



# **Additional Subsurface Investigation Report of Findings and Remedial Action Plan**

**Former Carrier Shop  
Former PALCO Mill B  
Scotia, California  
Case No. 1NHU857**

Prepared for:

**Humboldt Redwood Company, LLC.**

 **Consulting Engineers & Geologists, Inc.**

---

812 W. Wabash Ave.  
Eureka, CA 95501-2138  
707-441-8855

May 2011  
011019



Reference: 011019

May 26, 2011

Mr. Robert Dickerson  
California Regional Water Quality Control Board  
North Coast Region  
5550 Skylane Boulevard, Suite A  
Santa Rosa, CA 95540

**Subject: Additional Subsurface Investigation Report of Findings and Remedial Action Plan, Former Carrier Shop, Former PALCO Mill B, Scotia, California; Case No. 1NHU857**

Dear Mr. Dickerson:

Enclosed please find our additional subsurface investigation report of findings for the subject property. This report has been prepared for and with the approval of Humboldt Redwood Company, LLC. The report includes the results of the recent investigation, a site conceptual model, data gap analysis, and recommends a remedial action plan for the former Carrier Shop area.

If you have any questions or wish to discuss the findings, please call me at 707-441-8855.

Sincerely,

**SHN Consulting Engineers & Geologists, Inc.**

Roland Rueber, P.G.  
Project Manager

RMR:lms

Enclosure: Report  
c. w/encl.: Cheryl Meyers, HRC  
Frank Bacik, TOS

Reference: 011019

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Former PALCO Mill B  
Scotia, California  
Case No. 1NHU857

Prepared for:

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Prepared by:



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May 2011

QA/QC: RMR\_\_\_



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## Abbreviations and Acronyms

--	Not Analyzed
<	denotes a value that is “less than” the stated method reporting limit
ft/ft	feet per foot
g/ml	grams per milliliter
mg/kg	milligrams per kilogram
ug/g	micrograms per gram
ug/kg	micrograms per kilogram
ug/L	micrograms per Liter
BGS	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, and total Xylenes
Cal-EPA	California Environmental Protection Agency
CAM	California Assessment Manuel
Cd	Cadmium
CHHSL	California Human Health Screening Levels
Cr	Chromium
CS-#	Former Carrier Shop sample-number
EB-#	Well Point-number
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
HCDEH	Humboldt County Division of Environmental health
HRC	Humboldt Redwood Company, LLC.
LNAPL	Light Non-Aqueous Phase Liquid
MCL	Maximum Contaminant Level
MTBE	Methyl Tertiary-Butyl Ether
NA	Not Available
NAVD88	North American Vertical Datum 1988
ND	Not Detected
Ni	Nickel
NT	Not Tested
OM-#	Old Millwright Shop boring-number
P-#	Piezometer-number
Pb	Lead
PID	Photo Ionization Detector
PVC	Polyvinyl Chloride
RWQCB	California Regional Water Quality Control Board, North Coast Region
SGC	Silica Gel Cleanup
SHN	SHN Consulting Engineers & Geologists, Inc.
SVOC	Semi-Volatile Organic Compound
TPHD	Total Petroleum Hydrocarbons as Diesel
TPHG	Total Petroleum Hydrocarbons as Gasoline
TPHMO	Total Petroleum Hydrocarbons as Motor Oil
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WQOs	Water Quality Objective
Zn	Zinc

## 1.0 Introduction

### 1.1 Purpose

SHN Consulting Engineers & Geologists, Inc. (SHN) has prepared this subsurface investigation report of findings for the former Carrier Shop (site), former PALCO Mill B complex, in Scotia, California. This report has been prepared for and with the approval of Humboldt Redwood Company, LLC (HRC).

### 1.2 Location

The study area consists of the land area containing the former PALCO Mill B complex, specifically the former Carrier Shop, which is presently owned by HRC. As shown on Figure 1, the site lies within the Town of Scotia, Humboldt County, California.

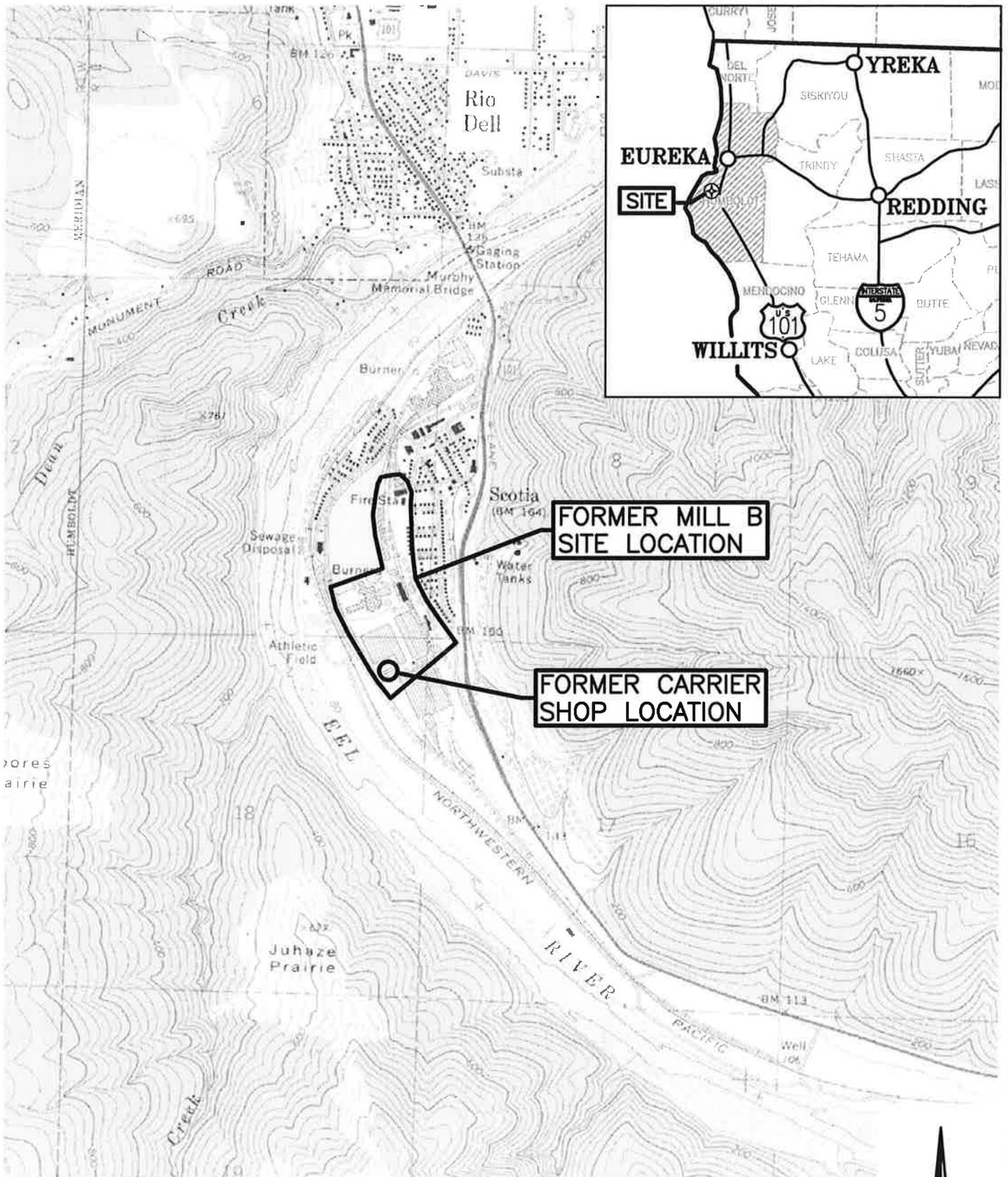
### 1.3 Background- Former Mill B

The Mill B area had been an active sawmill and related operations facility since the late 1800s. A detailed site history was included in the Phase I Environmental Site Assessment (SHN, 2002). The Mill B debarker, sawmill, remill, greenchain facilities, and monorail shed were demolished in 2005. Concrete foundations and subsurface utility infrastructure remain. During November 2005, SHN conducted limited soil and groundwater sampling, based upon historical operations research. Results of the 2005 subsurface investigation indicated several areas at the former PALCO Mill B that have potential petroleum hydrocarbon contaminated shallow soil and shallow groundwater (approximately 2 to 14 feet Below Ground Surface [BGS]). Metals, Volatile Organic Compounds (VOCs), and Semi-Volatile Organic Compounds (SVOCs) were not detected at concentrations indicating impact to the soil or groundwater.

Pursuant to due diligence being performed by SHN for PALCO on sites within the Mill B area, SHN prepared and submitted a technical memorandum (report of findings) from the November 2005 investigation to PALCO in August 2006 (SHN, August 2006). The technical memorandum and a work plan for additional investigation at the former Bunker/Locomotive and former Carrier Shop areas were submitted to the California Regional Water Quality Control Board, North Coast Region (RWQCB) in September 2006 (SHN, September 2006).

In a letter dated November 14, 2006, the RWQCB commented on the September 2006 submittal and concurred with the work plan for additional investigation at the former Bunker/Locomotive and former Carrier Shop areas.

In August 2007, SHN supervised the additional investigation activities in the vicinity of the Bunker/Locomotive and former Carrier Shop areas. Background soil conditions were also investigated for the presence of naturally occurring metals in the vicinity of the Old Millwright Shop. Results of the August 2007 investigation were included in the *Additional Subsurface Investigation Report of Findings* (SHN, October 2007).



**SOURCE: SCOTIA USGS  
7.5 MINUTE QUADRANGLE**



\\Eureka\projects\2011\011019-Scotia-Mill-B-HRC\Dwgs\_SAVED: 5/17/2011 11:24 AM JYERBY, PLOTTED: 5/17/2011 11:24 AM, JILLIAN YERBY



Former PALCO Mill B  
Phase II Investigation  
Scotia, California

May 2011

Site Location Map

SHN 011019

011019-SITE-LCTN

Figure 1

In a letter dated July 14, 2009, the RWQCB commented on the October 2007 report of findings. On September 30, 2009, SHN submitted the *Additional Subsurface Investigation Work Plan* (SHN, September 2009), as requested in the July 14, 2009 RWQCB letter. The work plan also included a request for no further action at the former Mill B/Monorail area.

In a letter dated November 2, 2009, the RWQCB commented on the September 2009 work plan. The RWQCB did concur with the proposed plan but did not concur with the request for no further action at the former Mill B/Monorail area.

On December 28, 2009, SHN submitted a draft response (SHN, December 8, 2009) to the RWQCB's November 2009 letter. On January 29, 2010, the RWQCB commented on the draft response and requested that additional groundwater samples be collected at the former Mill B/Monorail area and analyzed for lead. On February 26, 2010, SHN submitted a final version of the draft response, and included additional information regarding the collection of samples for lead analysis (SHN, February 2010). In a letter dated April 1, 2010, the RWQCB concurred with the modifications to the November 2009 work plan included in the February 2010 response letter.

In March 2010, SHN supervised the additional investigation at the former Mill B/Monorail, former Bunker/Locomotive, Machine Shop, Diesel Tank, and former Carrier Shop areas. The results were included in the May 2010 report of findings (SHN, May 2010).

In a letter dated June 24, 2010, the RWQCB commented on the May 2010 report of findings. The RWQCB concurred with a recommendation to prepare a work plan for additional investigation at the former Carrier Shop, and concurred with the request for no further action at the former Mill B/Monorail areas. The RWQCB did not concur with the recommendation for no further action at the former Bunker/Locomotive, Machine Shop, and Diesel Tank areas. SHN and the RWQCB discussed the June 24, 2010 letter in a conference call on August 3, 2010, and the RWQCB indicated they would reconsider the request for no further action at the former Bunker/ Locomotive, Machine Shop, and Diesel Tank areas if it could be demonstrated that Water Quality Objectives (WQOs) would be achieved in a reasonable timeframe.

In October 2010, SHN submitted a data evaluation and work plan for additional site investigation at the former Carrier Shop to the RWQCB and recommended no further action for the former Bunker/Locomotive, Machine Shop, and Diesel Tank Areas (SHN, October 2010). The RWQCB responded with comments on the work plan in a letter dated December 2, 2010, which also included concurrence with no further action for the former Bunker/Locomotive, Machine Shop, and Diesel Tank Areas (Appendix A).

A response to comments and addendum to the work plan was submitted by SHN in January 2011 (SHN, January 2011), and approved by the RWQCB in a letter dated February 7, 2011 (Appendix A).

## 1.4 Scope of Work

The scope of work proposed by SHN, subsequently modified, and approved by the RWQCB, was to provide the information needed to address the RWQCB's concerns at the former Carrier Shop.

The scope consisted of the following tasks:

- Conduct project implementation, including subcontractor coordination, permit acquisition, and marking and notifying Underground Service Alert.
- Install direct push soil borings.
- Collect soil samples for laboratory analysis from select borings.
- Install temporary well points in select soil borings.
- Collect groundwater samples from the temporary well points and the three existing piezometers for laboratory analysis.
- Collect and submit a sample of Light Non-Aqueous Phase Liquid (LNAPL) for hydrocarbon fingerprinting.
- Survey the existing piezometers per Geotracker Standards.
- Prepare a report of findings and conceptual site model.
- Submit all data to the California State Water Resources Control Board Geotracker® database.

## 2.0 Field Activities

This section describes the field activities performed in March 2011. Field notes from the March 2011 investigation are included in Appendix B.

### 2.1 Soil Sampling

On March 15 and 16, 2011, SHN supervised Fisch Drilling of Hydesville, California in advancing nine continuously cored soil borings/temporary well points (CS-301 through CS-309). Soil boring locations near the former Carrier Shop are shown on Figure 2.

Each continuously cored soil boring was advanced using the Geoprobe® DT-22 sampling system in 4-foot increments. At least three soil samples were collected from each soil boring (except at CS-307). Material observed at boring CS-307 consisted of sand and gravel, which were interpreted to be the backfill around the leach pipe. Soil borings were extended to a maximum depth of 16 feet BGS (except at CS-309). Boring CS-309 was extended to 28 feet BGS, in order to sample soil and groundwater below the bottom depth of the leach pipe. Discrete sections of the soil cores were screened in the field using a Photoionization Detector (PID). Soil samples were collected at depths where PID and/or visual observation indicated potential petroleum hydrocarbon contamination and/or changes in subsurface lithology.

Following retrieval of the sampler, the plastic tube was removed from the sampler, and the selected sample aliquot was cut from the desired depth and sealed on both ends with Teflon® tape and plastic caps. Soils in the remaining sample tubes were used for soil descriptions. Each soil sample was labeled with the project name, sample number, sample depth, sample time, and date. All samples were placed in Ziploc® bags and stored in an iced cooler. Each soil sample was analyzed for constituents described in “Section 2.4: Laboratory Analysis.” Sample handling, transport, and delivery to the laboratory were documented using chain-of-custody procedures.



## **2.2 Temporary Well Point Sampling**

Following completion of soil sampling activities, a temporary well point was installed in each soil boring. The temporary well points consisted of 3/4-inch diameter Polyvinyl Chloride (PVC) casing with 10 feet of well screen, except at boring CS-309 where the Geoprobe® screen point sampler was used. Each temporary well point was purged using a peristaltic pump and new polyethylene tubing or new tubing with a bottom mounted check valve, until the groundwater was relatively clear. A groundwater sample was then collected from each temporary well point by decanting the groundwater into laboratory supplied containers. Groundwater samples collected for dissolved metals analysis were filtered in the field with a new disposable 0.45 micron filter.

Each groundwater sample was placed in a laboratory-supplied container, labeled with the project name, sample number, sample time, and date, and placed in an iced cooler. Each groundwater sample was analyzed for constituents described in “Section 2.4: Laboratory Analysis.” Sample handling, transport, and delivery to the laboratory were documented using chain-of-custody procedures.

Depth-to-water measurements from grade were taken using an electronic water level meter prior to purging each temporary well point.

On completion of soil and groundwater sampling, all boreholes were backfilled with bentonite and capped at the surface to match the existing surface. On March 17, 2011, all boring locations were surveyed for location. Piezometers CS-09, CS-10, and CS-15 were surveyed for location and elevation to Geotracker standards.

## **2.3 Piezometer Sampling**

Groundwater samples were collected from piezometers CS-09, CS-10, and CS-15 at the former Carrier Shop. Prior to purging, each piezometer was measured for depth-to-water, and checked for the presence of LNAPL. Approximately 0.05 feet of LNAPL was measured in piezometer CS-09, using an electronic oil/water interface probe. Field measurements of pH and temperature were collected periodically during purging activities using portable instrumentation.

A sample of LNAPL was collected from CS-09 prior to purging, using a length of clean plastic tubing. The tubing was inserted into the piezometer, and sealed on the top end and removed. The entrained LNAPL was decanted into a laboratory supplied container. Sample handling, transport, and delivery to the laboratory were documented using chain-of-custody procedures.

A groundwater sample was collected from each piezometer using a peristaltic pump and new disposable tubing. Groundwater samples collected for dissolved metals analysis were filtered in the field with a new disposable 0.45 micron filter. Piezometers CS-10 and CS-15 went dry during sampling, were left overnight to recharge, and were sampled the following day.

Each groundwater sample was labeled with the project name, sample number, sample time, and date, and placed in an iced cooler. Each groundwater sample was analyzed for constituents described in “Section 2.4: Laboratory Analysis.” Sample handling, transport, and delivery to the laboratory were documented using chain-of-custody procedures.

## 2.4 Laboratory Analysis

Soil and groundwater samples were analyzed for one or more the following constituents:

- Total Petroleum Hydrocarbons as Motor Oil (TPHMO) and as Diesel (TPHD) in general accordance with United States Environmental Protection Agency (EPA) Method No. 8015B
- Total Petroleum Hydrocarbons as Gasoline (TPHG), Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX), and VOCs in general accordance with EPA Method No. 8260B or 8260B Modified
- SVOCs in general accordance with EPA Method No. SW8270C
- Metals and dissolved metals in general accordance with EPA Method No. SW6020A or 200.8 Rev. 5.4

Soil and groundwater analyses were submitted to North Coast Laboratories, LTD. of Arcata, a California state certified laboratory. One sample of LNAPL from CS-09 was submitted to Torkelson Geochemistry of Tulsa, Oklahoma for LNAPL fingerprinting.

## 2.5 Survey

On March 17, 2011, SHN surveyed the existing piezometers for location and elevation under the direction of a licensed surveyor. Survey data was collected per Geotracker standards. The survey data is included in Appendix B.

## 2.6 Equipment Decontamination Procedures

All drilling equipment was cleaned prior to being transported to the site. All equipment that required on-site cleaning was decontaminated using the triple wash system. The equipment was first washed in a water solution using Liquinox® cleaner, followed by two distilled water rinses.

## 2.7 Investigation-Derived Waste Management

Water used in the decontamination of equipment, tools, and all purge water was contained in 5-gallon buckets and transported to SHN's 1,000-gallon purge water storage tank, located at 812 W. Wabash Avenue in Eureka, California. Approximately 10 gallons of water will be discharged, under permit, to the City of Eureka wastewater collection system. A copy of the discharge receipt will be included in future correspondence.

A small volume of soil cuttings was generated during the investigation (approximately two, 5-gallon buckets). The cuttings were placed in 5-gallon buckets and transferred to the New Company Garage. HRC arranged for the proper disposal of this material. A copy of the waste manifest is included in Appendix B.

### 3.0 Results of the Investigation

This section describes the results of the March 2011 investigation. Field notes are included in Appendix B. Soil boring logs are included in Appendix C. Laboratory analytical reports are included in Appendix D. Historic soil and groundwater analytical results are included in Appendix E.

