
QC File No. 91203

Senior Chemist
Account Manager

91203

WHITE SHIELD INC.
P. O. BOX 477
GRANDVIEW, WA. 98930
(509) 882-1144
(509) 882-4566 FAX

CHAIN OF CUSTODY

PROJECT NAME Nades Chevron
PROJECT # APE 3694
DESTINATION Superior Analytical Lab
SAMPLER C Robinson
DATE 2/25/94 TIME

1/2

	SAMPLE NUMBER	ANALYSIS REQUESTED: WTPH-G	BETX	TCLP Lead	
1	APE-3694-110	X	X	X	
2	APE-3694-111	X	X		
3	APE-3694-112	X	X		
4	APE-3694-114	X	X		Composite #114 & 115
	APE-3694-115				
5	APE-3694-118	X	X		Composite # 118 & 119
	APE-3694-119				
6	APE-3694-101SP	X	X	X	Composite # 101SP & 102SP
	APE-3694-102SP				

RELINQUISHED BY (SIGN) 1. Chris Rea
DATE 2/25/94 TIME Noon

RELINQUISHED BY (SIGN) 2.
DATE TIME

RELINQUISHED BY (SIGN) 3.
DATE TIME

RELINQUISHED BY (SIGN) 4.
DATE TIME

RECEIVED BY (SIGN) 1. Suman
DATE 2/26 TIME 11:00am

RECEIVED BY (SIGN) 2.
DATE TIME

RECEIVED BY (SIGN) 3.
DATE TIME

RECEIVED BY (SIGN) 4.
DATE TIME

METHOD OF SHIPMENT

SHIPPED BY (SIGN)

RECEIVED FOR LABORATORY (SIGN)
DATE TIME

Please Initial: SH
~~Samples Stored in ice.~~ ✓ 4°C
~~Appropriate containers~~ ✓
Samples preserved NA
VOA's without headspace NA
0 C

WHITE SHIELD INC.
P. O. BOX 477
GRANDVIEW, WA. 98930
(509) 882-1144
(509) 882-4566 FAX

CHAIN OF CUSTODY

PROJECT NAME Naches Chevron
PROJECT # APE 3694
DESTINATION Superior Analytical Lab
SAMPLER C. Robinson
DATE 2/25/94 TIME

2/2

SAMPLE NUMBER	ANALYSIS REQUESTED														
	WTPH-G	BETX													
APE-3694-1045P	X	X													
7 APE-3694-1055P															
APE-3694-2015P	X	X													
8 APE-3694-2025P															

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
1.	2.	3.	4.
DATE TIME	DATE TIME	DATE TIME	DATE TIME
2/25/94 Noon			
RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)	RECEIVED BY (SIGN)
1.	2.	3.	4.
DATE TIME	DATE TIME	DATE TIME	DATE TIME
METHOD OF SHIPMENT	SHIPPED BY (SIGN)	RECEIVED FOR LABORATORY (SIGN)	DATE TIME

Sample Log-In [illegible] Checklist   Job No.: ____________

Chemist's Signature ______SH______

Chain of Custody (COC) Items (checked by)	YES/NO	[illegible]
Did anyone forget to sign the COC with date and time?		
Empty Boxes crossed out?		
Total number of containers: on COC = 13 Actual count = 13		
Matrix (circle one) Soil Water Water & Soil Other (Specify)		
Any samples received broken?		
Sample ID on container match the COC?		
Special Turn-Around-Time needed to meet holding times?		
Holding Time Up!		
Any Water Samples for 410.1, OG (5520), or AK102, Metals?		
If yes is the pH checklist filled out and attached?		
Cooler Temperature:		
Sample Condition Stamp filled out?		
Sample Log In/Job Jacket Items (checked by)	**YES/NO**	**[illegible]**
Job No. at the top of the COC?		
Do these match the COC? Client Contact Proj. No. PO No. Bill To		
Date received and date due correct? Turn-Around-Time: (circle) 24hrs 48hrs 72hrs 5days 5-7 days > 7 days		
Holding Time and special requests on the Job Jacket?		
Was the sample matrix and sample ID or name entered incorrectly?		
Sample location, cooler temp., and preservative correct on Job Jacket?		
Analyses on COC match Job Jacket?		
Were any analyses request ambiguous?		
Corrective action is required when discrepancies are found on the COC, when incorrect sample amount, container, or preservative is sent, when samples are received broken or outside of holding times, and if analysis requests are ambiguous. For a more detailed explanation refer to the LOGIN SOP and the Laboratory QAP. Please star items above that require corrective action and attach a corrective action form.		
Is a Corrective Action form attached?		
Subcontracted work sent out:(date) Subcontracted COC in Job Jacket file?		

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 ▪ Martinez, California 94553 ▪ (510) 229-1512 / fax (510) 229-1526

WHITE SHIELD INC.
Attn: C.ROBINSON

Project APE 3696
Reported 07-March-1994

WASHINGTON TOTAL PETROLEUM HYDROCARBONS - GASOLINE
(WTPH-G)
and Benzene, Toluene, Ethyl Benzene, and Xylenes

Chronology

Laboratory Number 91204

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
APE-3694-130W	02/25/94	02/26/94	03/03/94	03/03/94		1

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 ▪ Martinez, California 94553 ▪ (510) 229-1512 / fax (510) 229-1526

WHITE SHIELD INC.
Attn: C.ROBINSON

Project APE 3696
Reported 07-March-1994

WASHINGTON TOTAL PETROLEUM HYDROCARBONS - GASOLINE (WTPH-G)

Laboratory Number	Sample Identification	Matrix
91204- 1	APE-3694-130W	Water

RESULTS OF ANALYSIS

Laboratory Number: 91204- 1

Gasoline:	2300
Benzene:	1.6
Toluene:	5.9
Ethyl Benzene:	43
Total Xylenes:	290
Concentration:	ug/L

-- Surrogate % Recoveries --
Trifluorotoluene (SS): MI*
* - Matrix Interference

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 ▪ Martinez, California 94553 ▪ (510) 229-1512 / fax (510) 229-1526

WASHINGTON TOTAL PETROLEUM HYDROCARBONS - GASOLINE (WTPH-G)

Quality Assurance and Control Data - Soil/Water

Laboratory Number 91204

Compound	Method Blank (ug/L)	RL (ug/L)	Spike Recovery (%)	Limits (%)	RPD (%)
Gasoline:	ND<50	50	101/99	70-130	2%
Benzene:	ND<0.5	0.5	105/103	70-130	2%
Toluene:	ND<0.5	0.5	107/106	70-130	1%
Ethyl Benzene:	ND<0.5	0.5	72/70	70-130	3%
Total Xylenes:	ND<0.5	0.5	105/103	70-130	2%

Definitions:
ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
ug/L = Parts per billion (ppb)
QC File No. 91204

Afsaneh Salimpour
Senior Chemist
Account Manager

91704

WHITE SHIELD INC.
P. O. BOX 477
GRANDVIEW, WA. 98930
(509) 882-1144
(509) 882-4566 FAX

CHAIN OF CUSTODY

PROJECT NAME Naches Chevron
PROJECT # APE 3694
DESTINATION Superior Analytical Lab
SAMPLER C. Robinson
DATE 2/25/94 TIME

SAMPLE NUMBER	WTPH-G	BETX											
APE-3694-130W	X	X					water						

Please Initial: SH
~~Samples Stored in ice~~ ✓
Appropriate containers ✓ 4°C
~~Samples preserved~~ N
VOA's without headspace OK
Comments: ✓

RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)	RELINQUISHED BY (SIGN)
1. CRo	2.	3.	4.
DATE 2/25/94 TIME Noon	DATE TIME	DATE TIME	DATE TIME
RECEIVED BY (SIGN)	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**	**RECEIVED BY (SIGN)**
1. Suman	2.	3.	4.
DATE 2/26 TIME 11:00	DATE TIME	DATE TIME	DATE TIME
METHOD OF SHIPMENT	**SHIPPED BY (SIGN)**	**RECEIVED FOR LABORATORY (SIGN)**	**DATE TIME**

APPENDIX C
SITE ASSESSMENT CHECKLIST

UNDERGROUND STORAGE TANK
Site Check/Site Assessment Checklist

WASHINGTON STATE DEPARTMENT OF ECOLOGY

For Office Use Only	
Owner #	
Site #	002467

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 the Department of 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 the tanks for which the site check and site assessment is being conducted. Use the tank ID number 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): 002467

Site/Business Name: Naches Chevron

Site Address: 10171 Hwy 12 (Street) Telephone: (509) 653-2350

(City) (State) (ZIP-Code)

RECEIVED
MAR 22 1994
ECOLOGY

TANK INFORMATION

Tank ID No.	Tank Capacity	Substance Stored
1	10,000 gal	Leaded Gasoline
2	10,000 gal	Unleaded Gasoline
3	5,000 gal	Unleaded 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): ____

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 the vicinity map.	CR	
2.	A brief summary of information obtained during the site inspection is provided. (see Section 3.2 in the Site Assessment Guidance)	CR	
3.	A summary of UST system data is provided. (see Section 3.1)	CR	
4.	The soils characteristics at the UST site are described. (see Section 5.2)	CR	
5.	Is there apparent groundwater in the tank excavation?	YR	
6.	A brief description of the surrounding land is provided. (see Section 3.1)	CR	
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.	CR	
8.	A sketch or sketches showing the following items is provided:		
	- location and ID number for all field samples collected	CR	
	- groundwater samples distinguished from soil samples (if applicable)	CR	
	- samples collected from stockpiled excavated soil	CR	
	- tank and piping locations and limits of excavation pit	CR	
	- adjacent structures and streets	CR	
	- approximate locations of any on-site and nearby utilities	CR	
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)	CR	
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.	CR	
11.	Any factors that may have compromised the quality of the data or validity of the results are described.	CR	
12.	*The results of this site check/site assessment indicate that a confirmed release of regulated substance has occured.*	CR	

SITE ASSESSOR INFORMATION

Charles B Robinson
PERSON REGISTERED WITH ECOLOGY

White Shield Inc
FIRM AFFILIATED WITH

BUSINESS ADDRESS: P.O. Box 2177

TELEPHONE: (509) 882-1144

Grandview
CITY

WA
STATE

98930
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.

