LUST

Naches Chevron
Naches

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

October 26, 1992

SR 1/4/93

Naches Chevron
10171 Highway 12
Naches, WA 98937

Attention: Mike Abhold

SUBJECT: LIMITED SITE CHECK AND LIMITED PETROLEUM CONTAMINATED SOIL REMOVAL REPORT FOR THE NACHES CHEVRON FACILITY, NACHES, WA.

Dear Mr. Abhold,

Enclosed, please find two (2) copies of the Limited Site Check/PCS Removal Report for the Naches Chevron project, Naches, WA. Based on the data and findings reported herein, Sage Earth Sciences, Inc. (Sage) finds that gasoline concentrations in soil and groundwater adjacent to the supreme unleaded gasoline tank remain in excess of "Method A Cleanup Levels" as established in the Model Toxics Control Act, Chapter 173-340 WAC.

Approximately twelve (12) cubic yards of Petroleum Contaminated Soil (PCS) has been excavated and is currently stockpiled at the site. Treatment of the soil is recommended to reduce petroleum concentrations to acceptable concentrations. Further characterization of the soil, groundwater and PCS stockpile will be necessary prior to choosing a method of soil/groundwater treatment. Since the extent of contamination remains unknown, Sage is unable to provide you with an accurate estimate to remediate the site.

The Washington State Department of Ecology (WSDOE) requires that you retain this report for a minimum of ten (10) years. Sage recommends that you retain it indefinitely. The WSDOE also requires that we submit a Underground Storage Tank Site Check/Site Assessment Checklist for each tank and they are attached as Appendix D.

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

Respectfully,
SAGE EARTH SCIENCES, INC.

David L. Green
Principal Geologist

cc: file
Washington State Department of Ecology Headquarters, Olympia, WA
Washington State Department of Ecology, Central Regional Office, Spokane, WA

Project Number: APE-0192

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

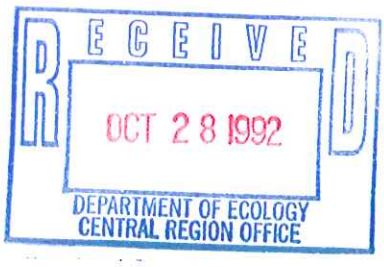
Naches Chevron retained Sage Earth Sciences, Inc. (Sage) to perform limited site check services upon discovery of a leak in a supreme unleaded gasoline line fitting. Sage used a Flame Ionization Detector (FID) in the area of the leak. High concentrations of organic vapors were detected with the FID in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



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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.