#### 3.1 Hydrogeology

Subsurface soils observed during this investigation consisted of sandy gravel fill material to varying depths, underlain by varying thicknesses of clayey or sandy silt, with interbedded silty sand. Depth to water in temporary well points ranged from approximately 1 feet BGS at CS-307 to 13.3 feet at CS-308.

SHN measured depth-to-groundwater from the existing piezometers in March 2011 (Table 1).

Sample Location Sample Date	Top-of-Casing Elevation <sup>1</sup> (feet)	Density of LNAPL <sup>2</sup> (g/ml) <sup>3</sup>	Depth-to- LNAPL (feet) <sup>4</sup>	Depth-to- Water (feet) <sup>4</sup>	LNAPL Thickness (feet)	Groundwater Elevation <sup>1</sup> (feet)
CS-09	110.62	0.80 <sup>5</sup>	1.75	1.80	0.05	108.86
CS-10	109.91	-- <sup>6</sup>	--	2.80	--	107.11
CS-15	108.52	--	--	7.16	--	101.36

1. Referenced to North American Vertical Datum, 1988	4. Below top of casing or reference point
2. LNAPL: Light Non-Aqueous Phase Liquid	5. Estimated Density
3. g/ml: grams per milliliter	6. --: No measurable LNAPL

When there is a measurable amount of LNAPL, the groundwater elevation is corrected for the density of LNAPL (EPA, 1996).

Equation: To obtain a corrected hydraulic head value when LNAPL is present in a well:

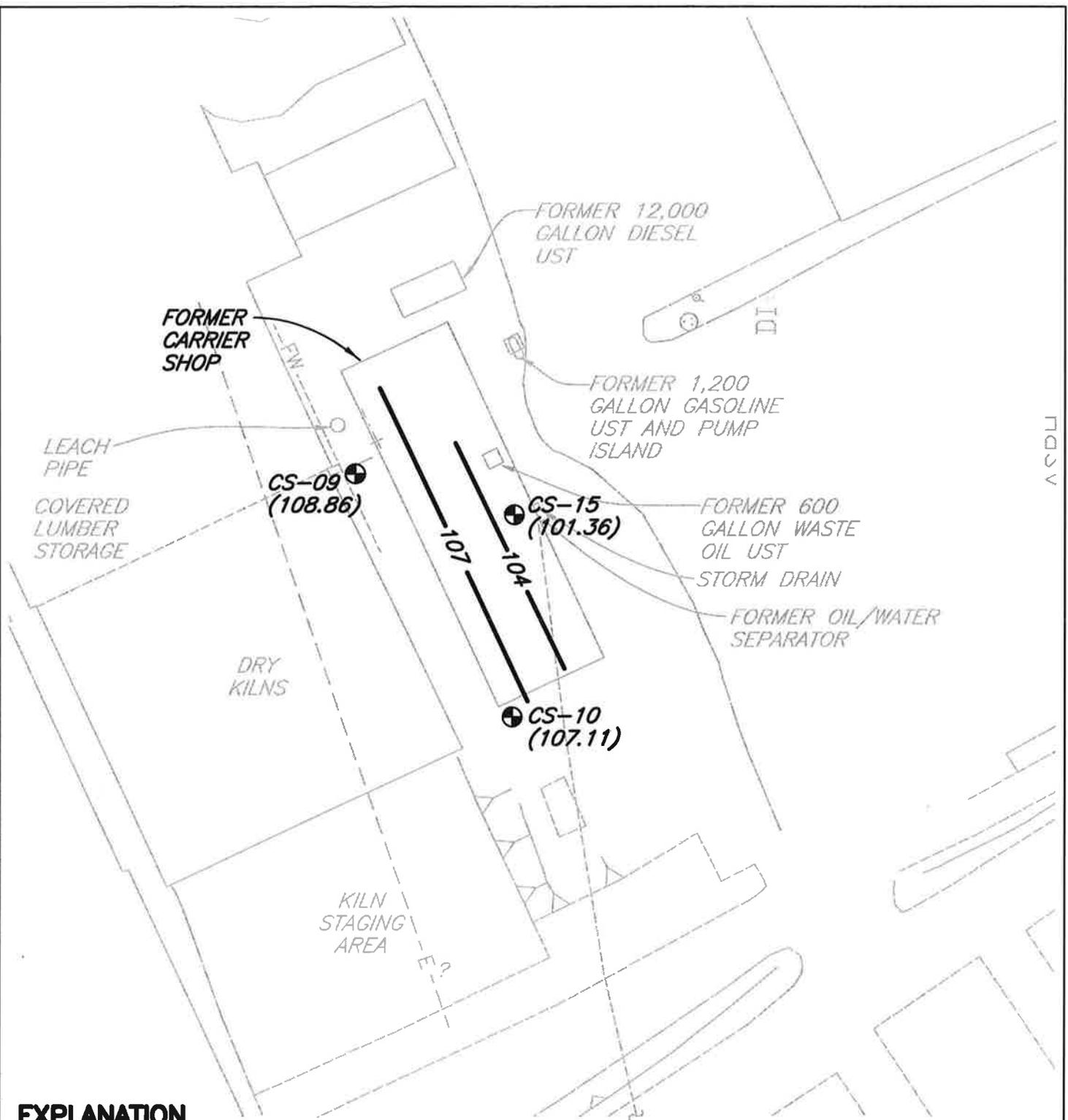
$$h_c = h_m + (H_o \frac{P_o}{P_w})$$

Where:

- h<sub>c</sub> = corrected water level elevation (feet)
- h<sub>m</sub> = measured elevation of the LNAPL-water interface (feet)
- H<sub>o</sub> = thickness of LNAPL (feet)
- P<sub>o</sub> = LNAPL density (grams per milliliter [g/ml])
- P<sub>w</sub> = water density (g/ml); usually assumed = 1.0

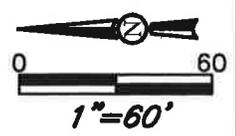
A groundwater contour map for March 16, 2011, is presented as Figure 3. On March 16, 2011, the groundwater flow was to the south-southeast with an approximate gradient of 0.14 feet per foot.

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**EXPLANATION**

- 
**SOIL BORING/PIEZOMETER LOCATION AND DESIGNATION**
- CS-10**
- (107.11)** **GROUNDWATER ELEVATION (FEET NAVD88)**
- 107-** **GROUNDWATER CONTOUR (FEET NAVD88)**



**NOTE: ALL LOCATIONS ARE APPROXIMATE**

	Former PALCO Mill B Phase II Investigation Scotia, California	Groundwater Contours, March 16, 2011 SHN 011019
	May 2011	011019-FRMR-CARRIER-GWC-MAR-2011

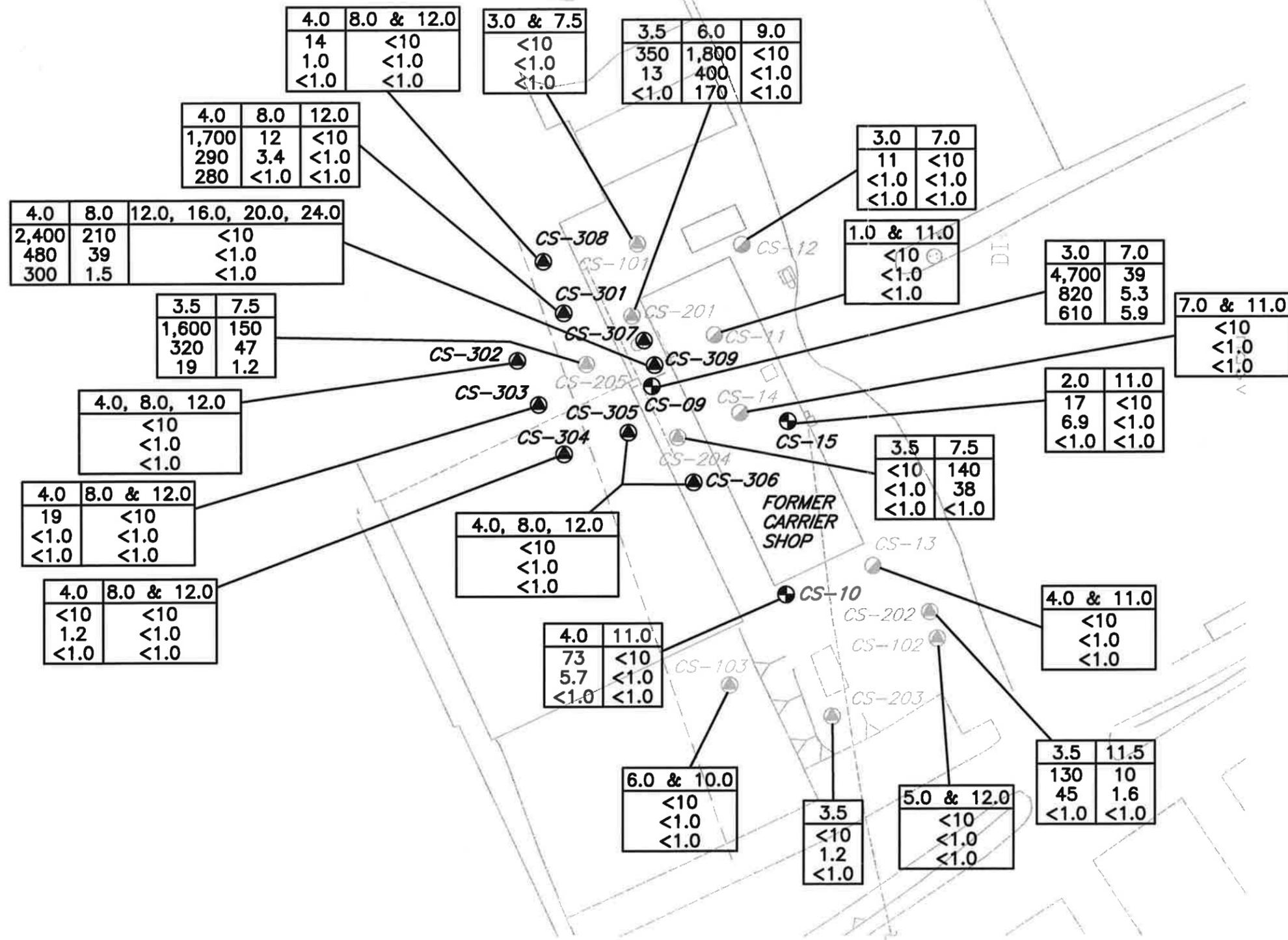
## 3.2 Soil Analytical Results

Twenty-seven soil samples were submitted for laboratory analysis from the former Carrier Shop area. The laboratory analytical results for the soil samples collected during this investigation are presented in Tables 2 and 3. Select results are shown on Figure 4.

Petroleum hydrocarbons were detected in seven soil samples collected in March 2011. The vertical extent of petroleum impacts to soil was defined at each boring location where petroleum hydrocarbons were detected in shallow soil.

Four soil samples were analyzed for SVOCs; two shallow and two deeper samples from 2 locations. Low concentrations of a few SVOCs were detected in each sample analyzed from 4-foot BGS. SVOCs were not detected in the deeper soil samples analyzed.

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**EXPLANATION**

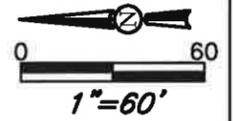
- SOIL BORING LOCATION AND DESIGNATION
- SOIL BORING/TEMPORARY WELL POINT LOCATION AND DESIGNATION
- SOIL BORING/PIEZOMETER LOCATION AND DESIGNATION

3.5	SAMPLE DEPTH (FEET BGS)
1,600	TPHMO
320	TPHD
19	TPHG

RESULTS IN mg/kg

POST SILICA GEL CLEANUP RESULTS ARE SHOWN FOR TPHMO & TPHD WHERE AVAILABLE

SOIL SAMPLE DATES:  
 CS-09 THROUGH CS-15 FROM NOVEMBER 2005  
 CS-101 THROUGH CS-103 FROM AUGUST 2007  
 CS-201 THROUGH CS-205 FROM MARCH 2010  
 CS-301 THROUGH CS-309 FROM MARCH 2011



**NOTE: ALL LOCATIONS ARE APPROXIMATE**

**Table 2**  
**Soil Analytical Results, March 15 and 16, 2011**  
**Former Carrier Shop Area, Former PALCO Mill B, Scotia, California**  
**(in mg/kg<sup>1</sup>, unless otherwise noted)**

Sample Location & Depth (feet)	TPHMO <sup>2</sup>	TPHD <sup>2</sup>	TPHG <sup>3</sup>	B <sup>3</sup>	T <sup>3</sup>	E <sup>3</sup>	X <sup>3</sup>	MTBE <sup>3</sup>	VOCs <sup>3</sup>	SVOCs <sup>4</sup> (ug/kg) <sup>5</sup>
CS-301@4	1,700	290	280 <sup>6</sup>	<0.0050 <sup>7</sup>	<0.0050	<0.0050	<0.015	<0.020	ND <sup>8</sup>	All ND, except Fluorene = 41 / Phenanthrene = 29 / Pyrene = 35
CS-301@8	12	3.4 <sup>9</sup>	<1.0	<0.0050	<0.0050	<0.0050	<0.015	<0.020	ND	ND
CS-301@12	<10	<1.0	<1.0	-- <sup>10</sup>	--	--	--	--	--	--
CS-302@4	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-302@8	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-302@12	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-303@4	19	<1.0	<1.0	--	--	--	--	--	--	--
CS-303@8	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-303@12	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-304@4	<10	1.2 <sup>9</sup>	<1.0	--	--	--	--	--	--	--
CS-304@8	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-304@12	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-305@4	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-305@8	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-305@12	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-306@4	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-306@8	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-306@12	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-308@4	14 <sup>11</sup>	1.0 <sup>9</sup>	<1.0	--	--	--	--	--	--	--
CS-308@8	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-308@12	<10	<1.0	<1.0	--	--	--	--	--	--	--

**Table 2**  
**Soil Analytical Results, March 15 and 16, 2011**  
**Former Carrier Shop Area, Former PALCO Mill B, Scotia, California**  
**(in mg/kg<sup>1</sup>, unless otherwise noted)**

Sample Location & Depth (feet)	TPHMO <sup>2</sup>	TPHD <sup>2</sup>	TPHG <sup>3</sup>	B <sup>3</sup>	T <sup>3</sup>	E <sup>3</sup>	X <sup>3</sup>	MTBE <sup>3</sup>	VOCs <sup>3</sup>	SVOCs <sup>4</sup> (ug/kg) <sup>5</sup>
CS-309@4	2,400	480 <sup>9</sup>	300 <sup>6</sup>	<0.0050	<0.0050	<0.0050	<0.015	<0.020	ND	All ND, except Naphthalene = 56 /Acenaphthylene = 33 /Acenaphthene = 47 /Fluorene = 140 /Phenanthrene = 220 /Anthracene = 27 /Fluoranthene = 47 /Pyrene = 47
CS-309@8	210	39 <sup>9</sup>	1.5 <sup>6</sup>	--	--	--	--	--	--	--
CS-309@12	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-309@16	<10	<1.0	<1.0	--	--	--	--	--	--	--
CS-309@20	<10	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.015	<0.020	ND	ND
CS-309@24	<10	<1.0	<1.0	--	--	--	--	--	--	--

1. mg/kg: milligrams per kilogram
2. Total Petroleum Hydrocarbons as Motor Oil (TPHMO) and as Diesel (TPHD) analyzed in general accordance with EPA Method No. 8015B
3. Total Petroleum Hydrocarbons as Gasoline (TPHG), Benzene (B), Toluene (T), Ethylbenzene (E), Total Xylenes (X), and Volatile Organic Compounds (VOCs) analyzed in general accordance with EPA Method No. 8260B or 8260B Modified
4. Semi-Volatile Organic Compounds (SVOCs) analyzed in general accordance with EPA Method No. SW8270C
5. ug/kg: micrograms per kilogram
6. The sample does not present a peak pattern consistent with that of gasoline. The peaks elute towards the end of the gasoline range. In the lab's judgment, the material appears to be a product heavier than gasoline. Due to the differences in the purging efficiency of these heavier materials, the results may be variable. The reported result represents the amount of material in the gasoline range.
7. <: "less than" the stated method reporting limit
8. ND: Not Detected
9. Sample contains material in the diesel range of molecular weights, but the material does not exhibit the peak pattern typical of diesel oil.
10. --: not analyzed
11. Sample does not have the typical pattern of fresh motor oil. The material is heavier than motor oil. However, the result reported represents the amount of material in the motor oil range.

**Table 3**  
**Soil Analytical Results-Metals, March 16, 2011**  
**Former Carrier Shop Area, Former PALCO Mill B, Scotia, California**  
**(in mg/kg)<sup>1</sup>**

<b>Metal<sup>2</sup> and CHHSL<sup>3</sup></b> <b>(Commercial/Industrial Land Use)</b>	<b>CS-309@4</b>	<b>CS-309@20</b>
Antimony (380)	<1.0 <sup>4</sup>	<1.0
Arsenic (0.24)	5.2	6.5
Barium (63,000)	360	130
Beryllium (190)	<1.0	<1.0
Cadmium (7.5)	<1.0	<1.0
Chromium (NA <sup>5</sup> )	77	91
Cobalt (3,200)	14	13
Copper (38,000)	29	35
Lead (320)	9.5	8.5
Mercury (180)	<0.20	<0.20
Molybdenum (4,800)	<1.0	<1.0
Nickel (16,000)	87	110
Selenium (4,800)	<1.0	<1.0
Silver (4,800)	<1.0	<1.0
Thallium (63)	<1.0	<1.0
Vanadium (6,700)	47	36
Zinc (100,000)	76	63

1. mg/kg: milligrams per kilogram
2. Metals analyzed in general accordance with EPA Method No. SW6020A
3. CHHSL: California Human Health Screening Levels
4. <: "less than" the stated method reporting limit
5. NA: Not Available

Two soil samples from CS-309 were analyzed for California Assessment Manuel (CAM) 17 metals. With the exception of arsenic and chromium, all of the metals were below the California Human Health Screening Levels (CHHSLs). A CHHSL for total chromium is not available.

In August 2007, SHN collected three soil samples in the vicinity of the Old Millwright Shop (soil boring OM-101) for laboratory analysis (SHN, 2007). The purpose of collecting the soil samples was to establish background metals concentrations in soil within the vicinity of the Mill B area (Table 4). Concentrations of arsenic and chromium detected in soil samples from boring CS-309 are similar to background conditions.