3/14/94
Date

Charles B Robinson
Signature of Person Registered with Ecology

APPENDIX D
WELL LOGS

65

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. 007891

Water Right Permit No. _____

(1) OWNER: Name PHILIP E. ROBBINS Address 1905 LANDERHOLM AVE YAKIMA, WA.

(2) LOCATION OF WELL: County YAKIMA NW¼ SE¼ Sec 4 T. 14 N., R. 17 W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) 14831 HWY 12 NACHES, WA.

(3) PROPOSED USE: ☒ Domestic ☐ Industrial ☐ Municipal ☐ ☐ Irrigation ☐ Test Well ☐ Other ☐ ☐ DeWater

(4) TYPE OF WORK: Owner's number of well (if more than one) _____

Abandoned ☐ New well ☒ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☒ Driven ☐ Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches. Drilled 30 feet. Depth of completed well 30 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from +1 ft. to 30 ft.

Welded ☒ _____ " Diam. from _____ ft. to _____ ft.

Liner installed ☐

Threaded ☐ _____ " Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☒

Type of perforator used _____

SIZE of perforations _____ in. by _____ in.

_____ perforations from _____ ft. to _____ ft.

_____ perforations from _____ ft. to _____ ft.

_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☐ No ☒

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel _____

Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 18' ft.

Material used in seal BENTONITE

Did any strata contain unusable water? Yes ☐ No ☒

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level 6 ft. below top of well Date 5-27-88

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (Cap, valve, etc.))

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☐ No ☒ If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

" " " "

" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test 10 gal./min. with 10 ft. drawdown after 1 hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
SOIL	0	3
COBBLES + GRAY SILT	3	12
GRAVEL + SAND	12	15
COBBLES & SILT	15	29
SAND - GRAY - MED.	29	30

Work started 5-18, 19 88 Completed 5-27-, 19 88

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME CARVO CONSTRUCTION (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 13 W. SLAVIN RD. YAKIMA, WA.

(Signed) _____ License No. 0700 (WELL DRILLER)

Contractor's Registration No. CARVODC*123DW Date 5-27, 19 88

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20 (10/87) -1329- 3

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. ____
Permit No. ____

(1) OWNER: Name GREG MILAY Address RT. 1 BOX 15260 H/WAY 12 NACHES

(2) LOCATION OF WELL: County YAKIMA NW ¼ SE ¼ Sec. 4 T. 14 N., R. 17 W.M. KV.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ____
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☒
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 2 inches.
Drilled ____ ft. Depth of completed well 26' ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 2 " Diam. from 0 ft. to 26' ft.
Threaded ☐ " Diam. from ____ ft. to ____ ft.
Welded ☒ " Diam. from ____ ft. to ____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used ____
SIZE of perforations ____ in. by ____ in.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.

Screens: Yes ☐ No ☒
Manufacturer's Name ____
Type ____ Model No ____
Diam. ____ Slot size ____ from ____ ft. to ____ ft.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: ____
Gravel placed from ____ ft. to ____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 6' ft.
Material used in seal BENTONITE & CEMENT GROUT
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ____ Depth of strata ____
Method of sealing strata off ____

(7) PUMP: Manufacturer's Name ____
Type: ____ H.P. ____

(8) WATER LEVELS: Land-surface elevation above mean sea level APP 1470 ft.
Static level 8 ft. below top of well Date 1-10-77
Artesian pressure ____ lbs. per square inch Date ____
Artesian water is controlled by ____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? ____
Yield: 10 gal./min. with ____ ft. drawdown after ____ hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ____
Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.
Artesian flow ____ g.p.m. Date ____
Temperature of water 56 Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:
Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
TOP SOIL	0	1
CONGLOMERATE (MED B)	1	26

RECEIVED
FEB 25 1977
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

Work started 1-10, 19 77 Completed 1-10, 19 77

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME JENSEN'S WELL DRILLING & DRIVING
(Person, firm, or corporation) (Type or print)

Address 1603 SO. 18TH AVE.

[Signed] Lawrence Jensen
(Well Driller)

License No. 0218 Date 1-21, 19 77

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

3

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

(1) OWNER: Name Raymond MAYS Address .....

(2) LOCATION OF WELL: County Yakima SW ¼ NW ¼ Sec 4 T. 14 N., R. 17 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☑ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 42 ft. Depth of completed well 37 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from +2 ft. to 38 ft.
Threaded ☐ ..... " Diam. from ..... ft. to ..... ft.
Welded ☐ ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☑
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☑
Manufacturer's Name .....
Type ..... Model No .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☑ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☑ No ☐ To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 8 ft. below top of well Date 5/22/87
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test ..... gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Top Soil	0	1
Boulders, Cobbles	1	12
Conglomerate, Cobbles, Sand, Silt, Tite	12	19
Gravel, Cobbles	19	23
Conglomerate, gray	23	30
Gravel, Silt, Sand	30	42
ABT 25 GPM		

RECEIVED
AUG 27 1987
DEPARTMENT OF ECOLOGY
CENTRAL REGION OFFICE

Work started 5/18, 1987 Completed 5/22, 1987

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Cascade Well Drilling
(Person, firm, or corporation) (Type or print)

Address 1308 Yakima Valley Hwy

[Signed] .....
(Well Driller)

License No. 0073 Date 5/22, 1987

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

3

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name on Brown Address 7190 Craig Rd. Naches Wa.

LOCATION OF WELL: County Yakima — NW ¼ SW ¼ Sec. 4 T. 14 N., R. 17 W.M.

ring and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 46 ft. Depth of completed well 46 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from +1 ft. to 45 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 9 ft. below top of well Date 12/19/85
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 50 gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Overburden & boulders	0	17
Gravel, sand, & water	17	22
sand, gravel, boulders & brown clay	22	45
coarse gravel, boulders & water	45	46

RECEIVED
DEC 20 1985
DEPARTMENT OF ECOLOGY

Work started 12/17/85, 19 Completed 12/19/85, 19

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Vernon L. Rank
(Person, firm, or corporation) (Type or print)

Address 5503 Ahtanum Rd. Yakima, Wa. 98903

[Signed] Vernon L. Rank
(Well Driller)

0154 12/20/85

License No. Date , 19

(USE ADDITIONAL SHEETS IF NECESSARY)

FOX 050-1-20

3

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. ....

(1) OWNER: Name Cooley, James Address 14471 Riverside Ln., Naches, WA

(2) LOCATION OF WELL: County Yakima — ¼ ¼ Sec 4 T 14 N., R 17E W.M.

ng and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 35 ft. Depth of completed well 35 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 8 ft.
Threaded ☐ ..... " Diam. from ..... ft. to ..... ft.
Welded ☒ ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☒
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name .....
Type ..... Model No .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal Cement grout
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 9 ft. below top of well Date 5/4/74
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

ate of test .....
...er test 30 gal./min. with 21 ft. drawdown after 1 hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
~~Boulders, Med.~~	~~0~~	~~8~~
~~Boulders, Gravel, Cemented~~	~~8~~	~~19~~
~~Boulders, Gravel, Large, WB~~	~~19~~	~~35~~

RECEIVED
OCT 1974
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

Work started 5/4/74 Completed 5/4/74

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME B & B Well Drilling
(Person, firm, or corporation) (Type or print)

Address Rt 7 Box 600-A, Yakima, Wn 98903

[Signed] Harvey Blackman
(Well Driller)

License No. 0037 Date 5/21/74, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

WATER WELL REPORT

(5) LOCATION OF WELL

(6) USE

(7) TYPE OF WORK

(8) DIMENSIONS

(9) CONSTRUCTION DETAILS

(10) WELL LOG

(11) WELL TESTS

(12) WELL DRILLER'S STATEMENT

NAME

Address

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

(1) OWNER: Name Mildred Walton Address

(2) LOCATION OF WELL: County NE ¼ SW ¼ Sec 4 T. 14 N., R 7 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☑ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 40 ft. Depth of completed well 38+ ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from +1 ft. to 38 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☐ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☑
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☑
Manufacturer's Name
Type Model No
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☑ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☑ No ☐ To what depth? 20+ ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 4 ft. below top of well Date 6-27-67
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Boulders Sand, Gravel	0	33
Conglomerate, Sand Water Shut off	33	37
Gravel, clean	37	40

RECEIVED
AUG 27 1967
DEPARTMENT OF ECOLOGY
CENTRAL REGION OFFICE

Work started 6-23, 19 67 Completed 6-24, 19 67

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Cassel Drilling Co. Inc.
(Person, firm, or corporation) (Type or print)

Address 130 E Columbia

[Signed] (Well Driller)

License No. 073 Date 6-27, 19 67

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

3

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nent of Ecology
1 Copy — Owner's Copy
, Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No

(1) OWNER: Name William Jacobson Address Briskey Lane Naches, WA

(2) LOCATION OF WELL: County YAKIMA — SE ¼ NE ¼ Sec 4 T 14 N., R 17 W.M.

Bearing and distance from section or subdivision corner 145-14

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 40 ft. Depth of completed well 40 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 10 " Diam. from 0 ft. to 18 ft.
Threaded ☐ 6 " Diam. from 0 ft. to 40 ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal bentonite
Did any strata contain unusable water? Yes ☒ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 10 ft. below top of well Date 4-22-77
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 3.0 gal./min. with 6 ft. drawdown after 3 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
top soil	0	3
boulders	3	15
blue sand	15	25
gravel	25	28
blue sand	28	32
coarse sand	32	36
brown clay	36	37
gravel	37	40

RECEIVED
JUN 13 1977
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

Work started 4-20, 19 77 Completed 4-22, 19 77

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME A' Bach Well Drlg.
(Person, firm, or corporation) (Type or print)

Address P.O. Box 48 Yakima, WA. 98907

[Signed] (Well Driller)

License No. 0702 Date 5-2, 19 77

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

3

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name W. M. Birge Address 41 Jennings Lane, Naches Wa.