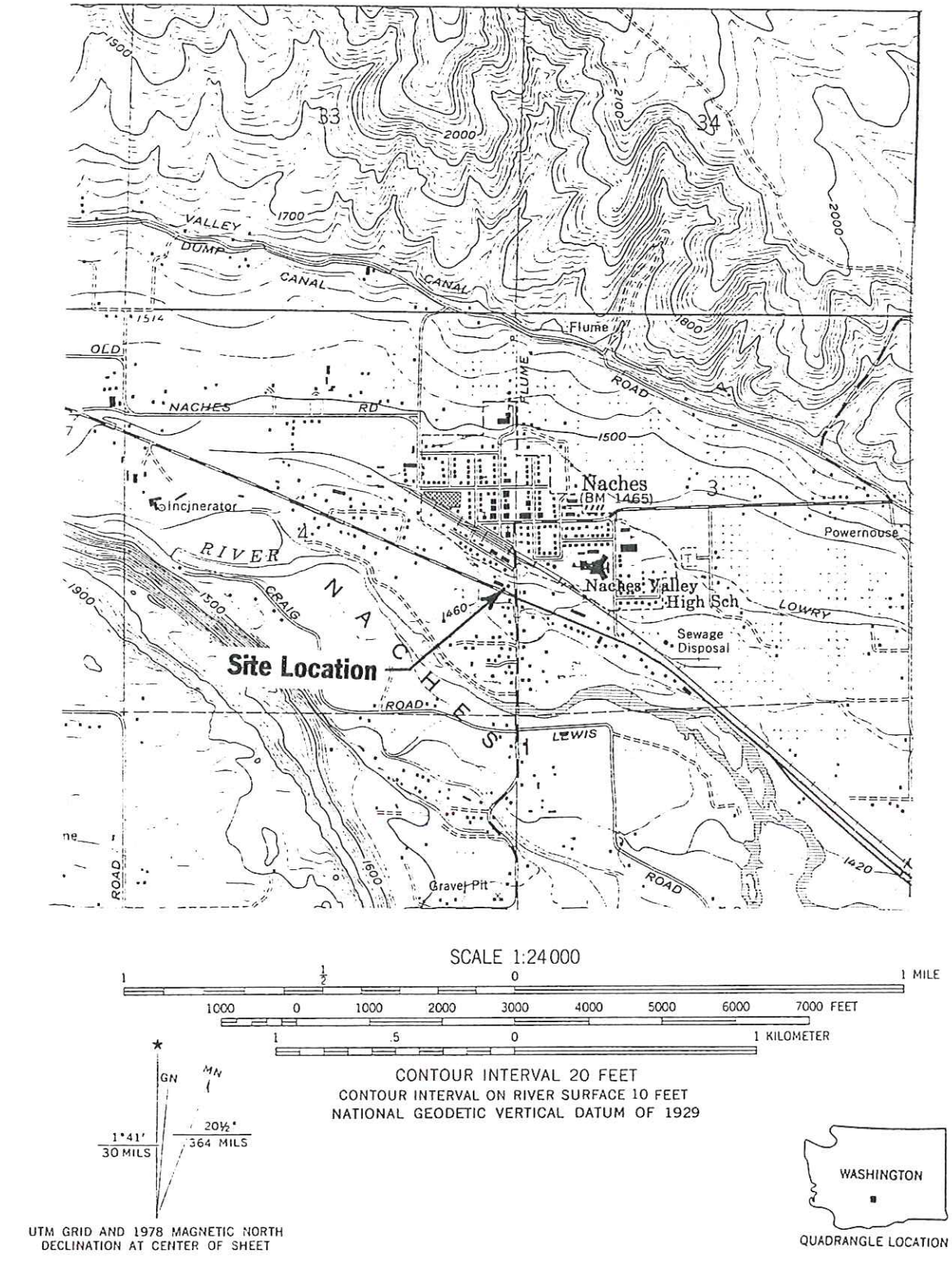


Figure 1. Site Location Map

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.