**Table 4**  
**Background Metals Evaluation, August 24, 2007**  
**Old Millwright Shop Area- Former PALCO Mill B, Scotia, California**  
**(in mg/kg)<sup>1</sup>**

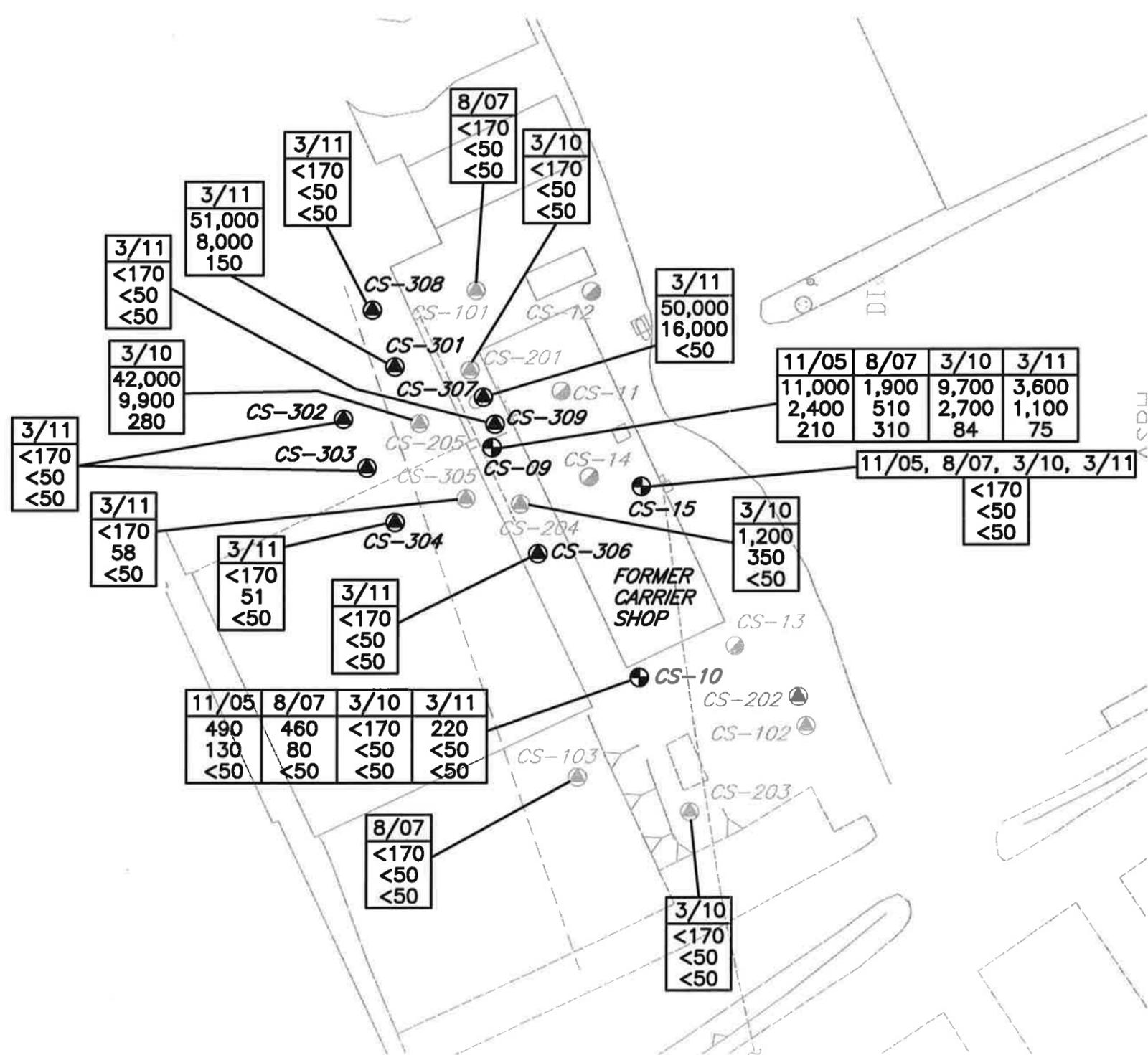
<b>Boring Location and Depth</b>	<b>Arsenic<sup>2</sup></b>	<b>Cadmium<sup>2</sup></b>	<b>Chromium<sup>2</sup></b>	<b>Lead<sup>2</sup></b>	<b>Nickel<sup>2</sup></b>	<b>Zinc<sup>2</sup></b>
OM-101@3'	3.9	<1.0 <sup>3</sup>	60	5.4	48	69
OM-101@5.5'	5.5	<1.0	51	5.8	46	59
OM-101@7.5'	5.7	<1.0	56	6.2	71	73

1. mg/kg: milligrams per kilogram
2. California Assessment Manuel (CAM)-5 metals analyzed in general accordance with EPA Method SW 6020/SW6020A
3. <: "less than" the stated method reporting limit

### 3.3 Groundwater Analytical Results

Twelve groundwater samples from the former Carrier Shop area were submitted for laboratory analysis. The laboratory analytical results for the groundwater samples collected during this investigation are presented in Tables 5 and 6. Select results are shown on Figure 5. A discussion of groundwater impacts is included in Section 5.0 "Conceptual Site Model—Carrier Shop Area."

\\Zing\projects\2011\011019-Scotia-Mill-B-HRC\Drawings, SAVED: 5/15/2011 3:33 PM, CNEWELL, PLOTTED: 5/19/2011 1:42 PM, JILLIAN YERBY



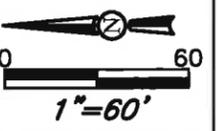
**EXPLANATION**

- SOIL BORING LOCATION AND DESIGNATION
- SOIL BORING/TEMPORARY WELL POINT LOCATION AND DESIGNATION
- ⊕ SOIL BORING/PIEZOMETER LOCATION AND DESIGNATION

8/07	SAMPLE DATE
<170	TPHMO
<50	TPHD
<50	TPHG

RESULTS IN ug/L

POST SILICA GEL CLEANUP RESULTS ARE SHOWN FOR TPHMO & TPHD WHERE AVAILABLE



**NOTE: ALL LOCATIONS ARE APPROXIMATE**

<p>Consulting Engineers &amp; Geologists, Inc.</p>	<p>Former PALCO Mill B Phase II Investigation Scotia, California</p>	<p>Groundwater Analytical Results, Former Carrier Shop Area SHN 011019</p>
	<p>May 2011</p>	<p>011019-FRMR-CARRIER-GAR</p>

**Table 5**  
**Groundwater Analytical Results, March 15-17, 2011**  
**Former Carrier Shop Area, Former PALCO Mill B, Scotia, California**  
**(in ug/L)<sup>1</sup>**

Sample ID	TPHMO <sup>2</sup>	TPHD <sup>2</sup>	TPHG <sup>3</sup>	B <sup>3</sup>	T <sup>3</sup>	E <sup>3</sup>	X <sup>3</sup>	MTBE <sup>3</sup>	VOCs <sup>3</sup>	SVOCs <sup>4</sup>
WQO <sup>5</sup> (RWQCB <sup>6</sup> July 14, 2009 or California Primary MCL <sup>7</sup> unless noted)	175	100	50	1	150	300	1,750	5 (Secondary MCL)	Varies- 1,3- Dichlorobenzene= 7 (USEPA IRIS <sup>8</sup> Reference Dose)	Pyrene=210, Fluoranthene=280, Fluorene=280 (USEPA IRIS Reference Dose), Chrysene=0.4 (Cal-EPA <sup>9</sup> cancer potency factor as a drinking water level), Naphthalene=21 (Taste & Odor)
CS-09	3,600	1,100 <sup>10</sup>	75	<0.50 <sup>11</sup>	<0.50	<0.50	<1.0	<1.0	ND <sup>12</sup>	All ND, except Pyrene = 0.051
CS-10	220 <sup>13</sup>	<50	<50	<0.50	<0.50	<0.50	<1.0	<1.0	ND	All ND, except Phenanthrene = 0.087 / Fluoranthene = 0.027 / Pyrene = 0.093 / Chrysene = 0.025
CS-15	<170	<50	<50	<0.50	<0.50	<0.50	<1.0	<1.0	ND	ND
CS-301	51,000	8,000 <sup>8</sup>	150	<0.50	<0.50	<0.50	<1.0	<1.0	ND	All ND, except Fluorene = 0.35 / Phenanthrene = 0.29 / Pyrene = 0.23
CS-302	<170	<50	<50	-- <sup>14</sup>	--	--	--	--	--	--
CS-303	<170	<50	<50	--	--	--	--	--	--	--
CS-304	<170	51 <sup>5</sup>	<50	--	--	--	--	--	--	--
CS-305	<170	58 <sup>5</sup>	<50	--	--	--	--	--	--	--
CS-306	<170	<50	<50	--	--	--	--	--	--	--
CS-307	50,000	16,000 <sup>8</sup>	<50	<0.50	<0.50	<0.50	<1.0	<1.0	ND	All ND, except Naphthalene = 0.093 / Fluorene = 0.13 / Phenanthrene = 0.089 / Pyrene = 0.041
CS-308	<170	<50	<50	--	--	--	--	--	--	--
CS-309	<170	200 <sup>8</sup>	<50	1.2	<0.50	<0.50	<1.0	<1.0	All ND, except 1,3- Dichlorobenzene = 1.0	ND

**Table 5**  
**Groundwater Analytical Results, March 15-17, 2011**  
**Former Carrier Shop Area, Former PALCO Mill B, Scotia, California**  
**(in ug/L)<sup>1</sup>**

Sample ID	TPHMO <sup>2</sup>	TPHD <sup>2</sup>	TPHG <sup>3</sup>	B <sup>3</sup>	T <sup>3</sup>	E <sup>3</sup>	X <sup>3</sup>	MTBE <sup>3</sup>	VOCs <sup>3</sup>	SVOCs <sup>4</sup>
WQO <sup>5</sup> (RWQCB <sup>6</sup> July 14, 2009 or California Primary MCL <sup>7</sup> unless noted)	175	100	50	1	150	300	1,750	5 (Secondary MCL)	Varies- 1,3- Dichlorobenzene= 7 (USEPA IRIS <sup>8</sup> Reference Dose)	Pyrene=210, Fluoranthene=280, Fluorene=280 (USEPA IRIS Reference Dose), Chrysene=0.4 (Cal-EPA <sup>9</sup> cancer potency factor as a drinking water level), Napthalene=21 (Taste & Odor)
CS-309 (w/silica gel cleanup)	<170	<50	--	--	--	--	--	--	--	--

1. ug/L: micrograms per Liter
2. Total Petroleum Hydrocarbons as Motor Oil (TPHMO) and as Diesel (TPHD) analyzed in general accordance with EPA Method No. 8015B; select samples subjected to silica gel cleanup
3. Total Petroleum Hydrocarbons as Gasoline (TPHG), Benzene (B), Toluene (T), Ethylbenzene (E), Total Xylenes (X), and Volatile Organic Compounds (VOCs) analyzed in general accordance with EPA Method No. 8260B or 8260B Modified
4. Semi-Volatile Organic Compounds (SVOCs) analyzed in general accordance with EPA Method No. SW8270C
5. WQO: Water Quality Objective
6. RWQCB: California Regional Water Quality Control Board, North Coast Region
7. MCL: Maximum Contaminant Level
8. USEPA IRIS: United States Environmental Protection Agency Integrated Risk Information System
9. Cal-EPA: California Environmental Protection Agency
10. Sample contains material in the diesel range of molecular weights, but the material does not exhibit the peak pattern typical of diesel oil.
11. <: "less than" the stated method reporting limit
12. ND: Not Detected
13. Sample does not have the typical pattern of fresh motor oil. However, the result reported represents the amount of material in the motor oil range.
14. --: not analyzed

**Table 6**  
**Groundwater Analytical Results-Dissolved Metals, March 16 and 17, 2011**  
**Former Carrier Shop Area, Former PALCO Mill B, Scotia, California**  
**(in ug/L)<sup>1</sup>**

<b>Metal<sup>2</sup> and WQO<sup>3</sup> (California Primary MCL<sup>4</sup> unless noted)</b>	<b>CS-09</b>	<b>CS-10</b>	<b>CS-15</b>	<b>CS-307</b>	<b>CS-309</b>
Antimony (6)	-- <sup>5</sup>	--	--	<5.0 <sup>6</sup>	<5.0
Arsenic (10)	--	--	--	<5.0	77
Barium (1,000)	--	--	--	150	94
Beryllium (4)	--	--	--	<1.0	<1.0
Cadmium (5)	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium (50)	<5.0	<5.0	<5.0	8.7	<5.0
Cobalt (NA <sup>7</sup> )	--	--	--	<5.0	<5.0
Copper (1,300)	--	--	--	8.2	<5.0
Lead (15)	<5.0	<5.0	<5.0	27	<5.0
Mercury (2)	--	--	--	<1.0	<1.0
Molybdenum (35-USEPA IRIS <sup>8</sup> Reference Dose)	--	--	--	<5.0	15
Nickel (100)	<5.0	8.4	<5.0	10	20
Selenium (50)	--	--	--	<10	<10
Silver (100-Secondary MCL)	--	--	--	<5.0	<5.0
Thallium (2)	--	--	--	<5.0	<5.0
Vanadium (63-USEPA IRIS reference dose)	--	--	--	<5.0	<5.0
Zinc (5,000-Secondary MCL)	<10	80	<10	120	<10

1. ug/L: micrograms per Liter
2. Dissolved metals analyzed in general accordance with EPA Method No. 200.8 Rev. 5.4.
3. WQO: Water Quality Objective
4. MCL: Maximum Contaminant Level
5. --: not analyzed
6. <: "less than" the stated method reporting limit
7. NA: Not Available
8. USEPA IRIS: United States Environmental Protection Agency Integrated Risk Information System

### 3.4 LNAPL Fingerprinting

A sample of LNAPL from CS-09 was submitted to Torkelson Geochemistry. The laboratory indicated that the material in this LNAPL sample consisted of weathered lubricating oil and a small amount of weathered Stoddard solvent. The laboratory report and interpretation from Torkelson Geochemistry is included in Appendix D.

## 4.0 Discussion

Analytical results of groundwater and soil samples collected from the former Carrier Shop area have identified the presence of petroleum hydrocarbons in soil and groundwater at elevated concentrations. The bulk of the petroleum hydrocarbon contamination appears to be in the vicinity of the leach pipe and piezometer CS-09 and in borings CS-205, and CS-301 (inside the lumber storage area). The horizontal and vertical extent of the petroleum hydrocarbon impacted soil and groundwater has been adequately defined. Additional information regarding the soil and groundwater impacts at the Former Carrier Shop is presented in the following conceptual site model.

## 5.0 Conceptual Site Model-Carrier Shop Area

This section summarizes the available site information and our working hypothesis regarding the site's physical reality.

### 5.1 Sources of Contamination

SHN reviewed the Phase 1 Environmental Site Assessment (ESA) for the Town of Scotia (SHN, 2002) for historic information pertaining to the former Carrier Shop. As presented in the ESA, the former Carrier Shop is not shown on any historic Sanborn maps (1900 to 1935). In the 1935 Sanborn map, a monorail shed E crane is shown in the vicinity of the former Carrier Shop. The former Carrier Shop does not appear in the 1954 air photo; however, it is visible in the 1966 air photo, with buildings immediately to the north. In the 1974 air photo, the building immediately to the north was removed, and there appear to be a few cars parked in this disturbed area (location of the current kiln and covered lumber storage buildings). In the 1988 air photo, it appears that the dry kilns and covered lumber storage area immediately north are present, although the photo is difficult to see. In the 1996 air photo, the former Carrier Shop is present, and the dry kilns and covered lumber storage area immediately north are clearly visible.

The former Carrier Shop was historically used for servicing and repairing forklifts, lumber carriers, and other equipment (maintenance activities were relocated to the New Company Garage). The western half of this building was covered and had a dirt floor, and was used mainly for parking the carriers. The eastern half of the building (which has a concrete floor) had two sub-grade mechanics' pits. At the time of the Phase 1 ESA site visit, one pit was filled with standing water and the other had a wooden cover. A third mechanic's pit was located within the easternmost portion of the building (former wash down area). PALCO reported that two of the drains went to the leach pit outside and north of the building, and the third drain was connected to the storm drain system, south of the building (SHN, 2002).

Three Underground Storage Tanks (USTs) were located in the vicinity of the former Carrier Shop: one, 12,000-gallon diesel; one, 1,200-gallon unleaded gasoline; and one, 600-gallon waste oil (Figure 2). Excerpts from historic reports related to the UST investigations and remediation are included in Appendix F.

The following is a summary of activities related to the UST removals and subsequent closure by the Humboldt County Division of Environmental Health:

- In April of 1990, SHN conducted an initial subsurface investigation in the vicinity of two of the USTs at the Carrier shop site. The investigation included five soil borings surrounding the 12,000-gallon and 1,200-gallon USTs. Additionally, three, 1.5-inch saw slotted PVC piezometers were installed into three borings (EB-202, EB-203, EB-204) to monitor groundwater elevations monthly over one year (Appendix F-1) (SHN, May 1990).
- In October 1991, the three USTs and the three piezometers were removed. In addition, overexcavation was completed at the 1,200-gallon UST, and verification samples were collected for analysis (Appendix F-2).
- On October 8, 1997, SHN directed the installation of three soil borings surrounding the former 600-gallon waste oil UST location (Appendix F-3). Additionally, piezometer (P-1) was installed inside of boring B-1 to document groundwater elevations.
- In July and August 1998, SHN directed the overexcavation of contaminated soil at the former 600-gallon waste oil tank location. A total of 125 cubic yards of contaminated soil was removed, and verification samples were collected for analysis (Appendix F-4) (SHN, October 1998).
- A verification water sample was collected on October 2, 1998, from piezometer P-1 to determine groundwater impacts downgradient from the former 600-gallon waste oil location. The sample was analyzed for TPHG, TPHD/TPHMO, and BTEX. The results of the water sample analyses were below the method reporting limits for all constituents (Appendix F-4).
- On December 8, 1999, piezometer P-1 was destroyed with concurrence of and under Humboldt County Division of Environmental Health (HCDEH) permit number 808-B. Subsequently, on May 3, 2000, SHN submitted a formal request for site closure of the Carrier Shop. On June 15, 2000, the HCDEH issued a remedial action completion certification for the three USTs at the former Carrier Shop.

In 2004, during the demolition of the Carrier Shop building, Hake Construction cleaned out the mechanics' pits within the former Carrier Shop and removed sludge from the leach pit. The leach pit (leach pipe on Figure 2) consists of a vertical corrugated metal pipe with perforations from approximately 12 to 21 feet below grade.

Based on the available historic information and data collected during the field investigations, it appears that the primary source area for the identified soil and groundwater contamination at the former Carrier Shop is the leach pipe.

## 5.2 Hydrogeology

Site soils at the former carrier shop consist of various thicknesses of gravel fill, underlain by clayey or sandy silts, with interbedded silty sands. The predominant soil type is clayey silt, with a mottled brown/grey color with few organics and common root holes or macropores. The clayey silts are stiff and have a relatively low permeability.

During the UST investigations at the Carrier Shop, monthly groundwater measurements were collected from well points (EB-202, EB-203, EB-204) over one year. Groundwater flow directions and gradients from these measurements are shown in Table 7. Groundwater flow was generally southward at low gradients. On March 16, 2011, the groundwater flow was to the south-southeast with an approximate gradient of 0.14 feet per foot, using data from piezometers CS-09, CS-10, and CS-11.

Measurement Date	Groundwater Gradient (ft/ft)	Groundwater Flow Direction
10/24/1990	0.033	S-SW
11/27/1990	0.030	S
12/27/1990	0.027	S-SW
1/24/1991	0.029	S
2/22/1991	0.018	S-SE
3/25/1991	0.037	S-SE
4/26/1991	0.017	S
5/22/1991	0.034	S-SE
6/24/1991	0.011	S-SE
7/26/1991	0.025	S-SE
8/26/1991	0.026	S-SW
9/26/1991	0.030	S-SW
1. ft/ft: feet per foot		

In March 2011, depth to water in temporary well points ranged from approximately 1 feet BGS at CS-307 to 13.3 feet at CS-308. Water was present in the leach pipe just below the ground surface. In several borings, groundwater was present within the gravel fill, and piezometers are screened across the fill and native soils. Piezometers CS-09 and CS-10 are in locations where localized perched water is present in the fill and ponded surface water on gravel cover was observed nearby. Piezometer CS-15 is located in an area capped with concrete, preventing surface water infiltration, and therefore has a lower depth-to-water and is more representative of the non-anthropogenic influenced groundwater elevation in native site soils. Due to the water within the fill material, the groundwater flow directions and gradients shown in Table 7 are likely a better representation of site conditions, than information collected in March 2011.