(2) LOCATION OF WELL: County Yakima — SW ¼ NW ¼ Sec 4 T 14 N., R 17 W.M.

Bearing and distance from section or subdivision corner

PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 55 ft. Depth of completed well 55 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from +1 ft. to 54 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 4 ft. below top of well Date 4/29/88
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
ler test gal./min. with ft. drawdown after hrs.
esian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Topsoil	0	3
Gravel & sand	3	7
Gravel, sand, & water	7	10
Consolidated rock & water	10	20
Gravel, sand, & water	20	55

MAY 25 1988

Work started 4/28/88, 19 Completed 4/29/88, 19

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Water Wells Drilling
(Person, firm, or corporation) (Type or print)
Address 5503 Ahtanum Rd. Yakima, Wa. 98903

[Signed] (Well Driller)
1435
License No. Date 4/30/88, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

3

225

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. 25915

Water Right Permit No.

(1) OWNER: Name Doyle Lyons Address 10650 Old Naches Rd - Naches

LOCATION OF WELL: County Yakima SE¼ NW¼ Sec 4 T. 14 N., R. 17 W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address)

(3) PROPOSED USE: ☒ Domestic ☐ Industrial ☐ Municipal ☐ ☐ Irrigation ☐ Test Well ☐ Other ☐ ☐ DeWater

(4) TYPE OF WORK: Owner's number of well (if more than one)

Abandoned ☐ New well ☒ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☐ Driven ☐ Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches. Drilled 62 feet. Depth of completed well 60 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: ~~6~~ 6" Diam. from 0 ft. to 42 ft.

Welded ☒ Liner installed ☐ Threaded ☐ _____" Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☒

Type of perforator used

SIZE of perforations _____ in. by _____ in.

_____ perforations from _____ ft. to _____ ft.

_____ perforations from _____ ft. to _____ ft.

_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☐ No ☒

Manufacturer's Name

Type _____ Model No.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel

Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 19 ft.

Material used in seal

Did any strata contain unusable water? Yes ☐ No ☒

Type of water? _____ Depth of strata

Method of sealing strata off

(7) PUMP: Manufacturer's Name

Type: _____ H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level 10 ft. below top of well Date 8-15-89

Artesian pressure _____ lbs. per square inch Date

Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☒ No ☐ If yes, by whom? W/ Rig

Yield: 30 gal./min. from 60 ft. drawdown after _____ hrs.

" 20 " " 37 " "

" " " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date

Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Topsoil	0	2
Boulders	2	18
Gravel layers	18	38
Sandstone & Gravel (water)	38	62

ENTERED

Work started 8-16 89 19. Completed 8-15 , 1989

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Eastwood Drilling Inc (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 2202 River Rd

(Signed) Clyde M Eastwood (WELL DRILLER) License No. 113

Contractor's Registration No. EASTWDI136QR Date 8-18 , 1989

(USE ADDITIONAL SHEETS IF NECESSARY)

2211

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. 11949

Water Right Permit No. _____

OWNER: Name Layman Lumber Address _____

LOCATION OF WELL: County Yakima NW NW ¼ Sec 4 T. 14 N., R. 17 W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) _____

(3) PROPOSED USE: ☑ Domestic ☐ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐ DeWater

(4) TYPE OF WORK: Owner's number of well (if more than one) _____

Abandoned ☐ New well ☑ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☐ Driven ☐ Reconditioned ☐ Rotary ☑ Jetted ☐

(5) DIMENSIONS: Diameter of well _____ inches.

Drilled _____ feet. Depth of completed well _____ ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from +1 ft. to 57 ft.

Welded ☐ Liner installed ☐ Threaded ☐ _____ " Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☑

Type of perforator used _____

SIZE of perforations _____ in. by _____ in.

_____ perforations from _____ ft. to _____ ft.

_____ perforations from _____ ft. to _____ ft.

_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☐ No ☑

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☑ Size of gravel _____

Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☑ No ☐ To what depth? 20+ ft.

Material used in seal Bentonite

Did any strata contain unusable water? Yes ☐ No ☐

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level 10 ft. below top of well Date 11-3-89

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☐ No ☐ If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

" " " "

" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Boulders, Cobbles	0	12
Sand, Silt, Gravel	12	17
Gravel, Silt, Tight	17	23
Sand, Gravel, Silt	23	55
Cobbles, Gravel, Clay	55	58
410 + GPM		

NOV 20 1989

Work started 11-3 19 89. Completed 11-3 19 89

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Cassel Drilling (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 130 Voelker Yakima Wa

(Signed) _____ (WELL DRILLER) License No. 73

Contractor's Registration No. Cassedw317CQ Date 11-3 19 89

(USE ADDITIONAL SHEETS IF NECESSARY)

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. D
Permit No. .....

(1) **OWNER:** Name Robert Burns Address .....

LOCATION OF WELL: County Yakima NW ¼ NW ¼ Sec 4 T. 14 N., R. 17 W.M.

ng and distance from section or subdivision corner

(3) **PROPOSED USE:** Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) **TYPE OF WORK:** Owner's number of well (if more than one) ....
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☑ Jetted ☐

(5) **DIMENSIONS:** Diameter of well 6 inches.
Drilled 57 ft. Depth of completed well 53 ft.

(6) **CONSTRUCTION DETAILS:**
Casing installed: 6 " Diam. from +1 ft. to 51½ ft.
Threaded ☐ ..." Diam. from ..... ft. to ..... ft.
Welded ☑ ..." Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☑
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☑
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☑ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☑ No ☐ To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) **PUMP:** Manufacturer's Name Sacuzzi
Type: SJ-6 H.P. ½

(8) **WATER LEVELS:** Land-surface elevation above mean sea level .... ft.
Static level 11 ft. below top of well Date 10/27/86
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test ..... gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☐

(10) **WELL LOG:**

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Top Soil	0	6
Boulders, cobbles, gravel silt	6	18
Conglomerate, coarse	18	24
Gravel, silt, sand, clay	24	36
Gravel, sand, water	36	40
Conglomerate, clay & gravel	40	52
Gravel, water	52	57
35 GPM		

DEC 15 1986
DEPT. OF ECOLOGY
CENTRAL WASHINGTON OFFICE

Work started 10/23, 19 86. Completed 10/27, 19 86

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Cassel Well Drilling
(Person, firm, or corporation) (Type or print)

Address 1304 Washington Ave Yakima

[Signed] .....
(Well Driller)

License No. 0073 Date 10/27, 19 86

(USE ADDITIONAL SHEETS IF NECESSARY)

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name DANIEL RAZEY Address PO Box 61 Naches Wa

LOCATION OF WELL: County Yakima NE¼ NW¼ Sec. 4 T. 14 N., R. 17 W.M.

...ng and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☑ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 61 ft. Depth of completed well 61 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: ..." Diam. from ... ft. to ... ft.
Threaded ☐ ..." Diam. from ... ft. to ... ft.
Welded ☑ 6" Diam. from +2 ft. to 38 ft.

Perforations: Yes ☐ No ☑
Type of perforator used ...
SIZE of perforations ... in. by ... in.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.

Screens: Yes ☐ No ☑
Manufacturer's Name ...
Type ... Model No. ...
Diam. ... Slot size ... from ... ft. to ... ft.
Diam. ... Slot size ... from ... ft. to ... ft.

Gravel packed: Yes ☐ No ☑ Size of gravel: ...
Gravel placed from ... ft. to ... ft.

Surface seal: Yes ☑ No ☐ To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ... Depth of strata ...
Method of sealing strata off ...

(7) PUMP: Manufacturer's Name ...
Type: ... H.P. ...

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 9 ft. below top of well Date ...
Artesian pressure ... lbs. per square inch Date ...
Artesian water is controlled by ... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? ...
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ...
Bailer test ... gal./min. with ... ft. drawdown after ... hrs.
Artesian flow ... g.p.m. Date ...
Temperature of water ... Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Top Soil	0	6
Sand, gravel	6	9
Conglomerate, gray, very hard	9	15
gravel, sand	15	18
Conglomerate, gravel lenses, clay lenses, brown	18	38
Sand stone, brown, clay lenses, S/water	38	49
Clay, tan	49	54
Sand stone, conglomerate, brown, w/ water	54	61
Aft Test: ABT 25 GPM		

RECEIVED
DEPARTMENT OF ECOLOGY
CENTRAL REGION OFFICE

Work started ... 19... Completed 5/10 ... 1983

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Cassel Well Drilling
(Person, firm, or corporation) (Type or print)

Address 1308 Woolner, Yakima Wa

[Signed] Larry R. Cassel
(Well Driller)

License No. 0073 Date 5/11 ... 1983

SR 12-5-83

(USE ADDITIONAL SHEETS IF NECESSARY)

FOX 050-1-20

3

APPENDIX E
SAGE EARTH SCIENCES, INC.
OCTOBER 1992, REPORT

Interim Status Report

For a Limited Site Check and
Petroleum Contaminated Soil Removal Activities
At The Naches Chevron Facility,
10171 Highway 12, Naches, WA

Prepared For:

Mr. Mike Abhold
10171 Highway 12
Naches, WA 98937

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

October, 1992

Executive Summary

Naches Chevron retained Sage Earth Sciences, Inc. (Sage) to perform limited site check services upon discovery of a leak in a supreme unleaded gasoline line fitting. Sage used a Flame Ionization Detector (FID) in the area of the leak. High concentrations of organic vapors were detected with the FID in soils adjacent to the fitting.

Based upon field screening results, Appleland Pump and Equipment provided backhoe services to remove approximately twelve (12) cubic yards of Petroleum Contaminated Soil (PCS) in the area of the supreme unleaded gasoline tank. The PCS is currently stockpiled at the site upon visqueen.