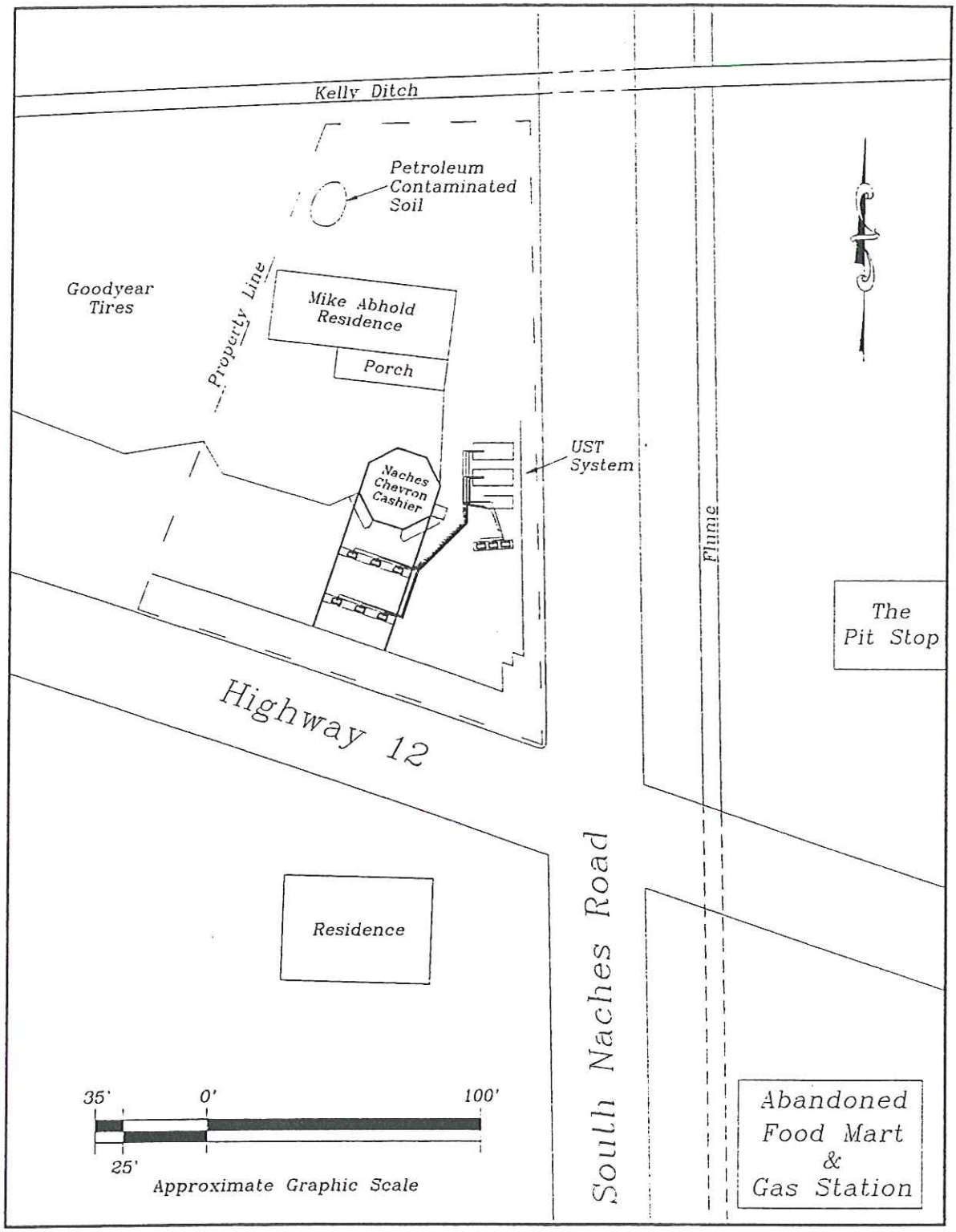


Figure 2. Sketch of Site Layout Showing Adjacent Properties

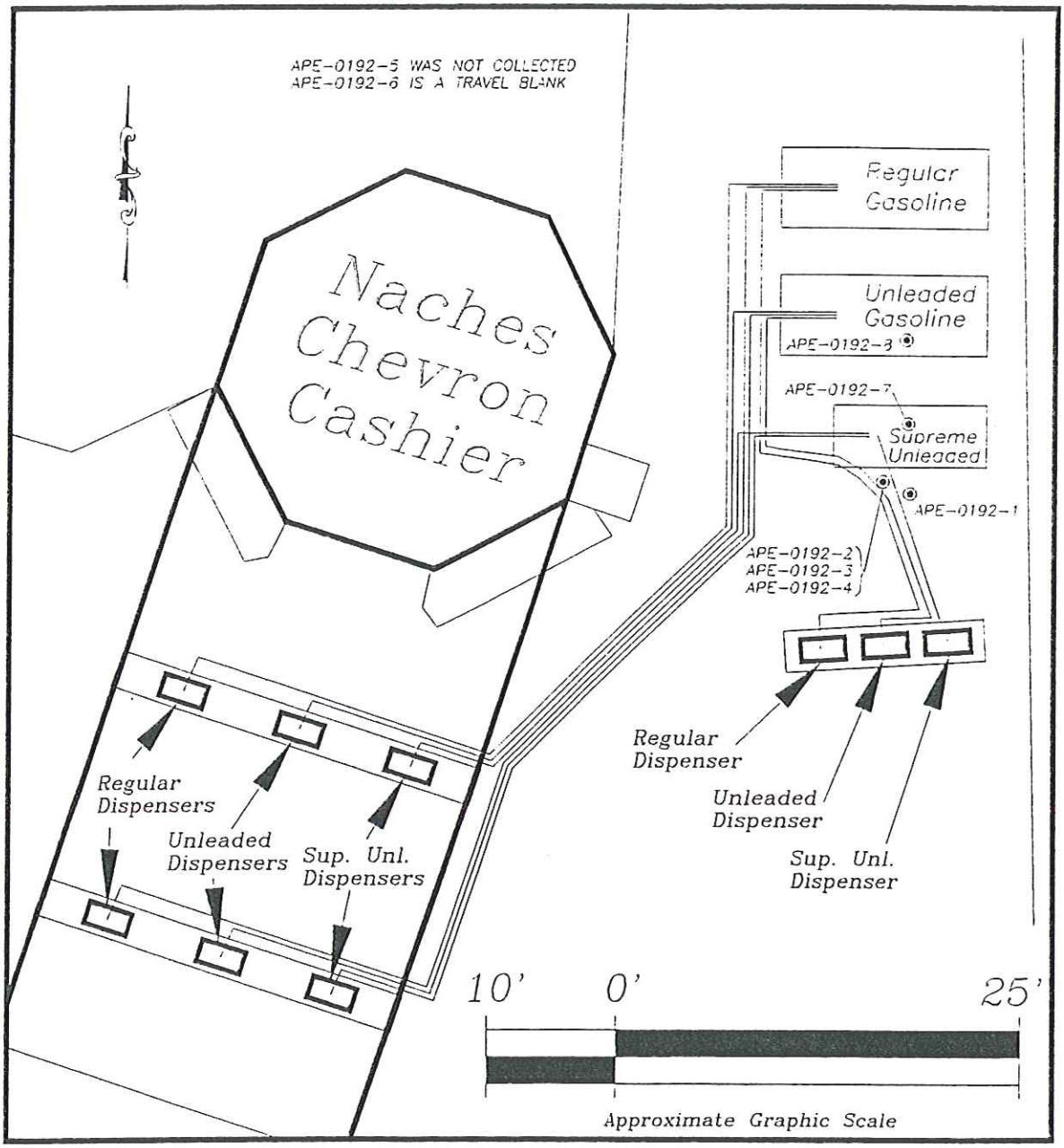


Figure 3. General UST System Layout and Sampling Locations

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 Hecht
Sheet 1 of 1

Sample #	Location	Matrix	Staining	Odors	Depth	TOV	TLC
APE-0192-1	South of Sup. Tank	Soil	Grey	gasoline	9'	>5,000 ppm	—
APE-0192-2	"	water	sheen	gasoline	10'	>5,000 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'	>5000 ppm	—
APE-0192-8	beneath unl. tank	soil	grey	sewer	9.5'	>5000 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

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

Attn: Mr. Dave Green

Project: Naches Chevron

Data Report

Lab Number	Sample Description	ug/gm TPH	ng/gm Benzene	ng/gm Toluene	ng/gm Ebenzene	ng/gm Xylenes	Surrogate % 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 *Analytical/Environmental Services*

Materials Testing & Consulting, Inc

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

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

Attn: Mr. Dave Green

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: HCID	WTPHD	WTPHG	7421	602	8020	ARCHIVE
APE-0192-1	SOIL	1	8oz	X	X	X	X		X	
APE-0192-2	H_2O	1	l							X
APE-0192-3	H_2O	3	l 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 8/17/92 Time ____

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

[redacted] 10:00 AM

SAGE Earth Sciences, Inc.