### 5.3 Contaminant Impacts in Soil

A summary of soil analytical results is included on Figure 4 and complete results are included in Appendix E. The highest concentrations of petroleum hydrocarbons in soil were detected in the soil sample from boring CS-09 at 3 feet BGS. The horizontal and vertical extent of petroleum hydrocarbons in soil has been adequately defined. The primary contaminant in soil is motor oil range hydrocarbons (with lesser amounts of diesel range hydrocarbons), which is consistent with

the LNAPL fingerprinting results and the historic information for discharges to the leach pipe. Petroleum impacted soil generally is limited to shallow soils in the areas of borings CS-09, CS-201, CS-205, and CS-301, which is consistent with historic discharges to the leach pipe.

Low concentrations of TPHG were detected in soil (less than 6.4 milligrams per kilogram [mg/kg]) in the borings installed near the former 1,200 gallon gasoline UST. Petroleum hydrocarbons were not detected in soil in the vicinity of the 12,000 gallon diesel UST. Some areas of residual TPHMO and TPHD remained following the excavation activities at the 600-gallon waste oil UST; however, petroleum hydrocarbons were not detected in the groundwater sample collected from P-1 or from groundwater samples from CS-15.

Low concentrations of SVOCs have been detected in shallow soil samples; however, SVOC concentrations in soil do not appear to be impacting water quality at concentrations above WQOs.

Concentrations of metals in soil samples are generally consistent with background concentrations. Lead was detected in soil sample CS-101 @ 3 feet BGS at a concentration of 92 mg/kg in 2007, and is the only detection substantially above background levels. Dissolved lead was only detected (27 micrograms per Liter [ug/L]) in the groundwater sample from within the backfill around the leach pipe (CS-307).

## 5.4 Contaminant Impacts in Groundwater

A summary of groundwater analytical results is included as Figure 5 and complete results are included in Appendix E. Historic groundwater analytical results indicate that groundwater contamination detected at the Former Carrier Shop is primarily in the form of TPHMO with lesser amounts of TPHD. The low concentrations of TPHG detected in groundwater samples are likely from the overlap of the heavier end of the gasoline range with the lighter end of the diesel range of hydrocarbons. The vertical and horizontal extents of petroleum hydrocarbons in groundwater have been adequately defined.

LNAPL has historically been measured in piezometer CS-09 with a maximum thickness of 0.05 feet.

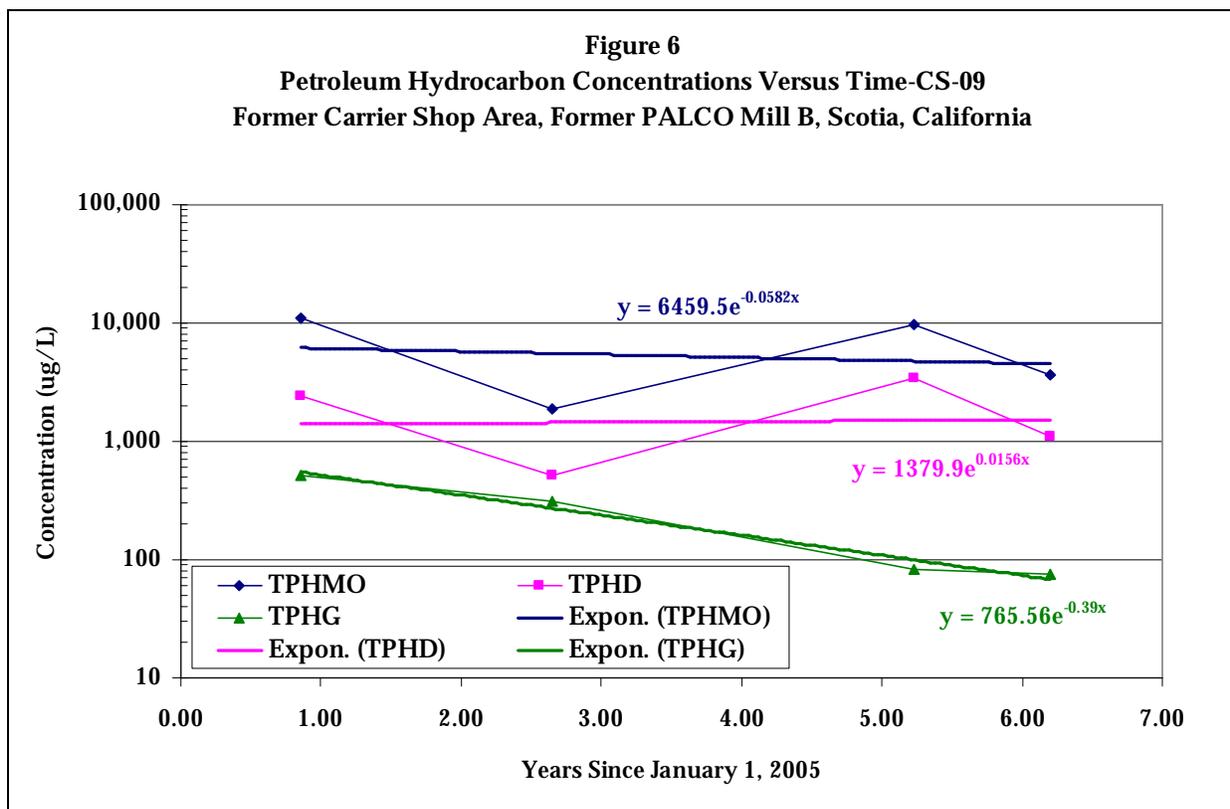
VOCs have not been detected in any groundwater samples collected at the site, with the exception of low concentrations of benzene and 1,3-dichlorobenzene in the groundwater sample from CS-309, and a low concentration of toluene in one groundwater sample from CS-10. The concentrations of toluene and 1,3-dichlorobenzene were below the WQO. The concentration of benzene is only slightly above the WQO.

Where detected, low concentrations of SVOCs in groundwater samples were detected below WQOs.

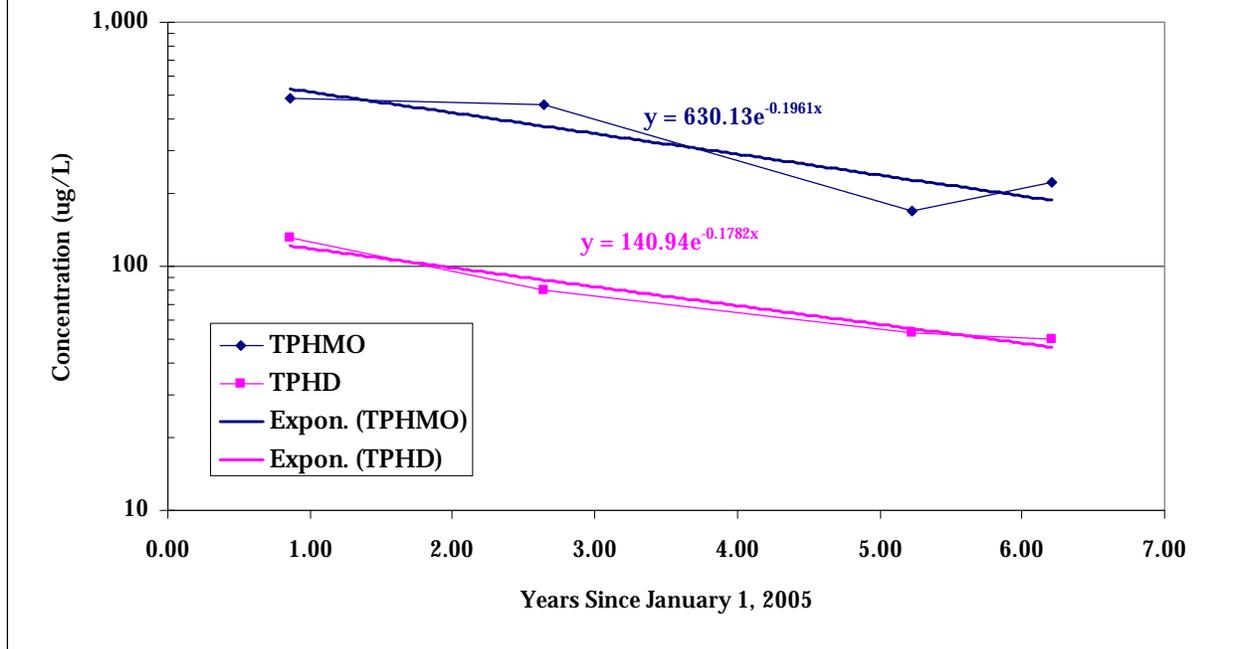
Dissolved lead was detected only in the groundwater sample from CS-307 above the WQO (within the leach pipe backfill). Based on the dissolved lead results from CS-09 and CS-309, the extent of lead in groundwater appears to be limited to the leach pipe backfill.

Dissolved arsenic was detected in the groundwater sample collected from CS-309 (screened from 24 to 28 feet BGS) at a concentration above the WQO. As dissolved arsenic was not detected in the groundwater sample from CS-307, the concentration at the deeper interval may be naturally occurring. There is no suspected source of arsenic given the historical uses of the Carrier Shop.

Graphs showing TPHMO, TPHD, and TPHG concentrations through time for site piezometers is included as Figures 6 and 7 (TPHG is not included on Figure 7, as TPHG results have been less than 50 ug/L in CS-10). On Figure 6, TPHMO and TPHD concentration trendlines are relatively flat, which is consistent with the presence of LNAPL in this piezometer. The TPHG trendline for CS-09 indicates a decreasing trend through time. On Figure 7, TPHMO and TPHD concentrations continue to show a long-term overall decreasing trend in piezometer CS-10. TPHD was detected in only one groundwater sample from CS-15 at a concentration of 52 ug/L and was less than 50 ug/L following silica gel cleanup.



**Figure 7**  
**Petroleum Hydrocarbon Concentrations Versus Time-CS-10**  
**Former Carrier Shop Area, Former PALCO Mill B, Scotia, California**



The data presented in Figures 6 and 7 indicates that the dissolved phase plume is stable in the source area (CS-09) and is decreasing away from the source (CS-10). The information from CS-15 indicates that the dissolved phase plume is defined in the downgradient direction.

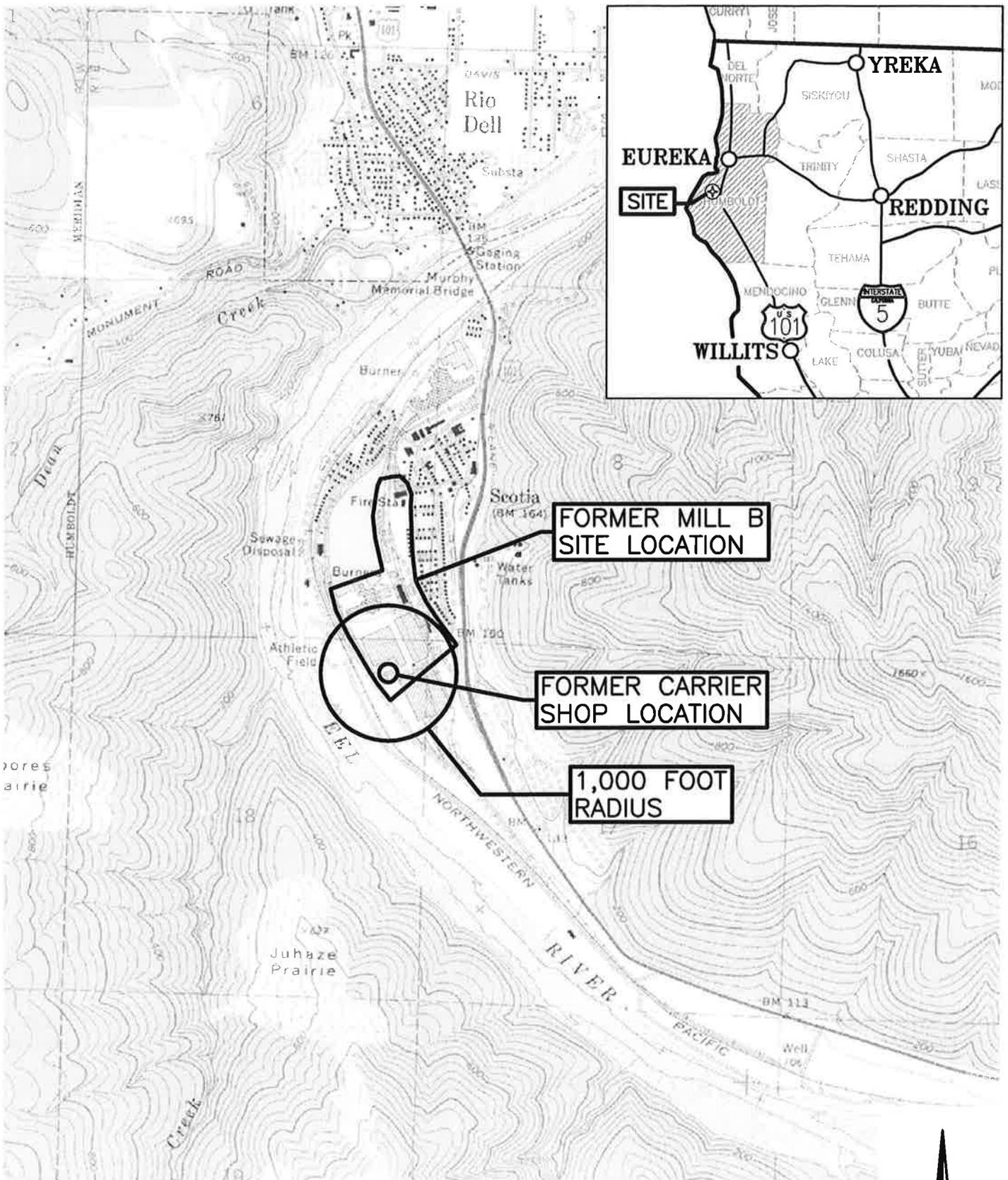
## 5.5 Sensitive Receptors

SHN performed a sensitive receptor survey for a 1,000-foot radius from the former Carrier Shop location (Figure 8). SHN investigated the area for the presence of water wells and potential health and safety issues associated with the property. Data was acquired from site visits and United States Geological Survey 7.5-minute series topographic maps.

The sensitive receptor search radius encompasses a portion of the mill site and a small portion of the Eel River. The site is an industrial use facility, and will be in continued operation for some time. No land use changes are planned for the Former PALCO Mill B site.

The Town of Scotia/Mill B water supply is from the Eel River, taken at a location approximately 1,500 feet northwest of the former Carrier Shop Area. No known water supply wells are present at the Mill B site.

Surface bodies of water within the 1,000-foot radius include the main stem of the Eel River. The log pond is approximately 1,400 feet north of the former Carrier Shop. Based on the groundwater analytical results from the site piezometers and temporary well points, no sensitive receptors have been impacted.



SOURCE: SCOTIA USGS  
7.5 MINUTE QUADRANGLE



\\Eureka\projects\2011\011019-Scotia-Mill-B-HRC\Drawings - SAVED: 5/17/2011 11:36 AM IVERBY, PLOTTED: 5/17/2011 11:36 AM, JILLIAN YERBY

	Former PALCO Mill B Phase II Investigation Scotia, California	Sensitive Receptor Survey
	May 2011	SHN 011019 011019-SENS-RECP
		Figure 8

Underground utilities in the immediate vicinity of the former Carrier Shop include stormwater lines. Data collected from site borings in the vicinity of the drain inlets and near the lines have indicated that the storm drain line trenches are not acting as preferential pathways for contaminant transport (SHN, January 2011).

TPHMO and TPHD are not considered contaminants of concern for vapor intrusion due to low volatility and mobility. There is no shallow soil gas human health screening level for TPHMO, TPHD, or TPHG (Cal -EPA, 2005).

## 5.6 Data Gap Analysis

The extents of contamination have been adequately defined with the exception of the presence of dissolved arsenic in the groundwater sample from CS-309. As only one deeper groundwater sample has been collected, additional deeper groundwater samples are warranted to determine if the concentrations in deeper groundwater are naturally occurring, as no source of arsenic was identified given the historical uses of the Carrier Shop.

## 6.0 Remedial Action Plan

The remedial action plan will consist of three phases. The first phase will be to evaluate the concentration of dissolved arsenic in the groundwater sample collected from CS-309. The evaluation will consist of the collection of three additional groundwater samples from 24 to 28 feet BGS in the vicinity of the leach pipe and outside of the petroleum hydrocarbon impacted area. There is no known source of arsenic at the former Carrier Shop, and the results from CS-309 may be indicative of natural conditions. During this drilling mobilization, piezometers CS-09, CS-10, and CS-15 will be properly destroyed, as the dissolved phase petroleum hydrocarbon plume is defined and decreasing through time away from the source area due to natural attenuation. The piezometers will be destroyed by overdrilling the piezometers with the Geoprobe DT-32 direct push system, removing the PVC casing and screen and filter pack, and backfilling with bentonite chips.

The second phase will be to implement an interim remedial action, which will consist of a limited excavation in the vicinity of CS-09 and removal of the leach pipe. An area approximately 10 feet by 10 feet by 5 feet deep will be excavated at the location of CS-09. The excavation pit will be allowed to drain water from the fill deposits and any residual water or LNAPL which enters the pit will be periodically pumped into a temporary storage container. The excavation area will be backfilled with clean material.

The leach pipe is a potential conduit to the subsurface and should be removed. We recommend that the water present in the pipe and backfill be pumped into a temporary storage container. Once the water is removed, the area around the leach pipe will be excavated to expose the pipe. The pipe will be cut off at 5 feet BGS, filled with clean material, capped with 1-foot of bentonite chips, and covered with the current steel lid. The excavation floor around the pipe will be covered with 1-foot of bentonite chips, a layer of geofabric, and then backfilled with clean material. This should effectively prevent any potential migration of possible future surface spills through the leach pipe or gravel surrounding the pipe.

Soil and water removed during the interim remedial action will be characterized and properly disposed of at a licensed facility and documentation will be submitted in an interim remedial action implementation report.

Following the interim action, the final Remedial Action will be to place a deed restriction on the site. Concentrations of TPHMO and TPHD in groundwater are on a declining trend in CS-10, and natural attenuation is occurring at the site. The site has been adequately characterized and no active sources of contamination have been identified. Removal of residual LNAPL from the vicinity of CS-09 will remove residual source material and natural attenuation will remediate the remaining petroleum hydrocarbons. No sensitive receptors have been impacted. Current and projected future land use will not be detrimentally affected by residual petroleum hydrocarbons. Therefore, we believe that removal of the leach pipe and water within the backfill, and limited source removal in the vicinity of CS-09, coupled with monitored natural attenuation and institutional controls, would be an appropriate remedial action plan for this site. A deed restriction would be placed on the title that would indicate locations that contain residual petroleum hydrocarbons in soil and groundwater. The deed restrictions will ensure that the property is used in such a manner as to avoid potential harm to persons or property that may result from residual petroleum hydrocarbons at the site.