One soil sample and one groundwater sample were submitted to Materials Testing & Consulting, Burlington, WA for characterization of petroleum and lead concentrations immediately downgradient of the supreme unleaded gasoline tank. In addition, a sample of petroleum sheen was collected from the surface of the groundwater. This sample was submitted to Friedman & Bruya, Inc., Seattle, WA for fingerprint characterization by capillary gas chromatography.

The analyses found that petroleum concentrations in soil and groundwater adjacent to the supreme unleaded gasoline tank exceed "Method A Cleanup Levels" (Cleanup Levels) as established in the Model Toxics Control Act Cleanup Regulation, Chapter 173-340 WAC. Lead concentrations also exceed the Cleanup Levels in the groundwater adjacent to this tank. Based upon the analytical results, Sage finds that remedial action is necessary to reduce gasoline, aromatic hydrocarbon and lead concentrations in groundwater at the site. Remedial action is also necessary to reduce gasoline concentrations in soil adjacent to the supreme unleaded tank. Field screening suggests that petroleum contamination may also exist beneath the unleaded gasoline tank.

Sage recommends installation of at least three (3) groundwater monitoring wells at the site to allow determination of relevant hydrogeologic characteristics. Additional wells and/or borings may be necessary to define the extent of groundwater contamination. Upon characterizing the contaminant plume, an appropriate remedial option may be chosen.

TABLE OF CONTENTS

1.0 Introduction

1.1 Purpose

The purpose of this document is to report findings of a limited site check and limited Petroleum Contaminated Soil (PCS) removal activities at the Naches Chevron facility in Naches, Washington.

1.2 Background Information

The Naches Chevron facility is operated and partially owned by Mr. Mike Abhold. The facility consists of a station which utilizes three (3) Underground Storage Tanks (UST's) to support retail sale of gasoline products. Appleland Pump & Equipment tested the tightness of tanks and lines during August of 1992. The tightness testing discovered a leak in the super unleaded fuel line. Investigation of the leak found that a fitting was loose and gasoline odors were observed in soils adjacent to the fitting.

1.3 Scope of Work

Mr. Mike Abhold retained Sage Earth Sciences, Inc. (Sage) to provide a limited site check services upon discovery of the leak. The initial site check only involved field screening of soil exposed around the fitting. When field screening indicated that organic vapors were present, Mr. Willis Colwell of Appleland Pump and Equipment provided backhoe services to remove a portion of the Petroleum Contaminated Soil (PCS) adjacent to the super unleaded gasoline tank. Mr. Colwell removed approximately twelve (12) cubic yards of PCS from the area of the super unleaded fuel line coupler. Sage then provided limited field screening and soil/groundwater sampling services.

One soil sample and one groundwater sample were submitted to Materials Testing & Consulting, Burlington, WA for characterization of petroleum and lead concentrations. A sample of petroleum sheen, collected from atop the groundwater, was submitted to Friedman & Bruya, Inc., Seattle, WA for fingerprint characterization by capillary gas chromatography. Sage also performed field screening of soil located under the super unleaded gasoline tank and the regular unleaded gasoline tank.

1.4 Site Location

The facility is located at 10171 Highway 12, Naches, WA. It is situated within the SE 1/4 of the NE 1/4 of the SE 1/4 of Section 4, Township 14 North, Range 17 East, Willamette Meridian. The location of the facility is shown by Figure 1.