CHAIN OF CUSTODY

Project Name NALCHES/CHEVRON
Project Number APE-0192
Sampler RODNEY HEIT
Date 8/18/92 Time 1:00-3:00
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

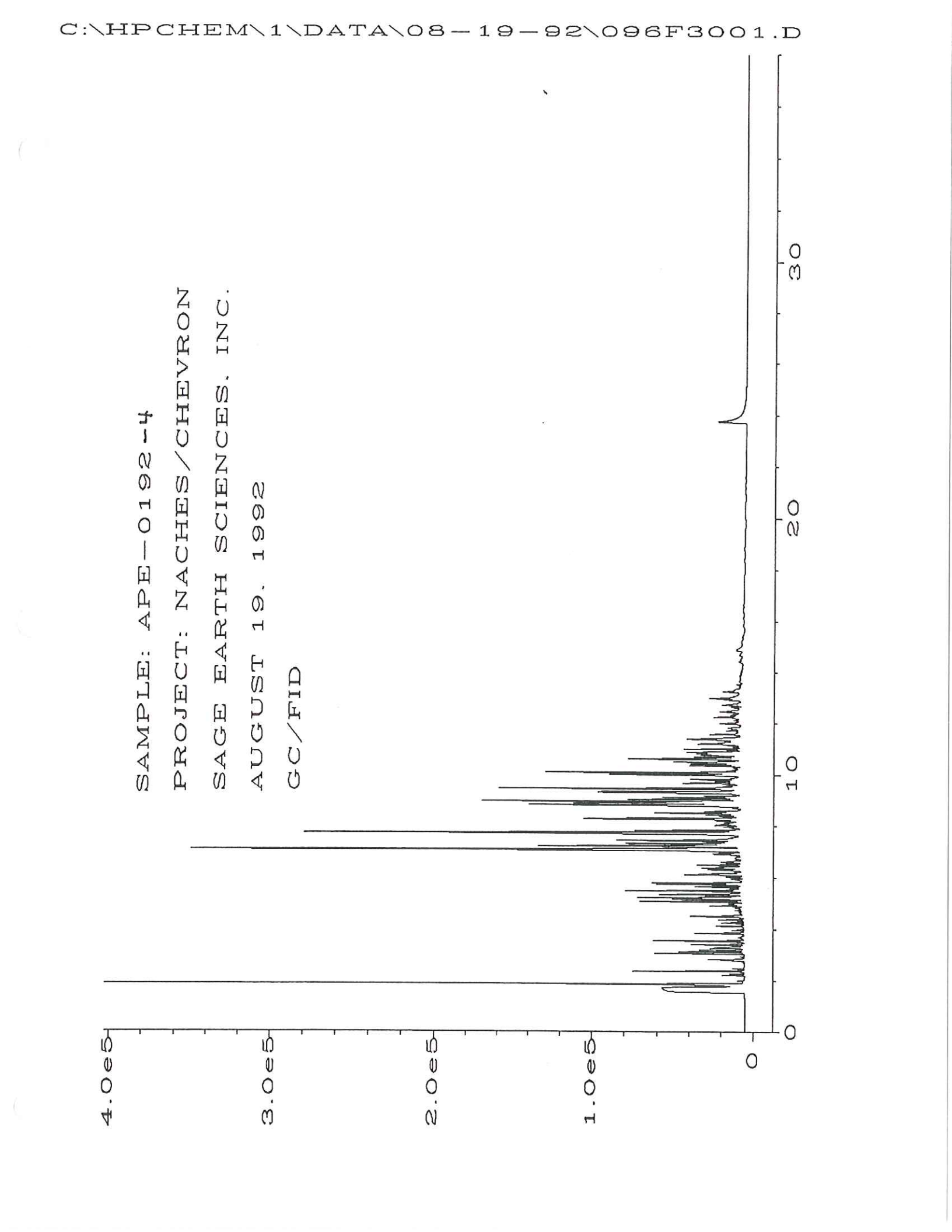
Relinquished by:
Date _____ Time _____

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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PROJECT: NACHES/CHEVRON