## 7.0 References Cited

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  - . (October 2010). “Data Evaluation and Additional Subsurface Investigation Work Plan, Former PALCO Mill B, Scotia, California, Case No. 1NHU857. “ Eureka:SHN.
  - . (January 2011). “Response to Comments and Work Plan Addendum, Former PALCO Mill B, Scotia, California, Case No. 1NHU857.“ Eureka: SHN.
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**Appendix A**

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**Correspondence**



**California Regional Water Quality Control Board  
North Coast Region  
Geoffrey M. Hales, Chairman**



Linda S. Adams  
Secretary for  
Environmental Protection

www.waterboards.ca.gov/northcoast  
5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403  
Phone: (877) 721-9203 (toll free) • Office: (707) 576-2220 • FAX: (707) 523-0135

Arnold  
Schwarzenegger  
Governor

December 2, 2010

Mr. Frank Bacik  
Town of Scotia Company, LLC  
P.O. Box 245  
Scotia, CA 95565  
[fbacik@townofscotia.com](mailto:fbacik@townofscotia.com)

Ms. Cheryl Moore  
Humboldt Redwood Company  
P.O. Box 390  
Calpella, CA 95418  
[cmeyers@mendoco.com](mailto:cmeyers@mendoco.com)

Dear Mr. Bacik and Ms. Moore:

Subject: Comments on Data Evaluation and Additonal Subsurface Investigation  
Work Plan, Former PALCO Mill B Dated October 27, 2010

File: PALCO Scotia, 125 Main Street, Scotia, CA Case Number 1NHU857

Regional Water Board staff (Staff) reviewed the subject work plan (Workplan) prepared by SHN Consulting Engineers and Geologists, Inc (SHN) for PALCO Scotia (Site). The following provides Staff response to the request for no further action (NFA) and comments on the Workplan.

#### **NFA Request**

Staff concurs that NFA is appropriate at this time for the Former Bunker/Locomotive Area, Machine Shop, and Diesel AST Area. The data collected to date indicates that the vertical and horizontal extent of diesel and motor oil soil and groundwater contamination has been defined and the dissolved hydrocarbon plume is not migrating. In addition, groundwater, surface water, or other sensitive receptors are not likely to be impacted and these sites present no significant risk to human health or the environment. The data analysis including the trend graphs provided in the Workplan show that the water quality objectives for diesel and motor oil will be reached in reasonable period of time (within 20 years).

#### **Workplan**

Staff generally concurs with the Workplan. The proposed laboratory analyses for the soil and groundwater samples should be modified to include VOCs, sVOCs and metals.

**California Environmental Protection Agency**

Recycled Paper

Staff believes this is necessary due to the unknown type and quantity of waste products discharged into the leach pipe and storm drain system at the Carrier Shop.

Text on page 11 indicates that light non-aqueous phase liquid (LNAPL) will only be collected from CS-09 if encountered. You should be prepared to perform this same exercise if LNAPL is encountered in any of the borings or wells.

The report submitted at the conclusion of the activities proposed in the Workplan needs to address documentation for the soil and groundwater waste disposal and the current status and use of the leach pipe. In addition a revised site conceptual model needs to be included in the report that addresses previous work associated with the former underground storage tanks. The report also needs to address how discharges to the leach pipe and storm drain will be abated.

It is not clear from the Workplan if discharges to the storm drain system may have impacted soil and groundwater. An evaluation of the storm drain system needs to be included with the report of field activities.

In summary, Staff concurs that NFA is appropriate for the Former Bunker/Locomotive Area, Machine Shop, and Diesel AST Area and generally concurs with the Workplan with exceptions as noted above. PALCO needs to submit a modified laboratory analyses program by January 5, 2011. Please provide a five (5) business day advanced notice to Staff before work commences at the site so that we may schedule a site visit during field activities, if necessary. Section 13267 of the California Water Code contains the authority for these requests.

To conserve financial and environmental resources, future correspondence will be mailed and emailed to the letter recipient and the interested party list will only receive electronic copies. Documents are also available in GeoTracker.

Please contact me (707) 576-2802 if you have any questions.

Sincerely,

Robert B. Dickerson  
Environmental Scientist

101203\_RBD\_PALCO\_FormerMillInvestigation\_Workplan\_Comments

cc: Roland Rueber, PG, SHN Consultants, [rrueber@shn-engr.com](mailto:rrueber@shn-engr.com)  
Mark Verhey, Humboldt County Health Department, [mverhey@co.humboldt.ca.us](mailto:mverhey@co.humboldt.ca.us)  
Lt. Jon Willcox, Department of Fish and Game, Eureka, CA, [JWillcox@dfg.ca.gov](mailto:JWillcox@dfg.ca.gov)  
Ron Henrickson, City Manager, City of Rio Dell, [cm@riodellcity.com](mailto:cm@riodellcity.com)

**California Environmental Protection Agency**



**California Regional Water Quality Control Board  
North Coast Region**

**Geoffrey M. Hales, Chairman**



Linda S. Adams  
Acting Secretary for  
Environmental Protection

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Edmund G. Brown, Jr.  
Governor

February 7, ~~2010~~ 2011

Mr. Frank Bacik  
Town of Scotia Company, LLC  
P.O. Box 245  
Scotia, CA 95565  
[fbacik@townofscotia.com](mailto:fbacik@townofscotia.com)

Ms. Cheryl Moore  
Humboldt Redwood Company  
P.O. Box 390  
Calpella, CA 95418  
[cmoore@mendoco.com](mailto:cmoore@mendoco.com)

Dear Mr. Bacik and Ms. Moore:

Subject: Regional Board Concurrence with Response to Comments and Work Plan Addendum, Former PALCO Mill B Dated January 12, 2011

File: PALCO Scotia, 125 Main Street, Scotia, CA Case Number 1NHU857

Regional Water Board staff (Staff) reviewed the subject work plan addendum (Addendum) prepared by SHN Consulting Engineers and Geologists, Inc for the Former PALCO Scotia Mill B site. Staff concurs with the information provided in Addendum clarifying soil and groundwater sample collection and analysis. In addition, we concur with the rationale for no further investigation of discharges to the storm water system from the Carrier Shop. Please provide a five (5) business day advanced notice to Staff before work commences at the site so that we may schedule a site visit during field activities, if necessary.

Staff looks forward to the revised site conceptual model that will also include a discussion on the former underground storage tanks that were located at the Carrier Shop. This information will be included in the report of findings to be submitted within 90 days of the completing the field work or by May 1, 2011. Section 13267 of the California Water Code contains the authority for these requests.

Please contact me (707) 576-2802 if you have any questions.

Sincerely,

Original signed by

Robert B. Dickerson  
Environmental Scientist

110207\_RBD\_PALCO\_FormerMillBInvestigation\_Workplan110112\_Concur

cc: Roland Rueber, PG, SHN Consultants, [rrueber@shn-engr.com](mailto:rrueber@shn-engr.com)  
Mark Verhey, Humboldt County Health Department, [mverhey@co.humboldt.ca.us](mailto:mverhey@co.humboldt.ca.us)  
Lt. Jon Willcox, Department of Fish and Game, Eureka, CA, [JWillcox@dfg.ca.gov](mailto:JWillcox@dfg.ca.gov)  
Ron Henrickson, City Manager, City of Rio Dell, [cm@riodellcity.com](mailto:cm@riodellcity.com)

**California Environmental Protection Agency**

*Recycled Paper*

**From:** Robert Dickerson  
**To:** Dickerson, Robert  
**Date:** 4/18/2011 11:03 AM  
**Subject:** Fwd: Re: Former Palco Mill B report submittal extension request, 1NHU857  
**Attachments:** Dickerson, Robert.vcf

>>> Robert Dickerson 4/18/2011 11:02 AM >>>  
Good Morning Roland -

Staff reviewed and concurs with the extension request below.

The report and conceptual site model submittal dates shall be June 15, 2011.

rob

Robert B. Dickerson  
Environmental Scientist

North Coast Regional Water Quality Control Board  
Phone: 707.576.2802

>>> Roland Rueber <[rueber@shn-engr.com](mailto:rueber@shn-engr.com)> 4/12/2011 10:52 AM >>>  
Hi Rob,

On behalf of Humboldt Redwood Company and Town of Scotia Company, SHN is requesting an extension for the submittal of the report of findings and conceptual site model for the former carrier shop area at the Former Palco Mill B Site. In our work plan addendum (January 12, 2011) we indicated a report of findings would be submitted within 90 days of performing the fieldwork. In your letter dated February 7, 2011, a submittal date of May 1, 2011 was requested. The field work at the site was performed on March 15 and 16, 2011. We respectfully request that the report submittal date be extended to June 15, 2011. The additional time is necessary to compile all existing data for the conceptual site model. Please let me know if the new submittal date is acceptable.

Thank You

Roland M. Rueber, P.G.

Project Geologist

SHN Consulting Engineers & Geologists Inc.

812 W. Wabash

Eureka, CA 95501

ph. 707-441-8855

Fax 707-441-8877

[rrueber@shn-engr.com](mailto:rrueber@shn-engr.com) <[blocked::mailto:rrueber@shn-engr.com](mailto:rrueber@shn-engr.com)>





Daily Field Report		Job No. 011019	
		Page 1 of 1	
Project Name FORMER MILL B-CARRIER SHOP HRC		Weather RAIN	
Client/Owner		Date 3-15-11	
General Location of Work SCOTIA, CA		Day of Week TUES	
Project Manager RR		Field Personnel RR/EW	
Type of Work SOIL/GW SAMPLING			
815 @ CARRIER SHOP CHECK IN W/ MIKE - MOVING WOOD FROM KILN BAY - SAM (ELECTRICIAN) NOTES CONDUIT - NOT SURE OF PATH - MOVE HOLE TO FIRST BAY AWAY FROM LINE - MIKE MOVING UNITS ~ 8:30 SAFETY MEETING			
945 START CS-305			
1045 FINISH @ CS-305 BENTONITE & CONCRETE ← 10' CONC CORNER @ KILN EDGE SE			
- TAMARA STOPS BY - PLACE SOIL @ NO GARAGE BY WASH OUT			
- MIKE MOVING WOOD FROM 3 <sup>RD</sup> KILN BAY			
1105 @ CS-304			
1140 FINISH @ CS-304			
1150 @ CS-303 45' NORTH @ EAST			
1230 FINISH @ CS-303			
12 <sup>30</sup> - 13 <sup>30</sup> LUNCH			
1330 MOVE RIG TO CS-302 45' N 31' EAST			
1430 START @ CS-301 10' N 42' EAST			
1515 START @ CS-308 13' N 71' EAST			
1600 FINISH @ CS-308 -			
- ALL BORINGS BACKFILLED W/ BENTONITE CHIPS & PATCHED TO MATCH EXISTING			
- ALL GW SAMPLES COLLECTED BY E.W. W/ PERISTALTIC PUMP & NEW TUBING			
- PURGED ~ 1 GALLON FROM EACH WELLPOINT PRIOR TO SAMPLING ~ 6 GALLONS TODAY			
1630 OFF SITE		Copy given to:	Reported By: DRUEBER



Daily Field Report		Job No. 011019	
		Page 1	of 1
Project Name FORMER CARRIER SHOP		Client/Owner HRC	
General Location of Work SCOTIA		Project Manager RR	
Type of Work SOIL / G.W. SAMPLING		Weather RAIN	
		Date 3-16-11	Day of Week WED
		Field Personnel RR / EW	
8:00	@ HOBY'S W/FISCH - SAFETY MEETING		
8:15	TO CARRIER SHOP - MOVE RIG TO CS-307 ~ 3' SOUTH OF VERTICAL CURVE (DRAIN PIPE)		
8:40	START @ CS-307 - ALL GRAVEL TO 12' - SATURATED - SAMPLE WATER (GRAB) FROM		
9:30	@ CS-309 START DRILLING -		
	COLLECT PRODUCT SAMPLE FROM CS-09 USING DISP TUBING AS A "STRAW"		
	CORE TO 28' SS. SCREEN 24-28' THROUGH DT RODS - SLOW WATER PRODUCER		
10:30	MOVE RIG TO CS-306		
	CORE TO 16' SET SCREEN		
	SLOW WATER PRODUCER 12:15 FISH OFFSITE		
12:15-1:15	LUNCH THEN TO NEW GARAGE W/ SOIL -		
	LEFT 2 BUCKETS OF SOIL (LABELED) IN CONTAINMENT AREA @ WASH PAD - I CALLED TAMARA		
	- ADDED 1/2" PIPE EXTENSIONS W/ COUPLER CS-15 & CS-09		
	DTW 3.5" CS-15 4.5" CS-09		
	CS-10 1400 2.80' BTOC		
	CS-15 1415 7.16 "		
	CS-09 1418 1.75 DTP 1.80 DTW -		
	- SET UP TO SAMPLE CS-09 W/ PERISTALTIC		
1:50	SAMPLE CS-09 GW		
	- PURGE CS-15 & CS-10 - PIEZOMETERS DRY DURING SAMPLING		
	VERY SLOW RECHARGE - NOT ENOUGH WATER FOR BOTTLES		
	- WILL LET RECHARGE & SAMPLE THURS 3-17-11		
17:15	OFFSITE		Reported By: <i>[Signature]</i>



# ENGINEERS & GEOLOGISTS

812 W. Wabash Ave.  
Eureka, CA 95501-2138

Tel. 707 / 441-8855  
Fax: 707 / 441-8877

JOB 011019

SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_

CALCULATED BY RR DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

SCALE \_\_\_\_\_

## GW ELEVATIONS

3-16-11

CARRIER SHOT

	TOC	DTP	DTW	GWE
CS-09	110.62	1.75	1.80	108.86
CS-10	109.91	--	2.80	107.11
CS-15	108.52	--	7.16	101.36

ESTIMATED PRODUCT DENSITY = 0.80





# Equipment Calibration Sheet

Name:	RR/EW			
Project Name:	FORMER CARRIER SHOP			
Reference No.:	011019			
Date:	3-15 & 16, 2011			
Equipment:	<input checked="" type="checkbox"/> pH & EC	<input checked="" type="checkbox"/> PID	<input type="checkbox"/> GTCO <sub>2</sub>	<input type="checkbox"/> GTLEL
	<input type="checkbox"/> Turbidity	<input type="checkbox"/> Other _____		
Description of Calibration Procedure and Results:				
3-15 & 16 - CALIBRATED THERMO 580B				
w/ 100 PPM ISO BUTYLONE PER				
MANUFACTURERS DIRECTIONS				
3-16 CALIBRATED YSI PH100METER				
w/ 7.0 & 4.01 BUFFERS				
- EC METER NOT FUNCTIONAL				



Water Sampling Data Sheet

Project Name: CARRIER SHOP Date/Time: 3-16-11  
 Project No.: 011019 Sampler Name: RR/EW  
 Location: CARRIER SHOP, SCOTIA Sample Type: GW  
 Well #: CS-09 Weather: RAIN  
 Hydrocarbon Thickness/Depth (feet): 0.05' Key Needed: NO

Total Well Depth (feet) - Initial Depth to Water (feet) = Height of Water Column (feet) x 0.163 gal/ft (2-inch well) / 0.653 gal/ft (4-inch well) = 1 Casing Volume (gal)

12' - 1.80 = 10.20 x 0.02 = 0.2  
3/4"

Time	DO (ppm)	CO <sub>2</sub> (ppm)	ORP (mV)	EC (uS/cm)	Temp (°F)	pH	Water Removed (gal)	Comments
<u>1445</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>				
<u>1450</u>					<u>14.9</u>	<u>5.68</u>	<u>0.15</u>	<u>TRACE PRODUCE</u>
<u>1452</u>					<u>14.3</u>	<u>5.84</u>	<u>0.5</u>	<u>SL CLOUDY</u>
<u>1453</u>					<u>14.2</u>	<u>5.04</u>	<u>0.25</u>	
<u>1455</u>					<u>14.2</u>	<u>6.08</u>	<u>1.0</u>	<u>CLEAR -</u> <u>HYD ODOR</u>

Purge Method: PERISTALTIC Total Volume Removed: 1 GAL (gal)

Laboratory Information

Sample ID	# & Type of Containers	Preservative/Type	Laboratory	Analyses
<u>CS-09</u>	<u>2-60mL</u>		<u>NCL</u>	<u>D/MO</u>
	<u>3-40mL</u>	<u>HCL</u>		<u>VOC'S, TPHG</u>
	<u>1-1L BG.</u>			<u>8270 SIM</u>
	<u>1-250mL</u>	<u>FILTER-HNO<sub>3</sub></u>		<u>DISS CAM S</u>

Well Condition: - GOOD  
 Remarks: EC METER NOT FUNCTIONAL - GOOD RECHARGE Recharged 1.80 at sample time 1500



Water Sampling Data Sheet

Project Name: CARRIER SHOP Date/Time: 3-16-11 + 3-17-11  
 Project No.: 011019 Sampler Name: PE/EW  
 Location: . Sample Type: RAIN GW  
 Well #: CS-10 Weather: RAIN  
 Hydrocarbon Thickness/Depth (feet): \_\_\_\_\_ Key Needed: NO

Total Well Depth (feet) - Initial Depth to Water (feet) = Height of Water Column (feet) x 0.163 gal/ft (2-inch well) / 0.653 gal/ft (4-inch well) = 1 Casing Volume (gal)

12.00 - 2.80 = 9.20 x 0.02 = 0.02  
3/4"

Time	DO (ppm)	CO <sub>2</sub> (ppm)	ORP (mV)	EC (uS/cm)	Temp (°F)	pH	Water Removed (gal)	Comments
1605	—	—	—	—	20.3	6.90	0.2	VERY TURBID
1606					20.7	6.82	0.4	SL TURBID
1607					21.6	6.63	0.6	↓
1608					21.1	6.61	0.8	
1609					21.0	6.61	1.0	SL TURBID

Purge Method: P Total Volume Removed: \_\_\_\_\_ (gal)

Laboratory Information				
Sample ID	# & Type of Containers	Preservative / Type	Laboratory	Analyses
CS-10	2-60ml		NCL	TPHMO/D
↓	3-40ml	HCl	↓	TPHG / VOC'S
↓	1-1L BG		↓	SVOC'S 8270
↓	1-250ml	Fluor/HNO <sub>3</sub>	↓	DISS AM'S

Well Condition: GOOD  
 Remarks: EC METER MALFUNCTION Recharged  at sample time 16:20 15:1  
WELL GOING DRY DURING SAMPLING -  
SAMPLED 18:20 3-17-11



Water Sampling Data Sheet

Project Name: CAROL SHOP Date/Time: 3-16-11
Project No.: 011019 Sampler Name: RR/EW
Location: SCOTIA MILL B Sample Type: GW
Well #: CS-15 Weather: RAIN
Hydrocarbon Thickness/Depth (feet): Key Needed: NO

Total Well Depth (feet) - Initial Depth to Water (feet) = Height of Water Column (feet) x 0.163 gal/ft (2-inch well) / 0.653 gal/ft (4-inch well) = 1 Casing Volume (gal)
12.00 - 7.16 = 4.84 x 0.02 = 0.10

Table with 9 columns: Time, DO (ppm), CO2 (ppm), ORP (mV), EC (uS/cm), Temp (°F), pH, Water Removed (gal), Comments. Data rows show time from 15:25 to 15:29 with corresponding DO, CO2, ORP, EC, Temp, pH, and Water Removed values.

Purge Method: PERISTALTIC Total Volume Removed: (gal)

Laboratory Information table with 5 columns: Sample ID, # & Type of Containers, Preservative/Type, Laboratory, Analyses. Includes sample ID CS-15 and container details.

Well Condition: Good
Remarks: EC meter MALFUNCTION Recharged @ 3:38 at sample time 15:38
WELL GOING DRY DURING SAMPLING - STOPPED 10:00 3-17-11

**Roland Rueber**

---

**From:** Tambra Fisher [tfisher@hrcllc.com]  
**Sent:** Wednesday, April 13, 2011 2:22 PM  
**To:** Roland Rueber  
**Subject:** Non-hazardous waste manifest for Carrier Shop soils

Hi Roland-

The waste was added to the cubic yard sack listed on line item 11.a. (shipped on 3/17/11). If you need additional information, please let me know.