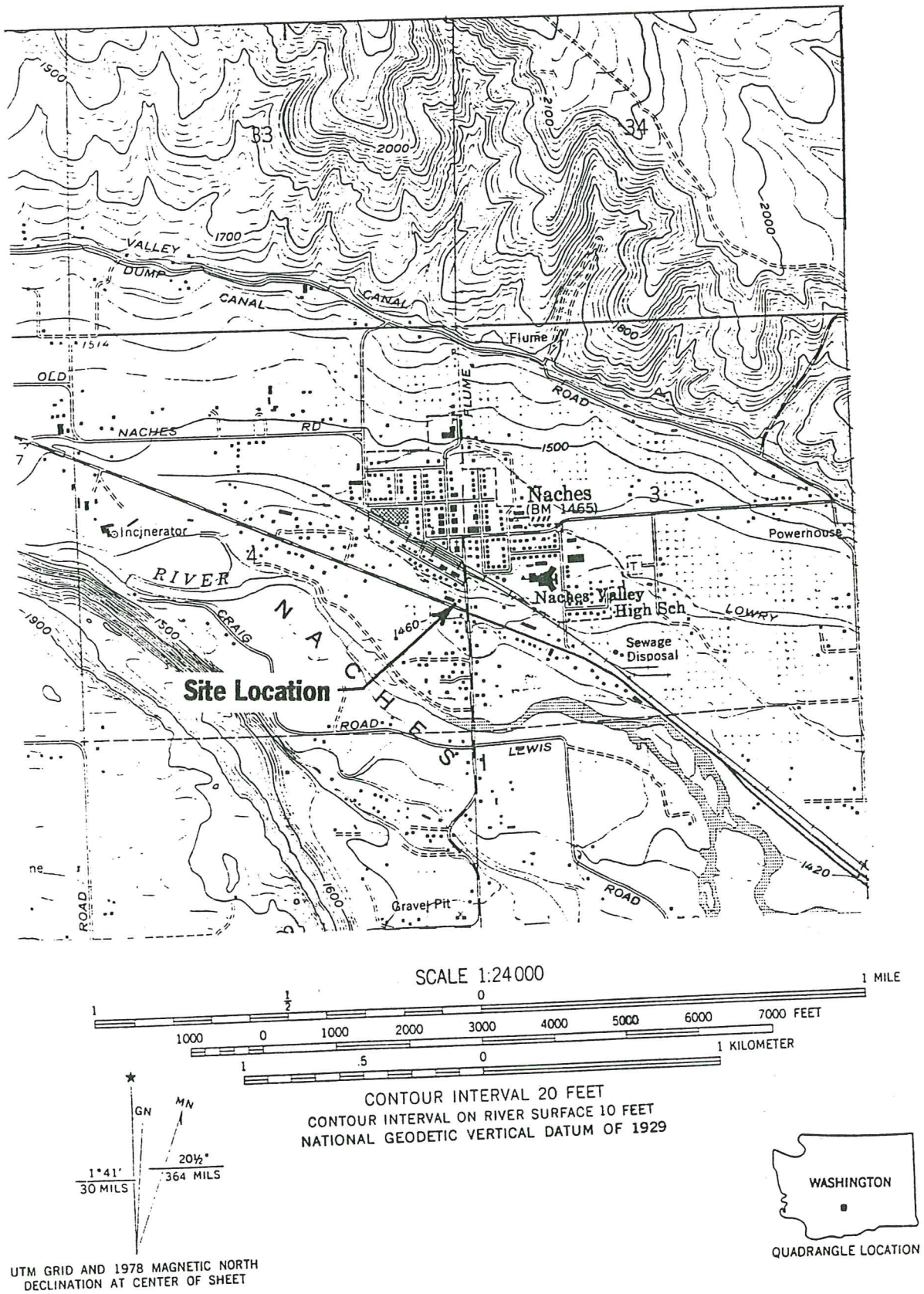


Figure 1. Site Location Map

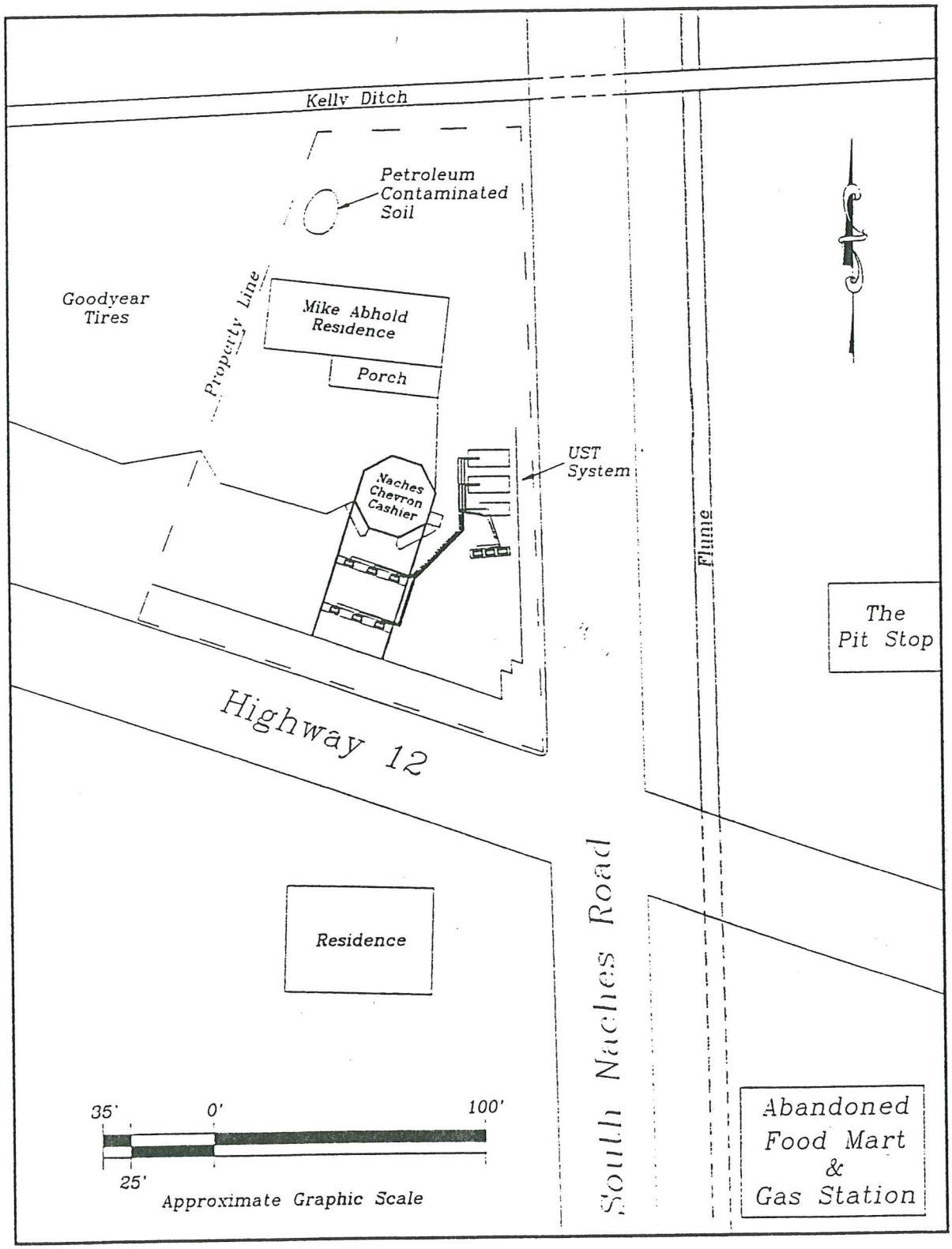


Figure 2. Sketch of Site Layout Showing Adjacent Properties

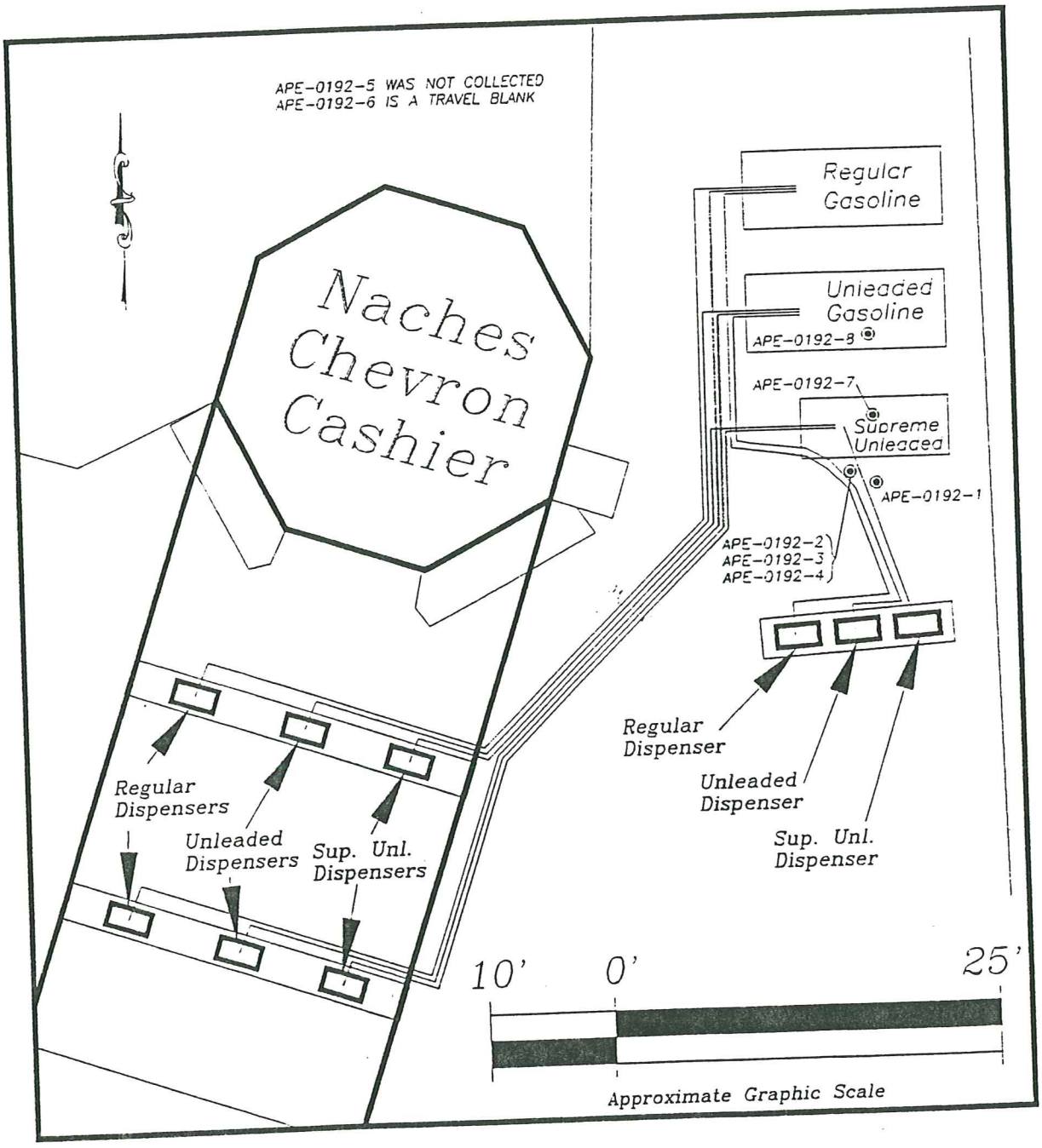


Figure 3. General UST System Layout and Sampling Locations

1.5 Site Description

The site is occupied by a petroleum retail store which is located on the northwest corner of the South Naches Road/Highway 12 intersection. Mr. Abhold, the site owner, lives immediately north of the store. The site utilizes three Underground Storage Tanks (UST's) to support retail sale of gasoline. The UST's are located on the eastern portion of the Naches Chevron property.

The Pit Stop property is located across South Naches Road from the Naches Chevron. Sage is aware that a release of petroleum products into soil and groundwater was confirmed on the Pit Stop property during 1991. An abandoned service station is located on the southeast corner of the intersection. A residence is located on the southwest corner of the intersection. The area north of the site consists of residential properties. Figure 2 presents a sketch of the general vicinity including adjacent land use, surface water and approximate property lines for the site.

The general topography slopes gently south toward the Naches River. The Naches River lies approximately 1500 feet south of the site. The Kelly Ditch lies immediately north of the property and flows to the east. This ditch does not appear to be lined with impermeable material. A flume, which also appears to be unlined, lies immediately east of the South Naches Road.

1.6 UST System Information

The UST system consists of three (3) underground gasoline storage tanks and nine (9) gasoline dispensers. The WSDOE Site ID Number is 002467. The tanks consist of:

- one 10,000 gallon regular gasoline tank,
- one 10,000 gallon regular unleaded gasoline storage tank and
- one 5,000 gallon supreme unleaded gasoline tank.

The gasoline tanks are situated on the eastern portion of the property. A generalized UST system diagram is presented by Figure 3.

1.7 Geology & Hydrogeology

The soil type in the immediate vicinity consists of Naches River Deposits. These deposits are composed of cobbles and boulders up to approximately two (2) feet in diameter.

No hydrogeologic investigation was conducted during the investigation. Groundwater was encountered within an exploratory test pit at a depth of approximately eleven (11) feet below land surface. Groundwater flow at the site may be complicated by the existence a nearby ditch and flume, both of which appear to be unlined.

2.0 Field Activities

2.1 Limited Site Check

Debbie Chulos, an environmental assessor registered with the WSDOE Underground Storage Tank Section, provided field screening services on August 12, 1992. Field screening was accomplished using a Flame Ionization Detector (FID) in the area of the leaking fitting. Field screening with the FID indicated that high concentrations of organic vapors were present in soils adjacent to the supreme unleaded gasoline fuel line fitting. Mr. Abhold requested that no laboratory analyses be performed at this time.

2.2 Limited PCS Removal

Based upon the field screening results, Mr. Willis Colwell of Appleland Pump & Equipment, Wenatchee, WA provided backhoe services to remove a portion of the PCS in the area of the leaking fitting on August 17, 1992. Rodney Heit, an environmental assessor registered with the WSDOE Underground Storage Tank Section, provided field screening and soil/groundwater sampling services at this time. Mr. Colwell removed approximately twelve (12) cubic yards of PCS and stockpiled it at the site. The PCS was placed upon, and covered by, a visqueen liner. The excavation remains open at this time.

Upon termination of contaminated soil removal activities, Sage Earth Sciences, Inc. collected one soil sample (APE-0192-1) from within the excavation. Excavation of PCS exposed groundwater at a depth of approximately eleven (11) feet below land surface. Mr. Heit collected a sample (APE-0192-3) of groundwater from below the groundwater surface and a sample of petroleum sheen (APE-0192-4) from the surface of the groundwater.

The soil sample (APE-0192-1) and one (1) groundwater sample (APE-0192-3) was submitted to Materials Testing and Consulting (MTC), Burlington, WA for laboratory analysis to determine petroleum and lead concentrations. The sample of the petroleum sheen (APE-0192-4) was submitted to Friedman & Bruya, Inc. (FBI), Seattle, WA for fingerprint analysis by capillary gas chromatography. No soil sampling of the PCS stockpile was approved at this time. The analytical results received from MTC are attached to this report as Appendix B. Fingerprint analysis results received from FBI are attached as Appendix C.

2.3 Additional Field Screening

On August 31, 1992, Mr. Heit and David L. Green, a geologist registered with the WSDOE Underground Storage Tank Program, provided additional field screening beneath the supreme unleaded gasoline tank and the regular unleaded gasoline tank. Field screening detected high concentrations of organic vapors beneath both of these tanks.

2.4 Soil Sampling

Although soil characterization was limited to collection and analysis of one (1) sample, the sampling location was chosen at a location considered representative of soil conditions near the groundwater surface. The soil sampling methodology utilized by Sage is described below.

2.4.1 Soil Sampling Methodology

To collect representative soil samples, Sage Earth Sciences uses the methodology outlined below.

1. Select a Protocol A (laboratory certified clean) 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 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.

2.4.2 Soil Sampling Locations

The Field Sampling Log (Appendix A) provides relevant information with regard to each sampling location. Soil sampling locations are shown by Figure 3.

2.4.3 Groundwater Sampling

In collection of the groundwater sample (APE-0192-3) Sage used the methodology outlined below. The location at which the groundwater sample was collected is shown by Figure 3.