SAGE EARTH SCIENCES, INC.
AUGUST 19, 1992
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20
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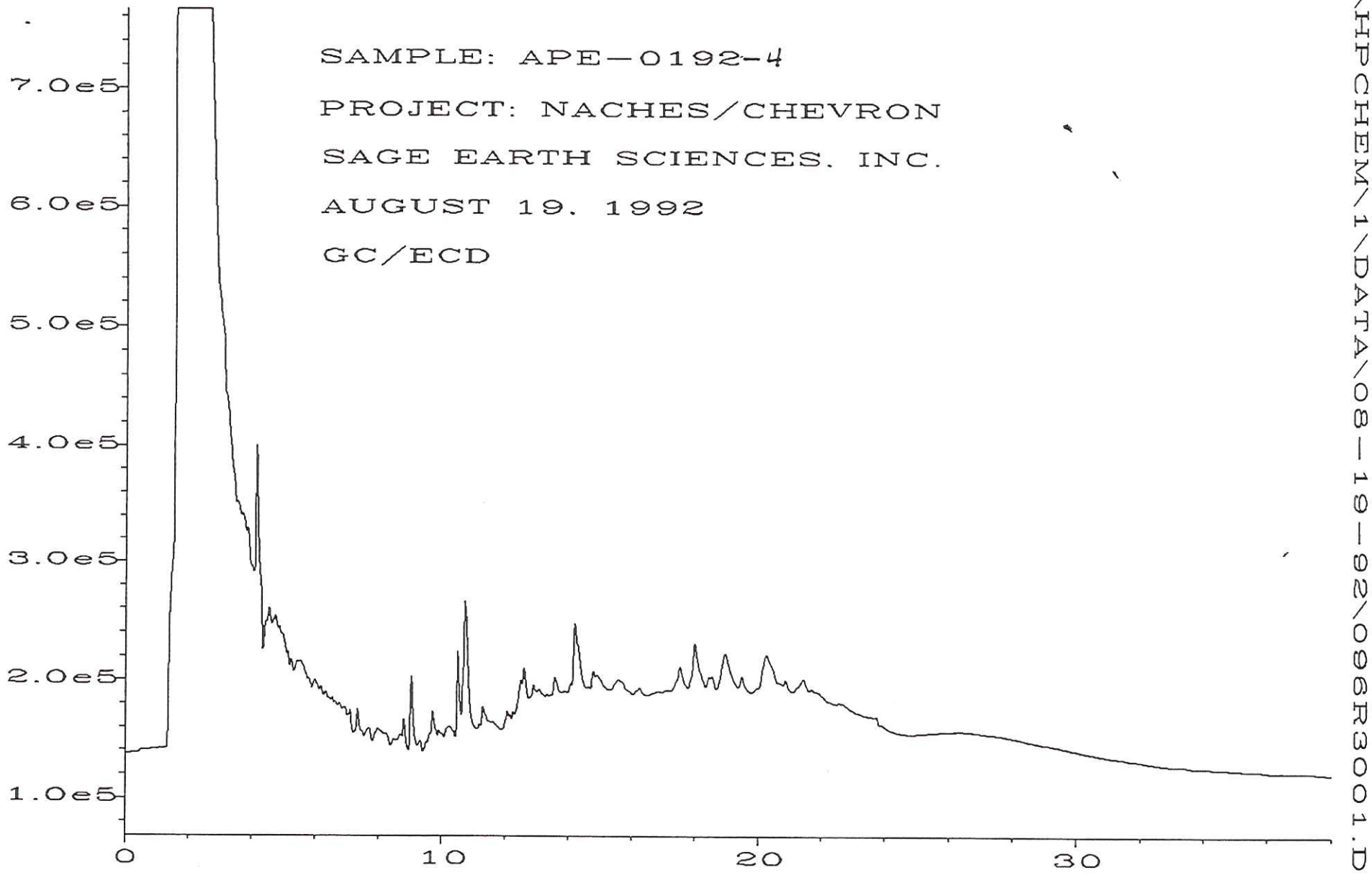
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SAGE EARTH SCIENCES. INC.
AUGUST 19. 1992
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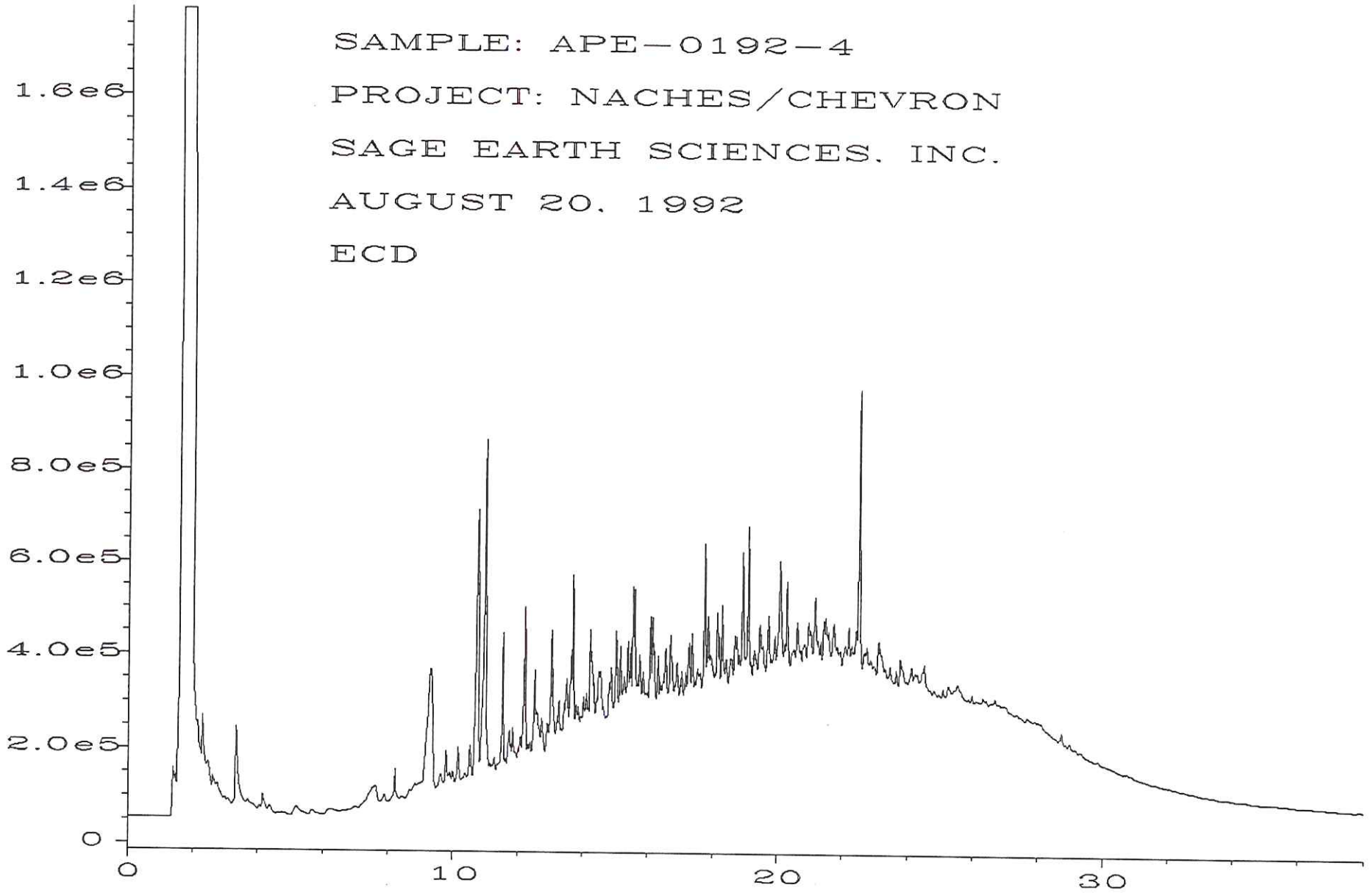
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PROJECT: NACHES/CHEVRON
SAGE EARTH SCIENCES, INC.
AUGUST 20, 1992
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Appendix D

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 Heit
Signature of Person Registered with Ecology

6. OWNER'S SIGNATURE

10/23/92
Date

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