Thank you

Tambra S. Fisher  
Environmental Engineer  
Humboldt Redwood Company, LLC  
P.O. Box 37  
Scotia, CA 95565  
Office: (707) 764-4268  
Cell: (707) 496-4065  
[tfisher@hrcllc.com](mailto:tfisher@hrcllc.com)

---

**From:** admin@hrc.com [mailto:admin@hrc.com]  
**Sent:** Wednesday, April 13, 2011 2:12 PM  
**To:** Tambra Fisher  
**Subject:** Message from 45C-2

# NON-HAZARDOUS WASTE MANIFEST RECEIVED

Please print or type (Form designed for use on elite (12 pitch) typewriter)

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. <b>CAR000208363</b>	<b>APR 05 2011</b>	Manifest Document No. <b>12399</b>	2. Page 1 of 1
3. Generator's Name and Mailing Address <b>HUMBOLDT REDWOOD COMPANY LLC PO BOX 37 SCOTIA CA 95565</b>					
4. Generator's Phone ( <b>707 496-4065</b> )					
5. Transporter 1 Company Name <b>Asbury Env. Services</b>		6. US EPA ID Number <b>CAD028277036</b>	A. State Transporter's ID		
7. Transporter 2 Company Name		8. US EPA ID Number	B. Transporter 1 Phone		
			C. State Transporter's ID		
			D. Transporter 2 Phone		
9. Designated Facility Name and Site Address <b>SIEMENS WATER TECHNOLOGIES CORP. 5375 SOUTH BOYLE AVENUE LOS ANGELES CA 90058</b>		10. US EPA ID Number <b>CAD097030993</b>	E. State Facility's ID		
			F. Facility's Phone <b>800 266-7147</b>		
11. WASTE DESCRIPTION		12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.
a. <b>NON-HAZARDOUS WASTE, SOLID CLEAN UP DEBRIS</b>		<b>03</b>	<b>BA</b>	<b>3</b>	<b>Y</b>
b. <b>NON-HAZARDOUS WASTE, SOLID CLEAN UP DEBRIS</b>		<b>03</b>	<b>DM</b>	<b>618</b>	<b>P</b>
c.					
d.					
G. Additional Descriptions for Materials Listed Above <b>11A) AP184079 11B) AP184079</b>		H. Handling Codes for Wastes Listed Above <b>(a) H4U1 b) H4U1</b>			
15. Special Handling Instructions and Additional Information <b>USE PPE</b>		<b>EMERGENCY CONTACT : CHEMTREC 1-800-424-9300</b>			
<b>SITE: 169 MAIN STREET, SCOTIA, CA 95585</b>		<b>Project # US382AS-447001-002488 PO# A08 0132402</b>			
16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.					
Printed/Typed Name <b>Lambria Fisher</b>		Signature <i>[Signature]</i>		Date <b>03/17/11</b>	
17. Transporter 1 Acknowledgement of Receipt of Materials					
Printed/Typed Name <b>GABRIEL ARANDA</b>		Signature <i>[Signature]</i>		Date <b>03/17/11</b>	
18. Transporter 2 Acknowledgement of Receipt of Materials					
Printed/Typed Name		Signature		Date	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.					
Printed/Typed Name <b>Thomas Merdon</b>		Signature <i>[Signature]</i>		Date <b>3/18/11</b>	

NON-HAZARDOUS WASTE

GENERATOR

TRANSPORTER

FACILITY

Monitoring Well Survey Report for: HRC Scotia Mill-B Carrier Shop

SHN # 011019

PM: R. Rueber Survey By: E. Ward

Date: 3/17/2011

Survey References: Field Book E-11-01; 011019-FRMR-CARRIER-AREA-INVST-MAR-2011.dwg

Elevation Datum: NAVD 88

Horizontal Datum: NAD 83, California State Plane Zone 1

Well Data:

# CS-09	TOC el. 110.62	Rim el. 110.87	Grnd. el. 110.63
	Northing: 2063219.13	Easting: 5976455.04	Pt. # 12
	Latitude: 40.4746509	Longitude: 124.1038443	
	Comment:		
# CS-10	TOC el. 109.91	Rim el. 109.97	Grnd. el. 109.66
	Northing: 2063151.02	Easting: 5976352.37	Pt. # 4
	Latitude: 40.4744572	Longitude: 124.1042074	
	Comment:		
# CS-15	TOC el. 108.52	Rim el. 108.75	Grnd. el. 108.72
	Northing: 2063149.38	Easting: 5976437.36	Pt. # 9
	Latitude: 40.4744583	Longitude: 124.1039018	
	Comment:		
#	TOC el.	Rim el.	Grnd. el.
	Northing:	Easting:	Pt. #
	Latitude:	Longitude:	
	Comment:		
#	TOC el.	Rim el.	Grnd. el.
	Northing:	Easting:	Pt. #
	Latitude:	Longitude:	
	Comment:		
#	TOC el.	Rim el.	Grnd. el.
	Northing:	Easting:	Pt. #
	Latitude:	Longitude:	
	Comment:		
#	TOC el.	Rim el.	Grnd. el.
	Northing:	Easting:	Pt. #
	Latitude:	Longitude:	
	Comment:		

TOC elevations are at notch or north side of casing. Rim elevations are at north rim. Ground elevations are average around well, unless noted. Latitude and Longitude for Geotracker sites only.

Calcs By: EWW Checked By: CDT

Sht. 1 of 1

Appendix C

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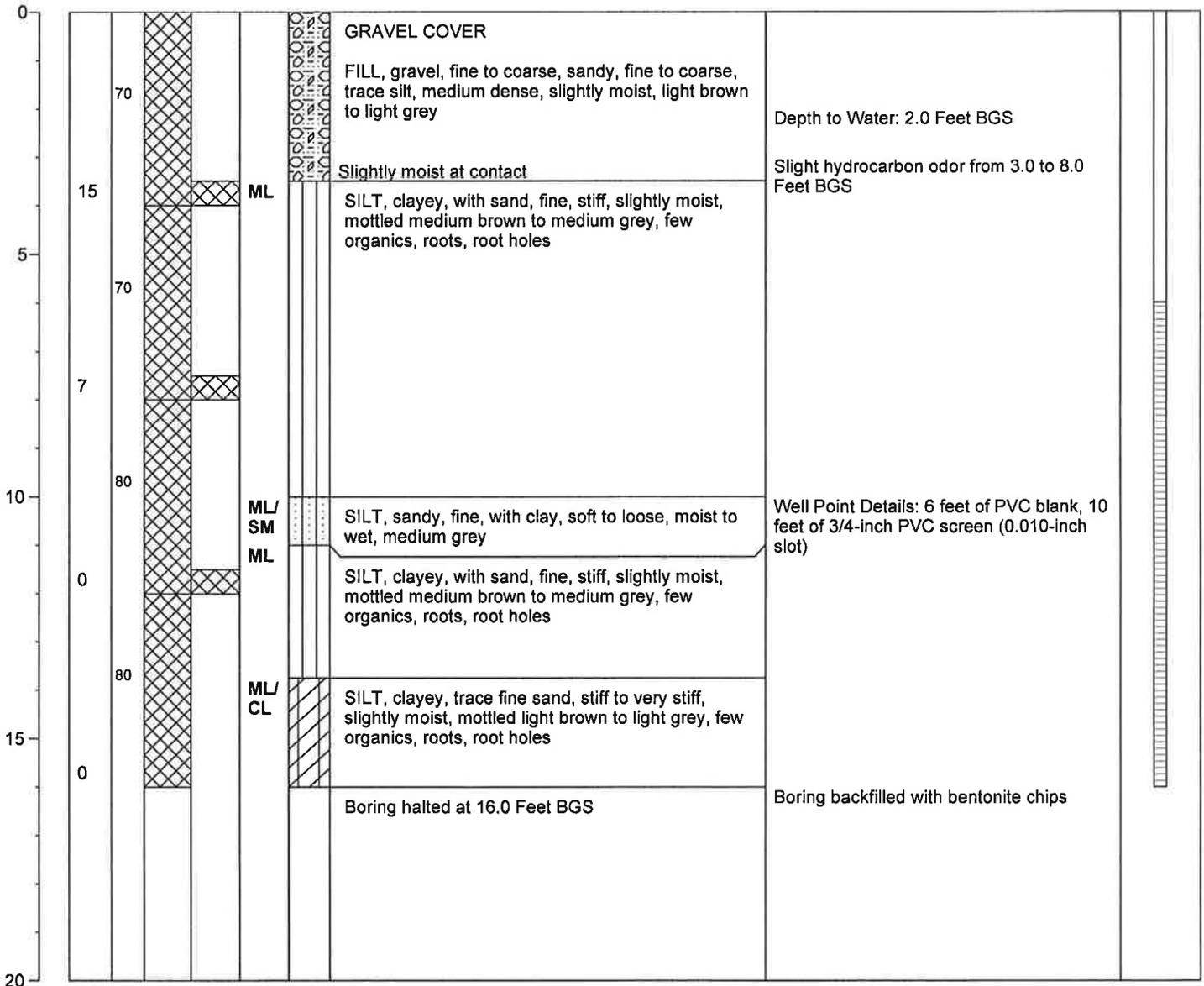
**Soil Boring Logs**



**PROJ. NAME:** Carrier Shop  
**PROJ. NUMBER:** 011019  
**DRILLER:** Fisch Environmental  
**DRILLING METHOD:** GeoProbe  
**SAMPLER TYPE:** Dual Tube-22

**LOCATION:** Scotia, CA  
**GROUND ELEVATION:** --  
**DEPTH OF WELL POINT:** 16.0 Feet BGS  
**DATE:** 3/15/11  
**LOGGED BY:** R. Rueber

DEPTH (Feet BGS)	SAMPLE					SOIL DESCRIPTION	REMARKS	WELL POINT CONSTRUCTION
	OVA READING (ppm)	RECOVERY (%)	DRILLING	LABORATORY	USCS			

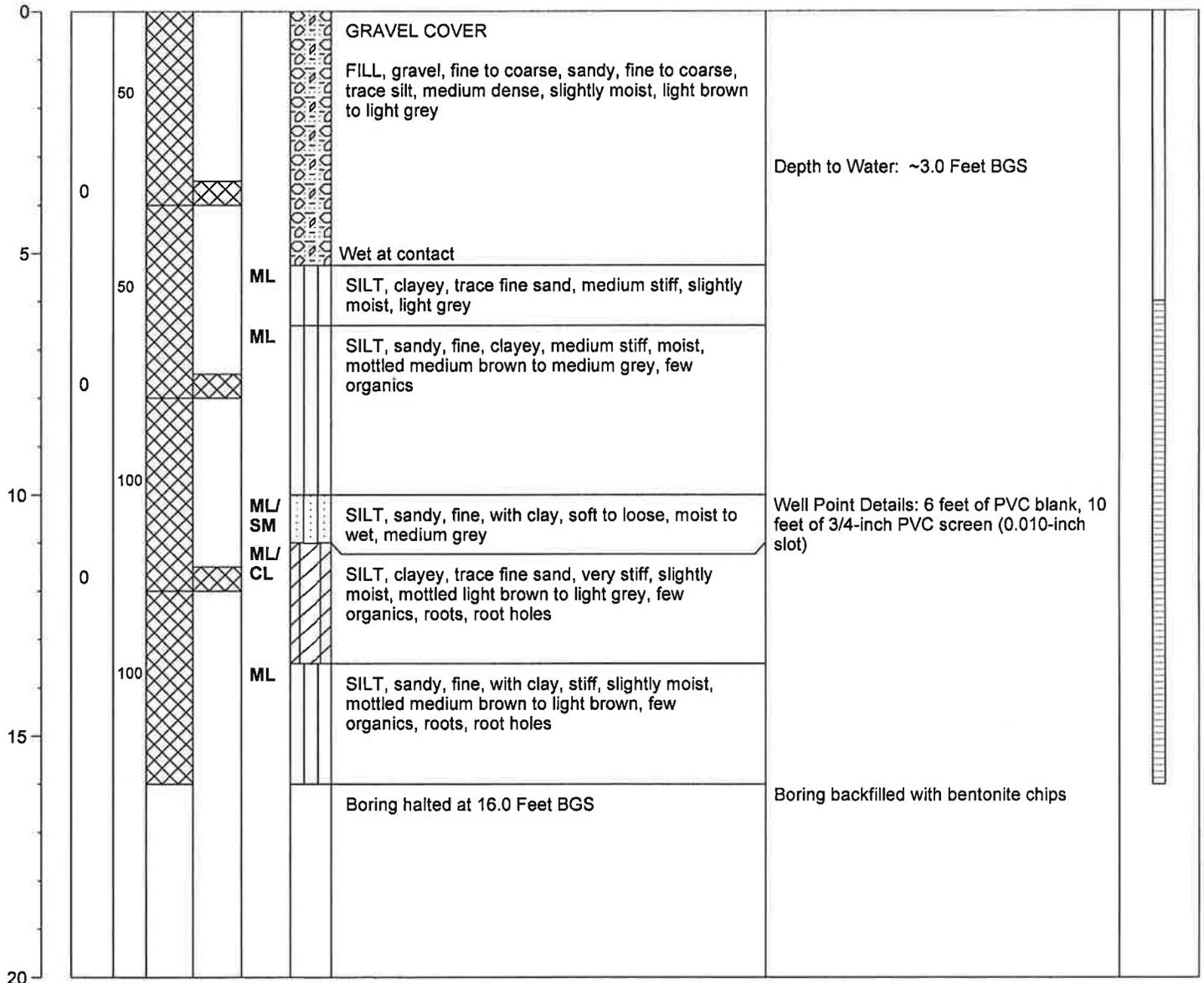




PROJ. NAME: Carrier Shop  
 PROJ. NUMBER: 011019  
 DRILLER: Fisch Environmental  
 DRILLING METHOD: GeoProbe  
 SAMPLER TYPE: Dual Tube-22

LOCATION: Scotia, CA  
 GROUND ELEVATION: --  
 DEPTH OF WELL POINT: 16.0 Feet BGS  
 DATE: 3/15/11  
 LOGGED BY: R. Rueber

DEPTH (Feet BGS)	SAMPLE					SOIL DESCRIPTION	REMARKS	WELL POINT CONSTRUCTION
	OVA READING (ppm)	RECOVERY (%)	DRILLING	LABORATORY	USCS			





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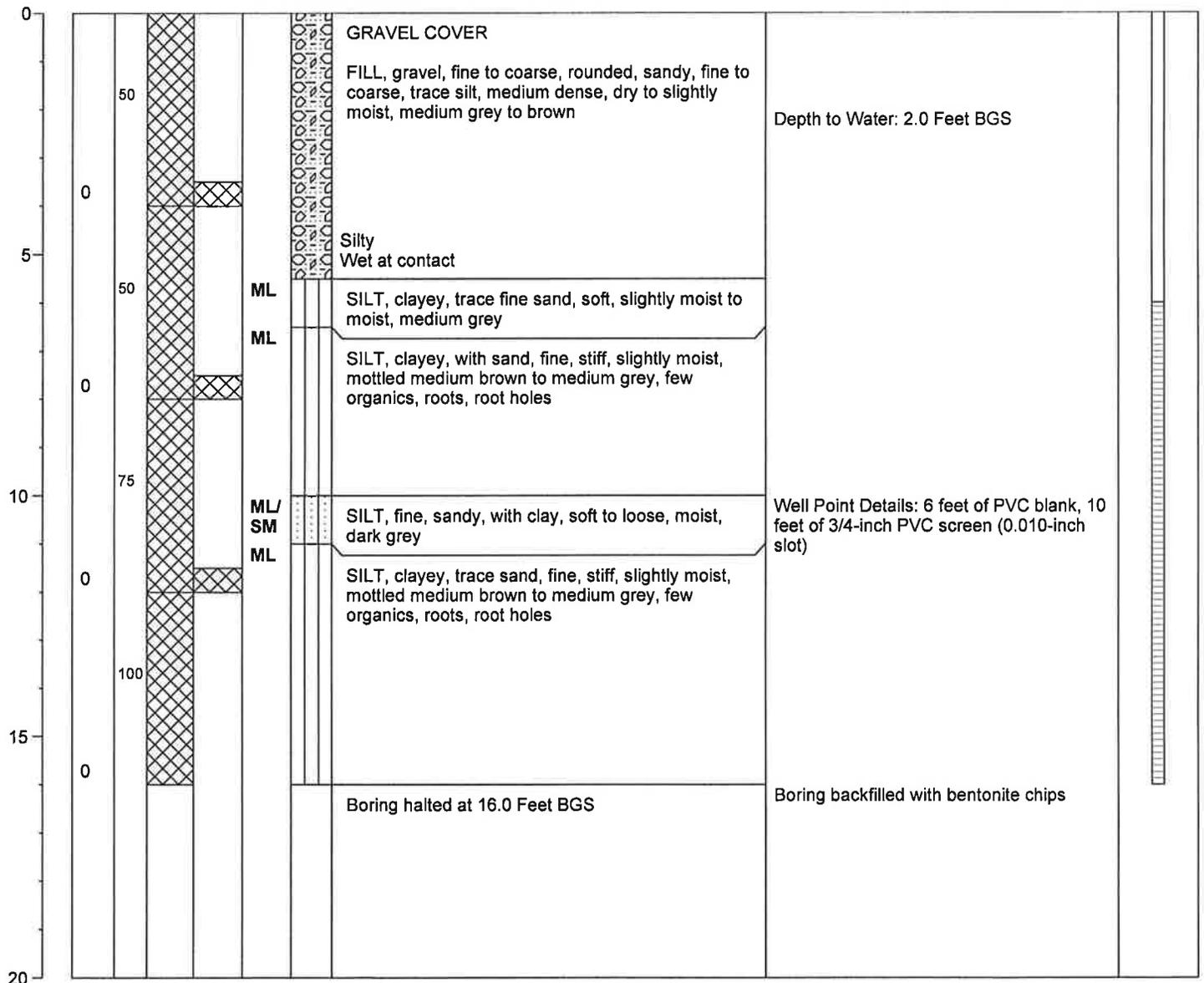
812 West Wabash, Eureka, CA ph. (707) 441-8855 fax. (707) 441-8877

**WELL POINT LOG**  
**CS-303**

**PROJ. NAME:** Carrier Shop  
**PROJ. NUMBER:** 011019  
**DRILLER:** Fisch Environmental  
**DRILLING METHOD:** GeoProbe  
**SAMPLER TYPE:** Dual Tube-22

**LOCATION:** Scotia, CA  
**GROUND ELEVATION:** --  
**DEPTH OF WELL POINT:** 16.0 Feet BGS  
**DATE:** 3/15/11  
**LOGGED BY:** R. Rueber

DEPTH (Feet BGS)	OVA READING (ppm)	SAMPLE				SOIL DESCRIPTION	REMARKS	WELL POINT CONSTRUCTION
		RECOVERY (%)	DRILLING	LABORATORY	USCS			