1. Select a new sample jar whose volume is adequate for the desired analysis.

2. Using disposable gloves, immerse the sample container under the groundwater surface.

3. Remove the sample cap underwater and allow the sample container to fill completely. Replace the cap underwater to ensure that no airspace is included in the sample. Visually verify the absence of air bubbles in the sample by inverting 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 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 cooler/lid interface. Place appropriate shipping waybills atop the cooler.

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

3.0 Field Screening

Sage used field screening to tentatively identify areas of petroleum contamination. During this investigation, Sage used a Flame Ionization Detector (FID). The FID was used to detect volatile organic compounds in the area of the leaking fitting, within the PCS removal excavation and within exploratory test pits.

3.1 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 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 Field Sampling Log (Appendix A).

4.0 Analytical Parameters & Results

4.1 Analytical Parameters

To determine petroleum and lead concentrations, Sage submitted representative soil and groundwater samples to:

Materials Testing and Consulting
P.O. Box 309
1151 Knudson
Burlington, WA 98233
(206) 757-1400

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

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

In addition to the above mentioned analytical parameters, Sage submitted a sample of petroleum sheen to:

Friedman & Bruya, Inc.
3008-B 16th Avenue West
Seattle, WA 98119
(206) 285-8282

This sample was analyzed for fingerprint characterization by capillary gas chromatography.

4.2 Soil Chemistry

Analyses of a soil sample collected adjacent to the supreme unleaded gasoline tank found:

- aged gasoline at concentrations up to 150 parts per million (ppm),
- no detectable benzene,
- no detectable toluene,
- no detectable ethylbenzene,
- xylenes at concentrations up to 2,997 parts per billion (ppb) and
- no detectable lead.

Soil sample locations are shown by Figure 3 and the analytical results are attached as Appendix B. Comparison of the anaytical results with the Method A Cleanup Levels, established in the Model toxics Control Act Cleanup Regulation, Chapter 173-340 WAC (Appendix C), finds that aged gasoline, concentrations exceed the Cleanup Levels in the area of the leaking fitting. Field screening with the FID also indicates that petroleum contaminated soils exist beneath the supreme unleaded gasoline tank and the unleaded gasoline tank.

4.3 Groundwater Chemistry

Laboratory analysis of the groundwater sample (APE-0192-3) submitted to MTC found:

- gasoline at a concentration of 4.2 parts per million (ppm),
- benzene at a concentration of 12,976 parts per billion (ppb),
- toluene at a concentration of 14,775 ppb,
- ethylbenzene at a concentration of 8,973 ppb,
- xylenes at a concentration of 26,211 ppb and
- lead at a concentration of 0.04 ppm.

Analysis of the petroleum sheen (APE-0192-4) submitted to FBI found low boiling temperature hydrocarbons such as those found in mostly weathered gasoline.

The analytical results received from MTC are attached as Appendix B. The analytical results received from FBI are attached as Appendix C. Comparison of the analytical results with Method A Groundwater Cleanup Levels (Appendix D) indicates that remedial action is necessary to remove gasoline, benzene, toluene, ethylbenzene, xylenes and lead to concentrations below the Cleanup Levels.

5.0 Project Summary

On August 12, 1992, Sage Earth Sciences, Inc. provided field screening services at the Naches Chevron facility, Naches, WA. Field screening was accomplished with a Flame Ionization Detector (FID). High concentrations of organic vapors were encountered in soils adjacent to a fitting which had failed a line tightness test.

Based upon field screening results, limited PCS removal activities were initiated on August 17, 1992. No tanks have been removed to allow complete PCS removal. Approximately twelve (12) cubic yards of PCS were removed from the area of the supreme unleaded gasoline tank and is currently stockpiled at the site. Mr. Abhold has chosen to seek financial assistance prior to continuing with remedial activities.

One soil sample (APE-0192-1) was submitted to Materials Testing and Consulting, Burlington, WA for laboratory analysis. The analytical results found aged gasoline adjacent to the supreme unleaded gasoline tank at concentrations exceeding the Cleanup Levels. Analysis of groundwater samples found aged gasoline, aromatic hydrocarbons and lead at concentrations

exceeding the Cleanup Levels. The vertical and horizontal extent of the contaminant plume has not yet been defined.

6.0 Recommendations

6.1 Petroleum Contaminated Soil Management

Proper management of PCS is essential to minimize potential impact to human health and the environment. Sage Earth Sciences, Inc. recommends that the soil be treated to reduce gasoline concentrations to levels below the Cleanup Levels (100 ppm).

For proper PCS management, Sage Earth Sciences, Inc. recommends the following:

- Characterize the PCS stockpile through collection and analysis of three (3) soil samples.
- Ensure that the PCS is contained upon an impermeable liner to prevent leaching of petroleum into underlying soils. Cover the PCS stockpile with a plastic liner to prevent infiltration of precipitation.
- Restrict public access to the PCS storage site by implementing sturdy fences and signs. The signs should clearly state: Petroleum Contaminated Soil - Keep Out. The sign should also provide the name and telephone number of a contact person in case of emergency.
- Inform the Yakima County Health Department of any PCS transportation and/or treatment activities in writing prior to the activity.
- Inform the Yakima County Clean Air Authority prior to treatment activities.
- Ensure that all personnel working within the storage/treatment area are properly trained (Hazardous Waste Workers) to according to State and Federal regulations.

The Yakima County Environmental Health Department currently establish the standards for PCS treatment facilities and issues permits on a site specific basis. Prior to treatment of the PCS, written notification to the health department must be provided. In addition, the health department should be notified if any amount of PCS is transported off-site.

6.2 Additional Soil Remediation

Since PCS remains in-place at the site, additional soil removal and/or remediation will be necessary to reduce petroleum hydrocarbon concentrations below the Cleanup Levels. If the tanks are removed, it is likely that sufficient PCS removal may be feasible. Otherwise *in-situ* (in-place) treatment will be necessary.

6.3 Groundwater Plume Characterization

Since the extent of groundwater contaminants (gasoline, aromatic hydrocarbons and lead) remains unknown, additional characterization of the groundwater contaminant plume is necessary. The first step in the groundwater characterization process should include defining the groundwater flow direction and the rate of groundwater flow. This will require the installation of at least three groundwater monitoring wells by a licensed well driller. At least one of the monitoring wells should be established upgradient of the UST system to provide background concentrations for contaminants found at the site.

The existence of nearby intermittent surface water will likely complicate determination groundwater flow on a seasonal basis. Additional monitoring wells may be necessary to characterize the groundwater contaminant plume. The number of groundwater monitoring wells needed to characterize the site is unknown. A site specific Sampling and Analysis Plan should be prepared prior to initiating plume characterization activities. Once the plume has been adequately characterized, an appropriate method of groundwater remediation may be chosen. It is likely that air stripping (a pump and treat technology) will be the most effective method of groundwater remediation at the site.

6.4 Survey of Nearby Wells

Sage also recommends conducting a survey of nearby wells to identify those which may be impacted by the release. Every effort should be made to avoid contaminating nearby wells. If nearby wells become contaminated, Naches Chevron may be held responsible to provide potable water to households impacted by the release.

7.0 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 laboratory analyses. Since the scope of work for this project was extremely limited, Sage assumes no responsibility for the lack of information necessary to characterize the site. In addition, this document does not imply that the property is free of other environmental constraints.

Appendix A

Daily Field Sampling Log

Project # APE-0192
Date 8/18/92
Sampler Rod Heit
Sheet 1 of 1

Sample #	Location	Matrix	Staining	Odors	Depth	TOV	TLC
APE-0192-1	South of Sup. Tank	Soil	Grey	gasoline	9'	75,000 ppm	—
APE-0192-2	"	water	sheen	gasoline	10'	75,000 ppm	—
APE-0192-3	"	water	none	gasoline	11'	—	—
APE-0192-4	"	sheen	sheen	gasoline	10'	—	-
APE-0192-6	Travel blank	Distilled water	none	none	—	—	—
APE-0192-7	beneath sup. unl. tank	soil	grey	gasoline	9.5'	75000 ppm	—
APE-0192-8	beneath unl. tank	soil	grey	sewer	9.5'	75000 ppm	—

Appendix B

MTC *Analytical/Environmental Services*

Materials Testing & Consulting, Inc
WSDOE Laboratory # C057
WSDOH Laboratory #46092090

P.O. Box 309
Mount Vernon, WA 98273
(206)424-7560 - FAX (206)424-7550

84
Client: Sage Earth Sciences
1108 Hillcrest
Grandview , WA 98930

Attn: Mr. Dave Green

Date: 8/22/92
Reference: 92-1012

Project: Naches Chevron

Data Report

Lab Number	Sample Description	ug/gm	ng/gm				Surrogate
		TPH	Benzene	Toluene	Ebenzene	Xylenes	% Recovery
84-92-02563.0S	APE-0192-01	150-AG	<10	<10	<10	2997	116
84-92-02565.0W	APE-0192-03	4.2-G	12976	14775	8973	26211	106
84-92-02566.0W	APE-0192-06	<0.1	<1	<1	<1	<1	102
	Methods: WSDOE: WTPH-G/WTPH-D G- Gasoline D-Diesel	Soil/Water	Soil/Water	Soil/Water	Soil/Water	Soil/Water	EPA Acceptance Limits
	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

Materials Testing & Consulting, Inc

Analytical/Environmental Services

P.O. Box 309
Mount Vernon, WA 98273
(206)424-7560 - FAX (206)424-7550

84

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

Attn: Mr. Dave Green

Date: 9/22/92
Reference: 92-1012

Project: Naches Chevron

Data Report

Lab Number	Sample Description	Pb	Unit
84-92-02563.1S	APE-0192-01	<50	mg/Kg
84-92-02565.1W	APE-0192-03	0.04	mg/L
	APE-0192-01 dup	<50	mg/Kg
	APE-0192-03 dup	0.04	mg/L
	Water Method Blank	<0.005	mg/L
	Soil Method Blank	<1	mg/L
	Methods:		
	3050/7420		
	3020/7421	Soil/Water	
	Method Reporting Limit (MRL)	50/.005	
	Maximum Contamination Level (MCL)	250/.050	