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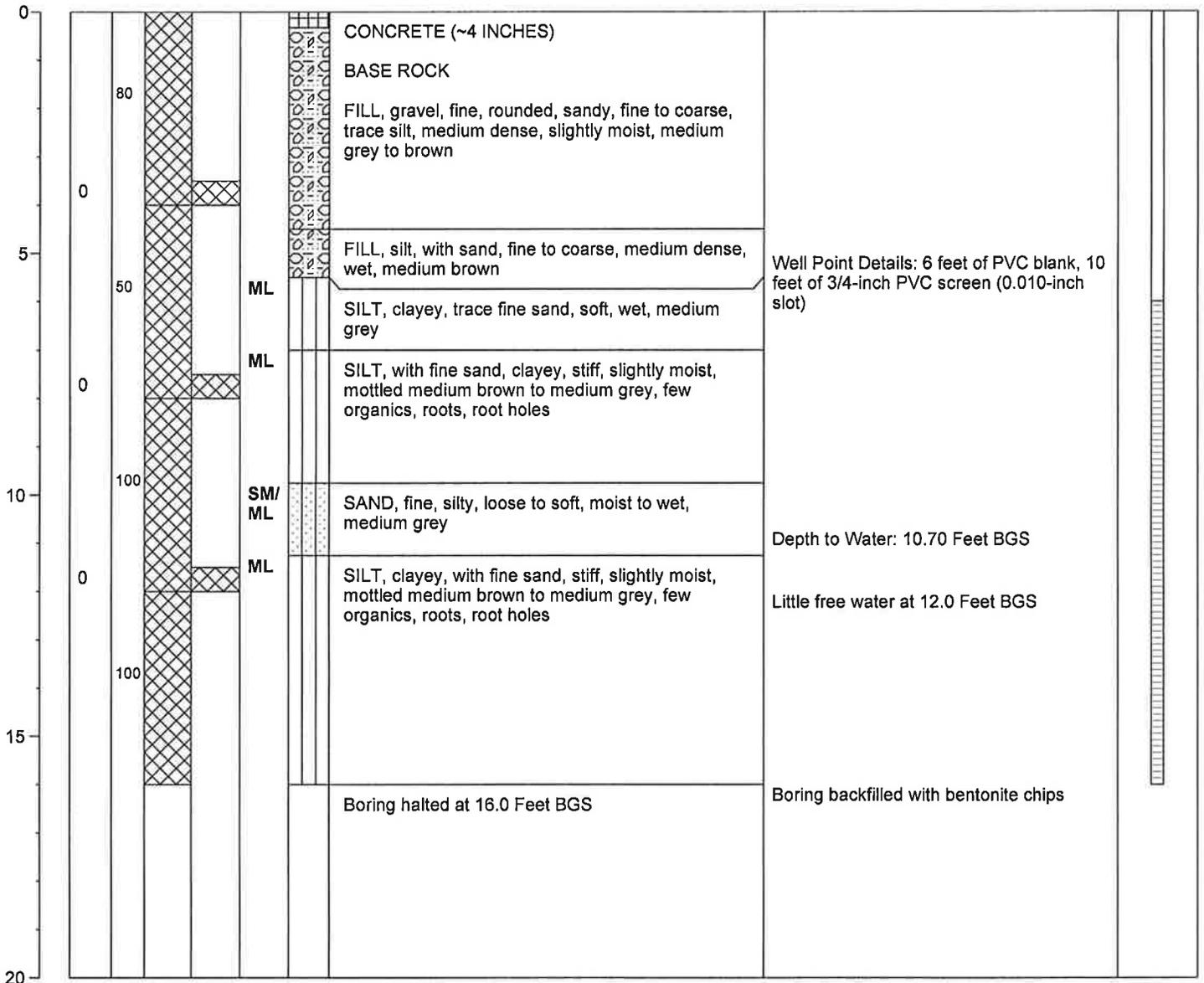
ph. (707) 441-8855 fax. (707) 441-8877

**WELL POINT LOG**  
**CS-304**

**PROJ. NAME:** Carrier Shop  
**PROJ. NUMBER:** 011019  
**DRILLER:** Fisch Environmental  
**DRILLING METHOD:** GeoProbe  
**SAMPLER TYPE:** Dual Tube-22

**LOCATION:** Scotia, CA  
**GROUND ELEVATION:** --  
**DEPTH OF WELL POINT:** 16.0 Feet BGS  
**DATE:** 3/15/11  
**LOGGED BY:** R. Rueber

DEPTH (Feet BGS)	OVA READING (ppm)	SAMPLE				SOIL DESCRIPTION	REMARKS	WELL POINT CONSTRUCTION
		RECOVERY (%)	DRILLING	LABORATORY	USCS			





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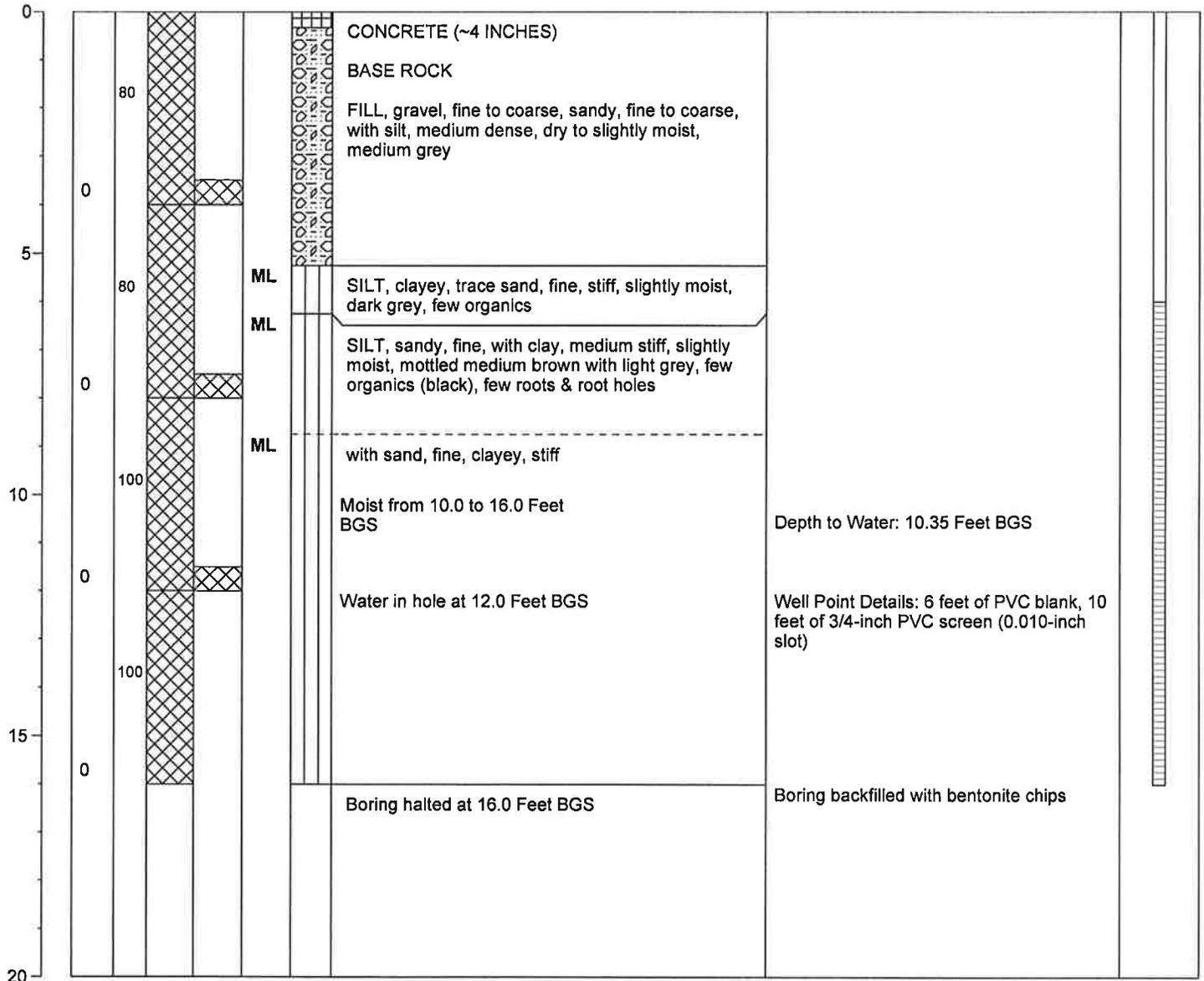
ph. (707) 441-8855 fax. (707) 441-8877

**WELL POINT LOG**  
**CS-305**

**PROJ. NAME:** Carrier Shop  
**PROJ. NUMBER:** 011019  
**DRILLER:** Fisch Environmental  
**DRILLING METHOD:** GeoProbe  
**SAMPLER TYPE:** Dual Tube-22

**LOCATION:** Scotia, CA  
**GROUND ELEVATION:** --  
**DEPTH OF WELL POINT:** 16.0 Feet BGS  
**DATE:** 3/15/11  
**LOGGED BY:** R. Rueber

DEPTH (Feet BGS)	SAMPLE					SOIL DESCRIPTION	REMARKS	WELL POINT CONSTRUCTION
	OVA READING (ppm)	RECOVERY (%)	DRILLING	LABORATORY	USCS			





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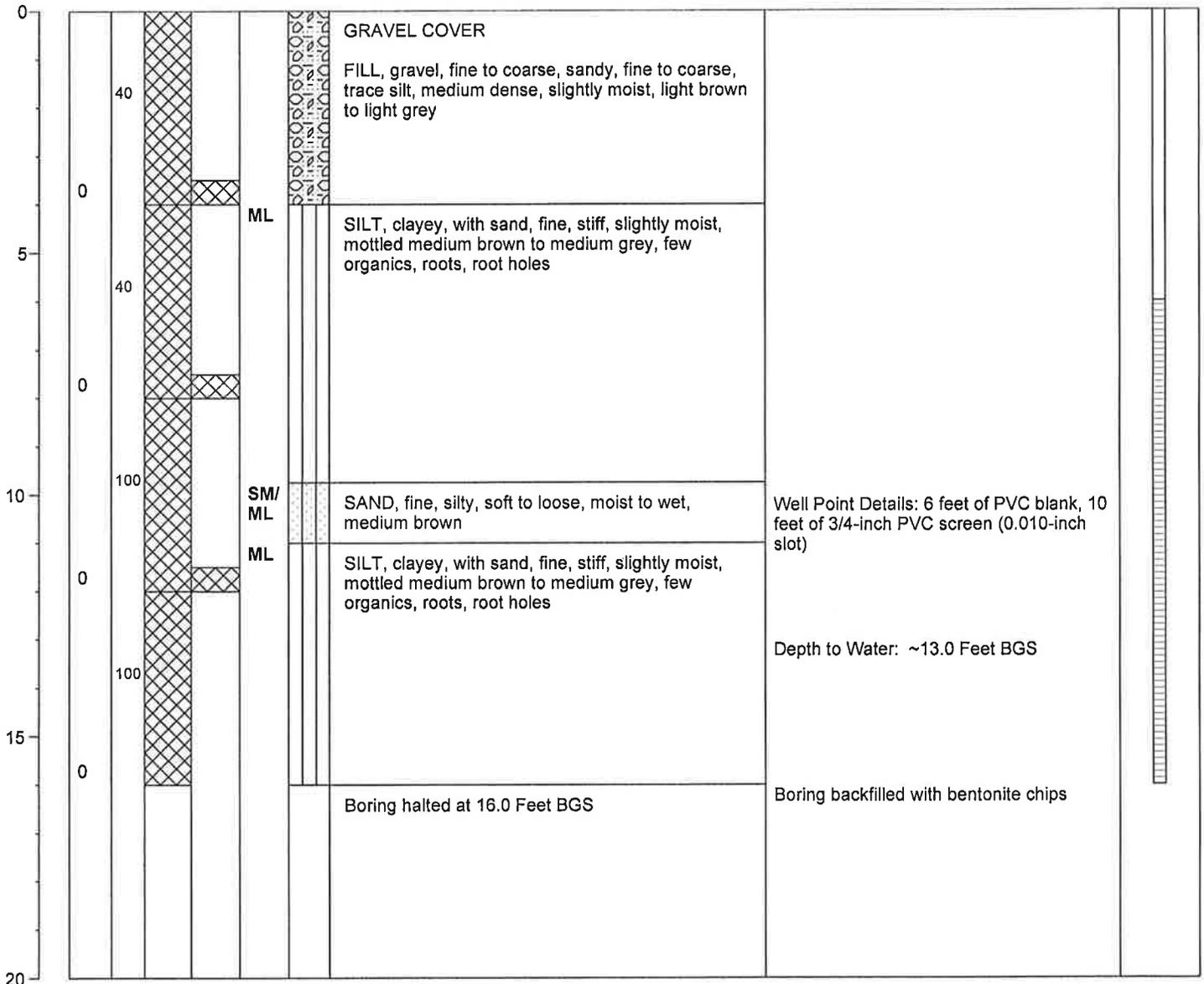
812 West Wabash, Eureka, CA ph. (707) 441-8855 fax. (707) 441-8877

**WELL POINT LOG**  
**CS-306**

PROJ. NAME: Carrier Shop  
 PROJ. NUMBER: 011019  
 DRILLER: Fisch Environmental  
 DRILLING METHOD: GeoProbe  
 SAMPLER TYPE: Dual Tube-22

LOCATION: Scotia, CA  
 GROUND ELEVATION: --  
 DEPTH OF WELL POINT: 16.0 Feet BGS  
 DATE: 3/16/11  
 LOGGED BY: R. Rueber

DEPTH (Feet BGS)	OVA READING (ppm)	SAMPLE				SOIL DESCRIPTION	REMARKS	WELL POINT CONSTRUCTION
		RECOVERY (%)	DRILLING	LABORATORY	USCS			







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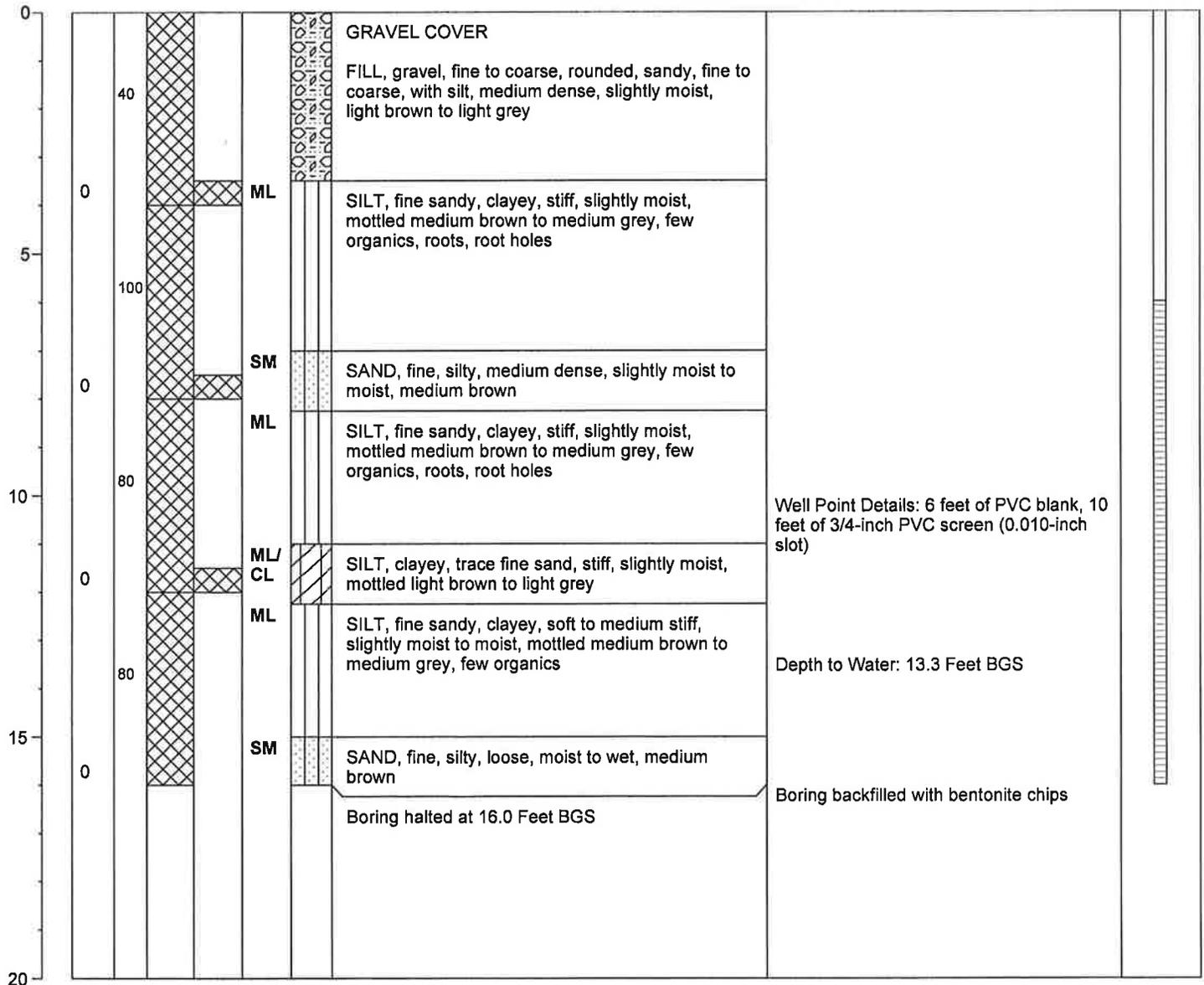
812 West Wabash, Eureka, CA ph. (707) 441-8855 fax. (707) 441-8877

**WELL POINT LOG**  
**CS-308**

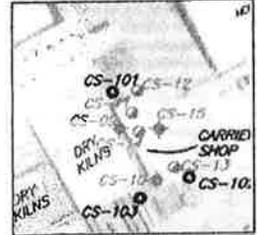
**PROJ. NAME:** Carrier Shop  
**PROJ. NUMBER:** 011019  
**DRILLER:** Fisch Environmental  
**DRILLING METHOD:** GeoProbe  
**SAMPLER TYPE:** Dual Tube-22

**LOCATION:** Scotia, CA  
**GROUND ELEVATION:** --  
**DEPTH OF WELL POINT:** 16.0 Feet BGS  
**DATE:** 3/15/11  
**LOGGED BY:** R. Rueber

DEPTH (Feet BGS)	OVA READING (ppm)	SAMPLE				SOIL DESCRIPTION	REMARKS	WELL POINT CONSTRUCTION
		RECOVERY (%)	DRILLING	LABORATORY	USCS			