L.J. Henderson, PhD
Lab Director

M921012XLS

SAGE
Earth Sciences, Inc.
602 Cherryhill Lane
Zillah, WA 98953
(509) 829-6400

CHAIN-OF-CUSTODY FORM

Project Name NACHES / CHEVRON
Project Number APE-0192
Sampler RODNEY HEIT
Date 8/18/92 Time 1:00 - 3:00 PM
Destination MATERIALS TESTING & CONSULTING

Sample Number	Matrix	Number of Containers	Container Size	Analyses Requested: HC1D	WTPHD	WTPHG	7421	602	8020	ARCHIVE
APE-0192-1	SOIL	1	8 oz	X	X	X	X		X	
APE-0192-2	H_2O	1	1							X
APE-0192-3	H_2O	3	1 240 ml	X	X	X	X	X		
APE-0192-6	H_2O	1	40 ML	X	X	X		X		

Relinquished by: Rodney Heit
Date 8/18/92 Time 5:00 PM

Relinquished by:
Date ____ Time ____

Relinquished by:
Date ____ Time ____

Relinquished by:
Date ____ Time ____

Relinquished by:
Date ____ Time ____

Recieved at laboratory by: 92-1012
Date 8/19/92 Time ____

[redacted]-92 8:00 AM

SAGE Earth Sciences, Inc.

CHAIN OF CUSTODY

Project Name NACHES/CHEVRON
Project Number APE-0192
Sampler RODNEY HEIT
Date 8/18/92 Time 1:00-1:00
Destination FRIEDMAN & BRUYA INC.

Sample Number	Matrix	Analytical Method	HFS	GSVL														
APE-0192-4	H_2O	32598-9	X	X														
32599 consumed in analysis dg 8-18-92																		

Relinquished by: Rodney L Heit
Date 8/18/92 Time 5:00 pm

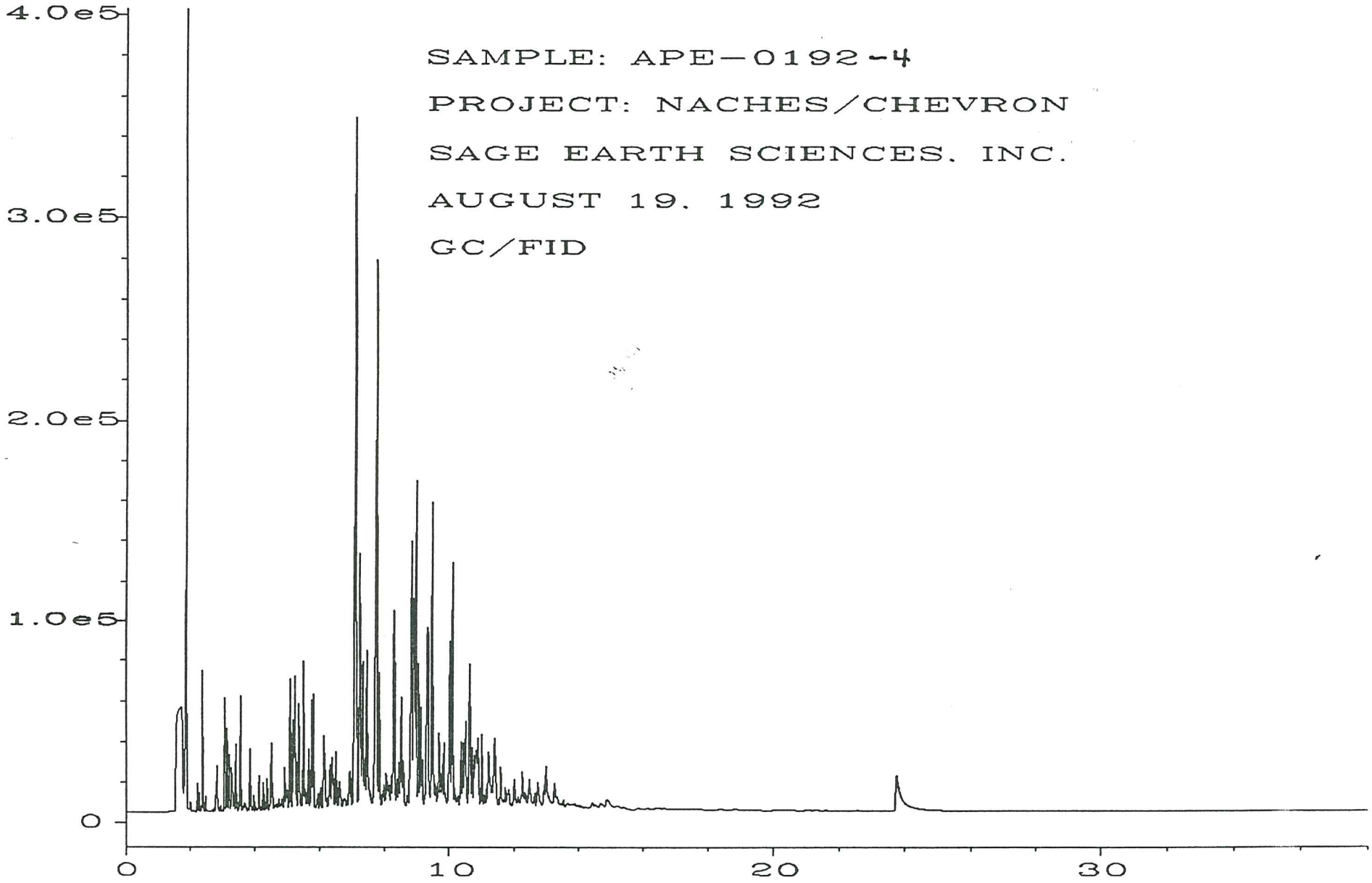
Relinquished by:
Date ____ Time ____

Relinquished by:
Date ____ Time ____

Relinquished by:
Date ____ Time ____

Relinquished by:
Date ____ Time ____

Recieved at laboratory by: CR Hicks
Date 8-19-92 Time 10:00 AM


SAMPLE: APE-0192-4
PROJECT: NACHES/CHEVRON
SAGE EARTH SCIENCES. INC.
AUGUST 19. 1992
GC/FID
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20
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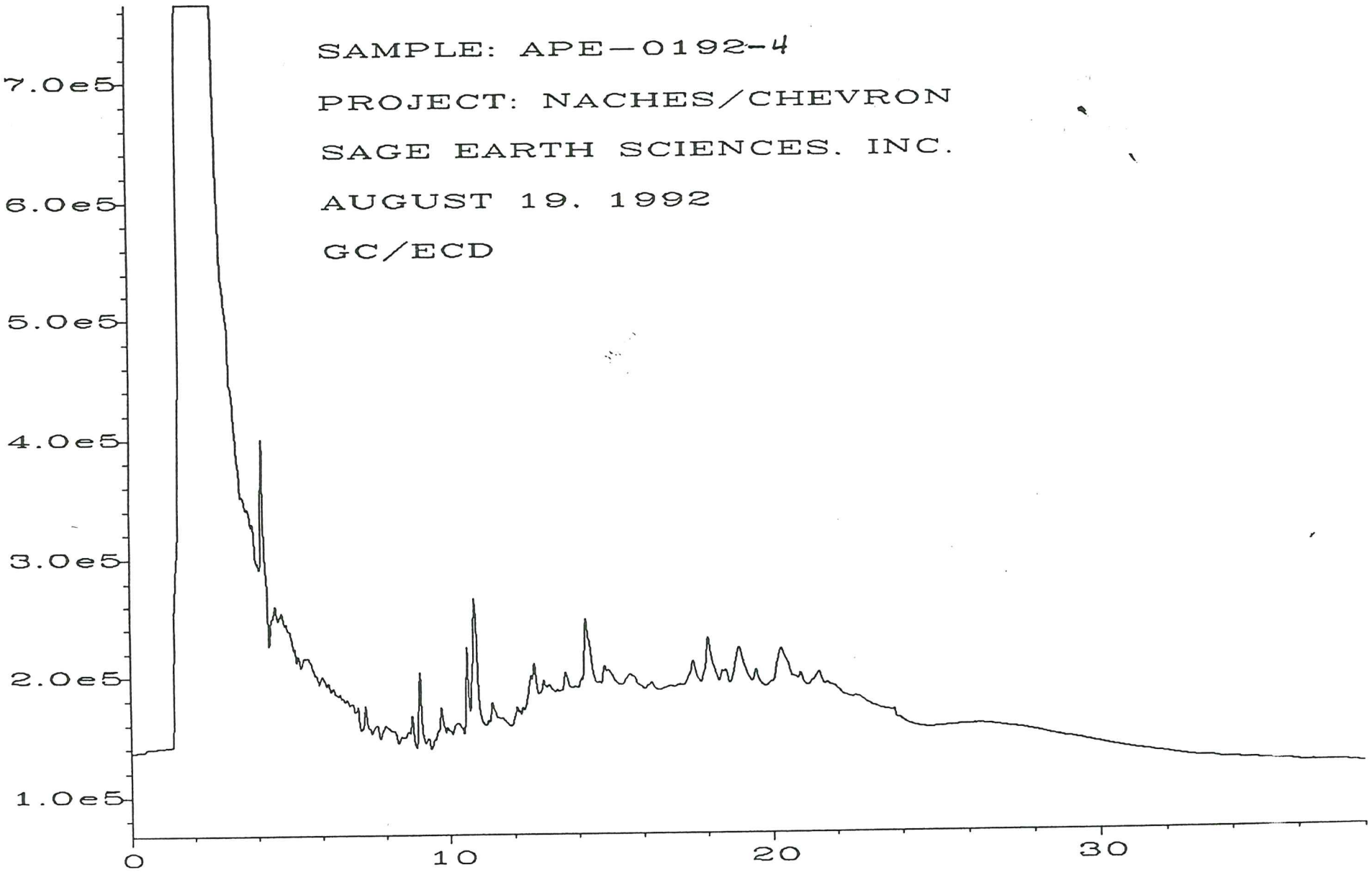
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PROJECT: NACHES/CHEVRON
SAGE EARTH SCIENCES. INC.
AUGUST 19. 1992
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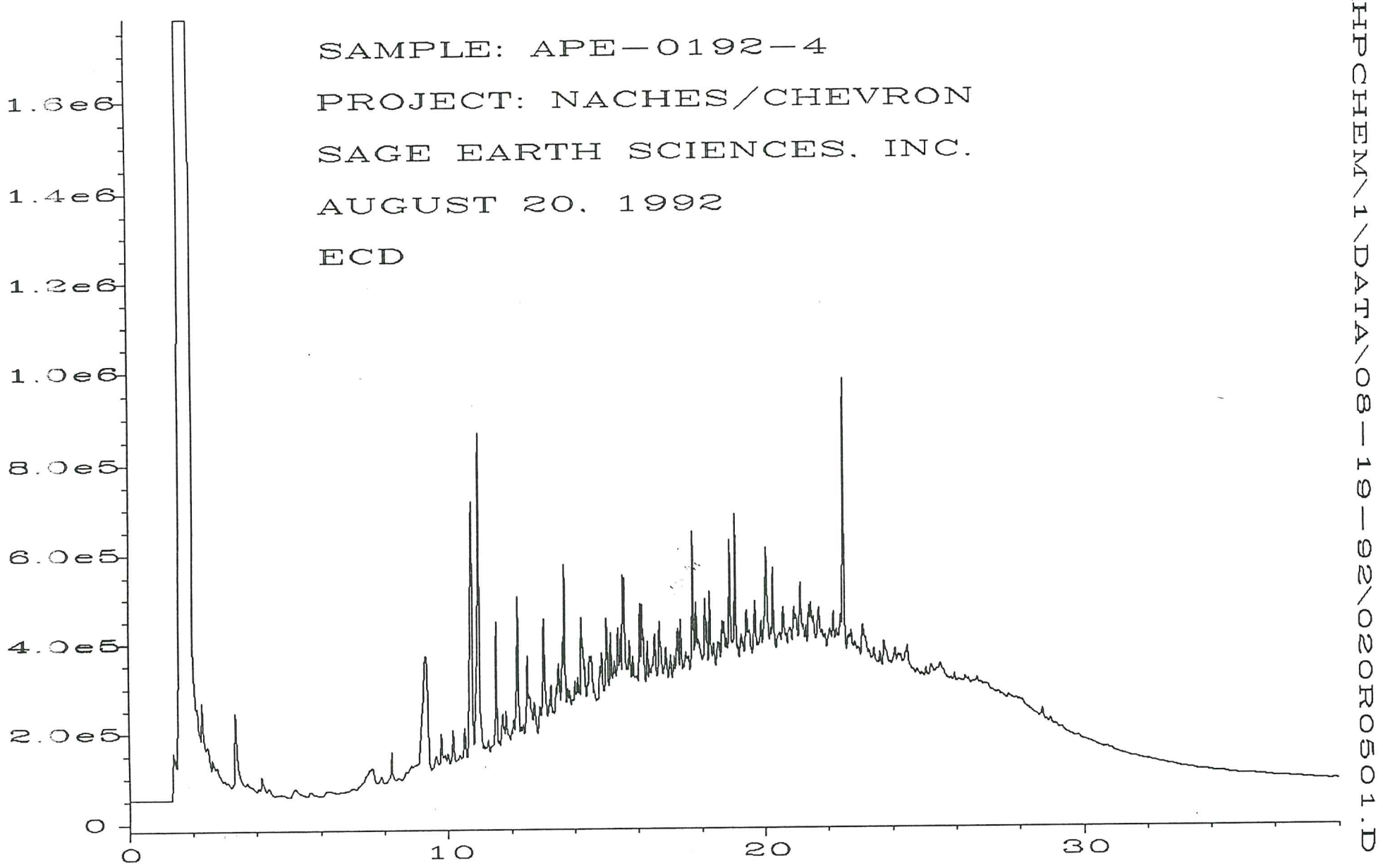
SAMPLE: APE-0192-4
PROJECT: NACHES/CHEVRON
SAGE EARTH SCIENCES. INC.
AUGUST 20. 1992
ECD
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1.2e6
1.0e6
8.0e5
6.0e5
4.0e5
2.0e5
0
0
10
20
30
C:\HPCHEM\1\DATA\08-19-92\020R0501.D

Appendix C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3008-B 16th Avenue West
Seattle, WA 98119
FAX: (206) 283-5044

August 26, 1992

Dave Green, Project Leader
Sage Earth Sciences, Inc.
2483 Lombard Loop Road
Wapato, WA 98951

Dear Mr. Green:

Enclosed are the results of the analyses of the sample submitted on August 18, 1992 from Project APE-0192, Naches/Chevron.

We appreciate this opportunity to be of service to you on this project. If you have any questions regarding this material, or if you just want to discuss any aspect of your projects, please do not hesitate to contact me.

Sincerely,

Kathy McMullen

Kathy McMullen
Chemist

KMC/dp

Enclosures

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: August 26, 1992
Date Submitted: August 18, 1992
Project: APE-0192, Naches/Chevron

RESULTS OF ANALYSES OF THE WATER SAMPLE FOR FINGERPRINT CHARACTERIZATION BY CAPILLARY GAS CHROMATOGRAPHY USING FLAME IONIZATION DETECTION (FID) AND ELECTRON CAPTURE DETECTION (ECD)

Sample #	GC Characterization
APE-0192-4	The gas chromatographic trace showed the presence of low boiling compounds, such as those found in gasoline. This characterization is based on the presence of a relatively ragged envelope of peaks present from ca *n*-C_9 to *n*-C_{14} with a maximum near *n*-C_{10}. The material appeared to be mostly weathered due to the loss of the front end, more volatile material. The ECD trace showed the presence of halogenated or oxygenated material. The large peak seen at 24 minutes is terphenyl, a compound that we add as a QA/QC check.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: August 26, 1992
Date Submitted: August 18, 1992
Project: APE-0192, Naches/Chevron

RESULTS OF ANALYSIS OF OF GASOLINE COMPARISON BY INDIVIDUAL COMPONENTS (GC-FID)
(Relative Abundance as Ratio of Peak Height to Peak A)

Sample #	Peak A	B	C	D
APE-0192-4	1.0	0.731	0.533	0.691
Quality Assurance				
GSVL Standard	1.0	1.32	0.808	0.862

Appendix D

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]

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]

Appendix E

UNDERGROUND STORAGE TANK
Site Check/Site Assessment Checklist

The purpose of this form is to certify the proper investigation of an UST site for the presence of a release. These activities shall be conducted in accordance with Chapter 173.360 WAC. A description of the various situations requiring a site check or site assessment is provided in the guidance document for UST site checks and site assessments.

This Site Check/Site Assessment Checklist shall be completed and signed by a person registered with the Department of Ecology to perform site assessments.

Two copies of the results of the site check or site assessment should be included with this checklist according to the reporting requirements in the guidance document for UST site checks and site assessments.

For further information about completing this form, please contact the Department of Ecology UST Program.

The completed checklist should be mailed to the following address:

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

UST Owner/Operator: MIKE ABHOLD

Owners Address: 10171 HIWAY 12 (Street) P.O. Box

NACHES (City) WA. (State) 98937 (ZIP-Code)

Telephone: (509) 653-2350

Site ID Number (on invoice or available from Ecology if tank is registered): #002476

Site/Business Name: NACHES CHEVRON STATION

Site Address: 10171 HIWAY 12 (Street) YAKIMA (County)

NACHES (City) WA. (State) 98937 (ZIP-Code)

2. SITE CHECK/SITE ASSESSMENT CONDUCTED BY:

Registered Person: RODNEY L HEIT

Address: CHERRY HILL LANE (Street) 1644 P.O. Box

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

Telephone: (509) 829-6400

3. TANK INFORMATION

1. Tank ID Number (as registered with Ecology): UNKNOWN
2. Year installed: UNKNOWN
3. Tank capacity in gallons: 5,000
4. Last substance stored: SUPREME UNLEADED

4. 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

_____ Required by Ecology or delegated agency for UST system closed before December 22, 1988

_____ Other (describe): FAILED LINE TIGHTNESS TEST

5. 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. Has the site check/site assessment been conducted according to applicable procedures specified in the UST site check/site assessment guidance issued by the Department of Ecology?	RH	
2. Has a release from the UST system been confirmed? *NOTE: Owners/operators must report all confirmed releases to the Department of Ecology or delegated agency within 24 hours.*	RH	
3. Are the results of the site check/site assessment enclosed with this checklist? *NOTE: Two copies of the site check/site assessment results must be submitted to the Department of Ecology according to the reporting requirements specified in the UST site check/site assessment guidance.*	RH	

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.

10/23/92
Date

Rodney Hart
Signature of Person Registered with Ecology

6. OWNER'S SIGNATURE

10/23/92
Date

X Mitchell L. Abbott
Signature of Tank Owner or Authorized Representative

APPENDIX F
METHOD A CLEANUP LEVELS

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]
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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]

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]

[a] Caution on misusing method A tables. Method A tables have been developed for specific purposes. They are intended to provide conservative cleanup levels for sites undergoing routine cleanup actions or those sites with relatively few hazardous substances. The tables may not be appropriate for defining cleanup levels at other sites. For these reasons, the values in these tables should not automatically be used to define cleanup levels that must be met for financial, real estate, insurance coverage or placement, or similar transactions or purposes. Exceedances of the values in these tables do not necessarily trigger requirements for cleanup action under this chapter.