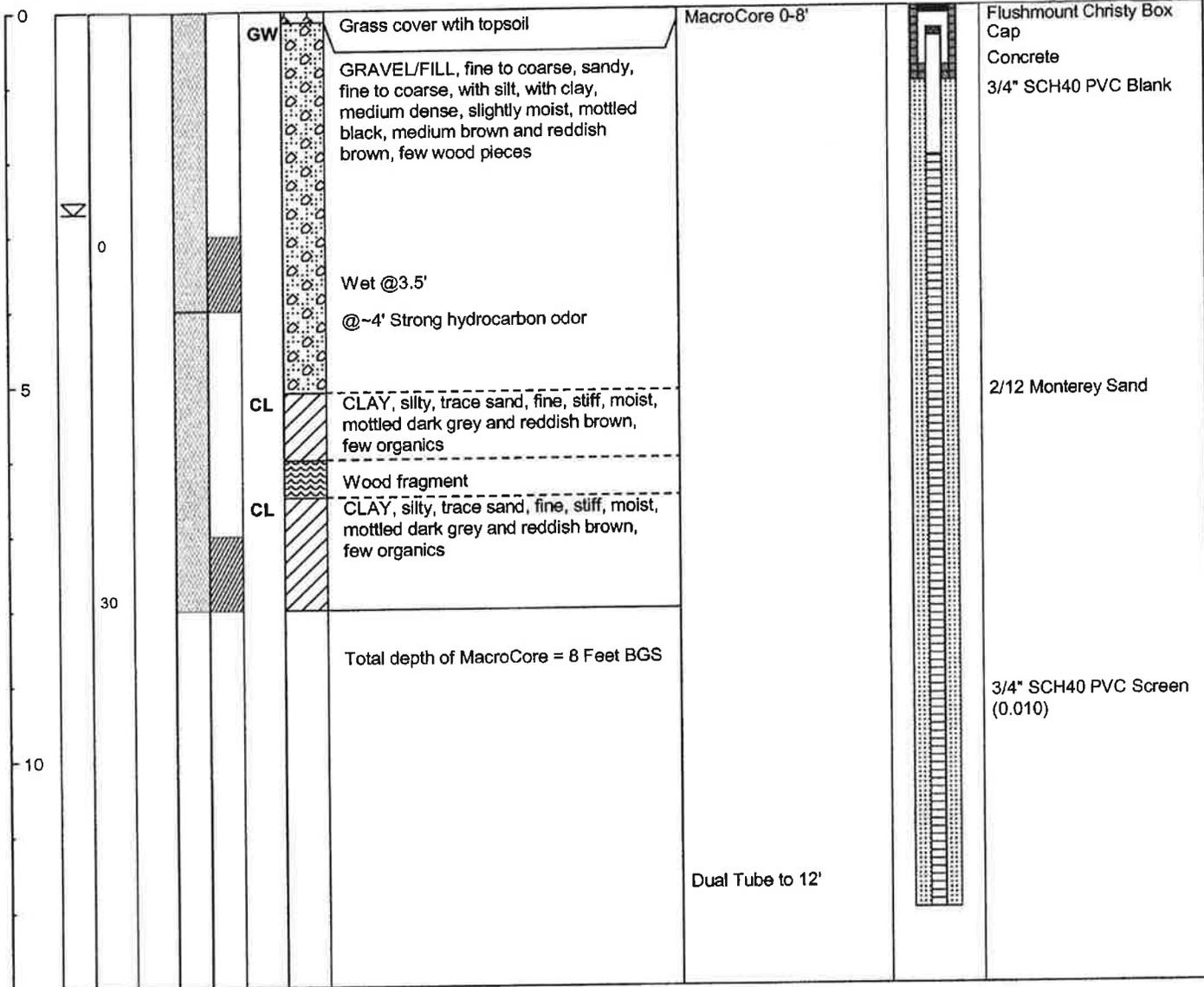


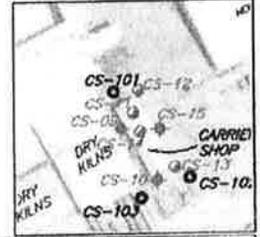
**PROJ. NAME:** Palco Mill B  
**PROJ. NUMBER:** 002152.100  
**DRILLER:** Fisch Drilling  
**DRILLING METHOD:** GeoProbe  
**SAMPLER TYPE:** MacroCore/Dual Tube(DT-32)

**LOCATION:** Scotia, CA  
**DEPTH OF BORING/WELLPOINT:** 12.0 / 12.0 Feet BGS  
**SCREEN INTERVAL:** 2.0-12.0 Feet BGS  
**DEPTH TO FIRST WATER:** ~2.7 Feet BGS (11/09/05)  
**DATE:** 11/09/05

**LOGGED BY:** R. Rueber

DEPTH (Feet BGS)	WATER LEVEL	SAMPLE				LITHOLOGY PATTERN	SOIL DESCRIPTION	REMARKS	PIEZOMETER CONSTRUCTION
		OVA READING (ppm)	RECOVERY (%)	DRILLING	LABORATORY				





**PROJ. NAME:** Palco Mill B  
**PROJ. NUMBER:** 002152.100  
**DRILLER:** Fisch Drilling  
**DRILLING METHOD:** GeoProbe  
**SAMPLER TYPE:** MacroCore / Dual Tube (DT-32)

**LOCATION:** Scotia, CA  
**DEPTH OF BORING/WELLPOINT:** 12.0 / 12.0 Feet BGS  
**SCREEN INTERVAL:** 2.0-12.0 Feet BGS  
**DEPTH TO FIRST WATER:** ~2.7 Feet BGS

**LOGGED BY:** R. Rueber

DEPTH (Feet BGS)	WATER LEVEL	SAMPLE				LITHOLOGY PATTERN	SOIL DESCRIPTION	REMARKS	PIEZOMETER CONSTRUCTION
		OVA READING (ppm)	RECOVERY (%)	DRILLING	LABORATORY				
0						GW	GRAVEL/FILL, fine to coarse, sandy, fine to coarse, silty, medium dense, slightly moist, light grey to medium brown	MacroCore 0-12'	Flushmount Christy Box Cap Concrete 3/4" SCH40 PVC Blank
2.7						ML	SILT/FILL?, sandy, fine, with clay, soft, moist to wet, dark grey to black, abundant wood pieces and fine black sawdust	Drove DT-22 down same hole and built piezometer inside Rods	2/12 Monterey Sand
10							SILT, clayey, with sand, fine, medium stiff, moist, mottled greenish grey, dark grey, and reddish brown, few wood pieces		3/4" SCH40 PVC Screen (0.010)
12.0							Total depth of MacroCore = 12 Feet BGS		



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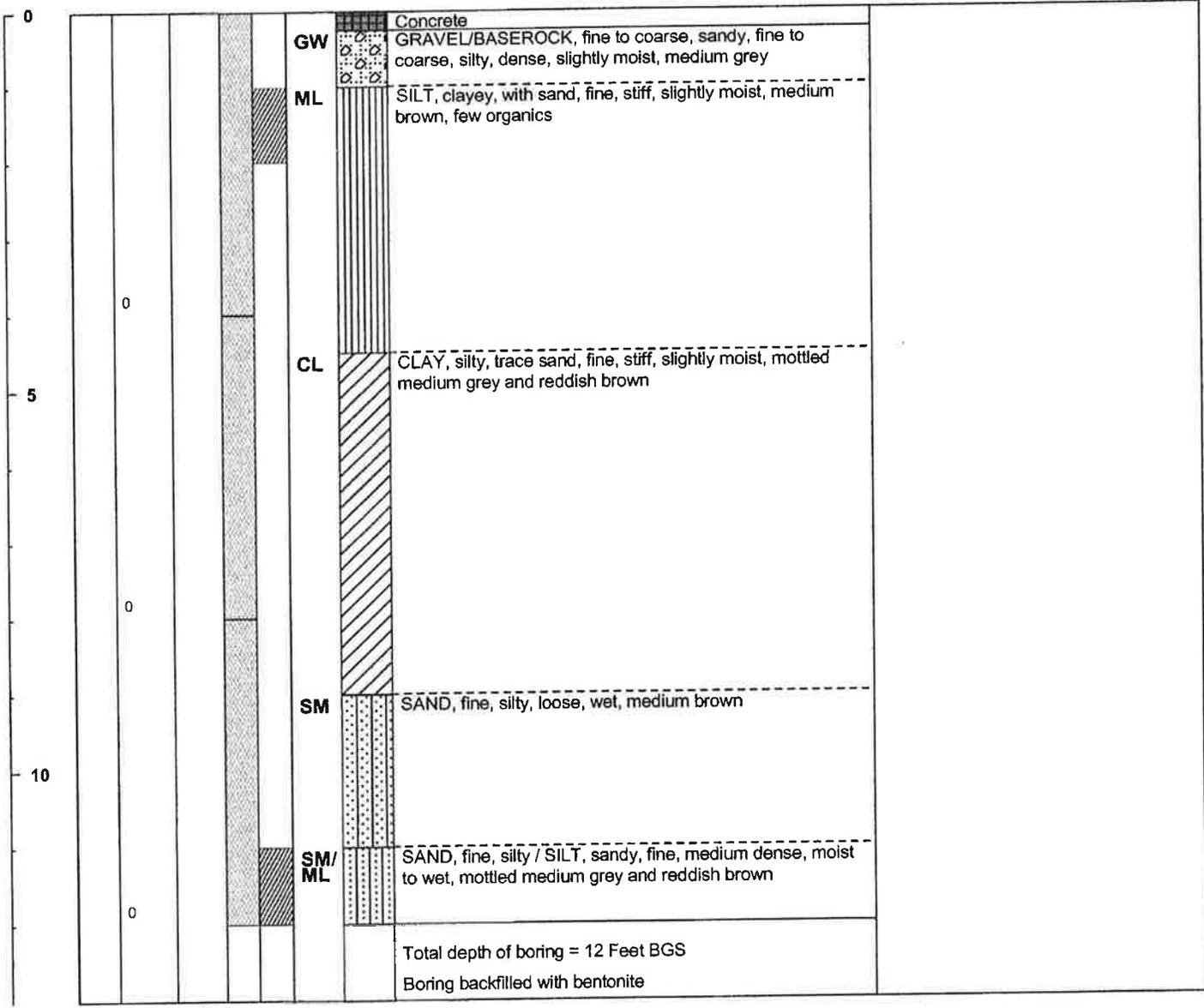
**BORING LOG  
 CS-11**



**PROJ. NAME:** Palco Mill B  
**PROJ. NUMBER:** 002152.100  
**DRILLER:** Fisch Drilling  
**DRILLING METHOD:** GeoProbe  
**SAMPLER TYPE:** MacroCore

**LOCATION:** Scotia, CA  
**DEPTH OF BORING:** 12.0 Feet BGS  
**DEPTH TO FIRST WATER:** --  
**LOGGED BY:** R. Rueber  
**DATE:** 11/09/05

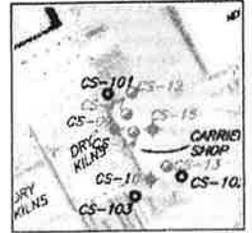
DEPTH (Feet BGS)	WATER LEVEL	SAMPLE				USCS	LITHOLOGY PATTERN	SOIL DESCRIPTION	REMARKS
		OVA READING (ppm)	% RECOVERY	DRILLING	LABORATORY				



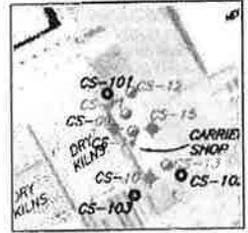


**PROJ. NAME:** Palco Mill B  
**PROJ. NUMBER:** 002152.100  
**DRILLER:** Fisch Drilling  
**DRILLING METHOD:** GeoProbe  
**SAMPLER TYPE:** MacroCore

**LOCATION:** Scotia, CA  
**DEPTH OF BORING:** 12.0 Feet BGS  
**DEPTH TO FIRST WATER:** ~7.0 Feet BGS  
**LOGGED BY:** R. Rueber  
**DATE:** 11/09/05



DEPTH (Feet BGS)	WATER LEVEL	SAMPLE				USCS	LITHOLOGY PATTERN	SOIL DESCRIPTION	REMARKS
		OVA READING (ppm)	% RECOVERY	DRILLING	LABORATORY				
0						GW	GRAVEL/FILL, fine to coarse, rounded, sandy, fine to coarse, silty, medium dense, slightly moist, medium grey		
5									
10									
								Wet @7'	
								Total depth of boring = 12 Feet BGS Boring backfilled with bentonite	



**PROJ. NAME:** Palco Mill B  
**PROJ. NUMBER:** 002152.100  
**DRILLER:** Fisch Drilling  
**DRILLING METHOD:** GeoProbe  
**SAMPLER TYPE:** MacroCore

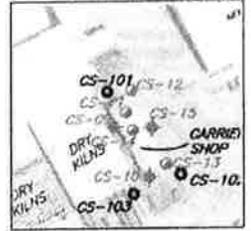
**LOCATION:** Scotia, CA  
**DEPTH OF BORING:** 12.0 Feet BGS  
**DEPTH TO FIRST WATER:** --  
**LOGGED BY:** R. Rueber  
**DATE:** 11/09/05

DEPTH (Feet BGS)	WATER LEVEL	SAMPLE				USCS	LITHOLOGY PATTERN	SOIL DESCRIPTION	REMARKS
		OVA READING (ppm)	% RECOVERY	DRILLING	LABORATORY				
0						GW	Concrete		
							GRAVEL/FILL, fine to coarse, sandy, fine to coarse, medium dense, slightly moist, medium grey		
		25					Poor recovery		
5						ML	SILT/FILL, with clay, with sand, fine, few gravel, fine, rounded, stiff, moist, mottled dark grey and dark brown, with wood pieces		
							Becomes clayey		
10									
								Total depth of boring = 12 Feet BGS Boring backfilled with bentonite	

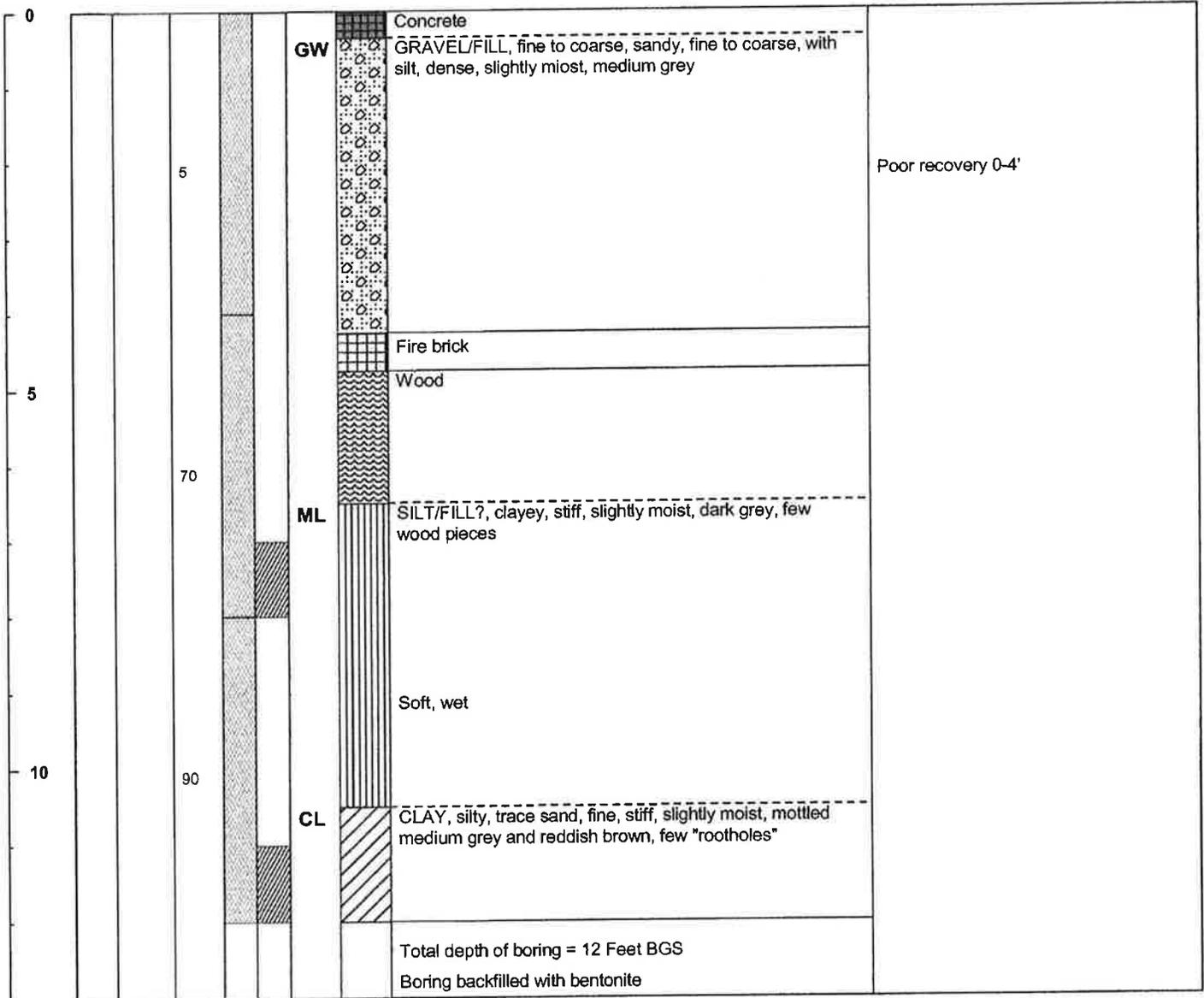


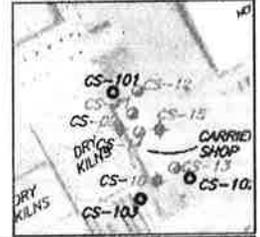
**PROJ. NAME:** Palco Mill B  
**PROJ. NUMBER:** 002152.100  
**DRILLER:** Fisch Drilling  
**DRILLING METHOD:** GeoProbe  
**SAMPLER TYPE:** MacroCore

**LOCATION:** Scotia, CA  
**DEPTH OF BORING:** 12.0 Feet BGS  
**DEPTH TO FIRST WATER:** ~9.0 Feet BGS  
**LOGGED BY:** R. Rueber  
**DATE:** 11/10/05



DEPTH (Feet BGS)	WATER LEVEL	SAMPLE				USCS	LITHOLOGY PATTERN	SOIL DESCRIPTION	REMARKS
		OVA READING (ppm)	% RECOVERY	DRILLING	LABORATORY				





**PROJ. NAME:** Palco Mill B  
**PROJ. NUMBER:** 002152.100  
**DRILLER:** Fisch Drilling  
**DRILLING METHOD:** GeoProbe  
**SAMPLER TYPE:** MacroCore/Dual Tube(DT-32)

**LOCATION:** Scotia, CA  
**DEPTH OF BORING/WELLPOINT:** 12.0 / 12.0 Feet BGS  
**SCREEN INTERVAL:** 2.0-12.0 Feet BGS  
**DEPTH TO FIRST WATER:** ~11.3 Feet BGS (11/10/05)  
**DATE:** 11/10/05

**LOGGED BY:** R. Rueber

DEPTH (Feet BGS)	SAMPLE					LITHOLOGY PATTERN	SOIL DESCRIPTION	REMARKS	PIEZOMETER CONSTRUCTION
	WATER LEVEL	OVA READING (ppm)	RECOVERY (%)	DRILLING	LABORATORY				
0						Concrete		MacroCore 0-12'	Flushmount Chrsty Box Cap Concrete 3/4" SCH40 PVC Blank
50						GW GRAVEL/BASEROCK, fine to coarse, sandy, fine to coarse, silty, dense, slightly moist, medium grey	Drove DT-22 down same hole and built piezometer inside Rods		
						ML SILT/FILL, with clay, with sand, fine, stiff, slightly moist, mottled dark brown and black, few organics			
5						CL CLAY/FILL?, silty, trace sand fine, few gravel, fine, rounded, stiff, slightly moist, mottled reddish brown and medium grey			2/12 Monterey Sand
50						ML SILT/FILL?, sandy, fine, with clay, soft, wet, dark grey, few organics			3/4" SCH40 PVC Screen (0.010)
10						SILT, sandy, fine, with clay, medium stiff, slightly moist, dark grey, few roots			
						Total depth of MacroCore = 12 Feet BGS			



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PROJ. NAME: Former Carrier Shop Area

LOCATION: Scotia, CA

PROJ. NUMBER: 002152.910

TOC ELEVATION: --

DRILLER: Fisch Drilling

DEPTH OF BORING/WELL: 16 / 16 feet BGS

DRILLING METHOD: Direct Push

DEPTH TO FIRST WATER: --

SAMPLER TYPE: Dual Tube (DT-22)

SCREEN INTERVAL: 6.0 to 16.0 feet BGS

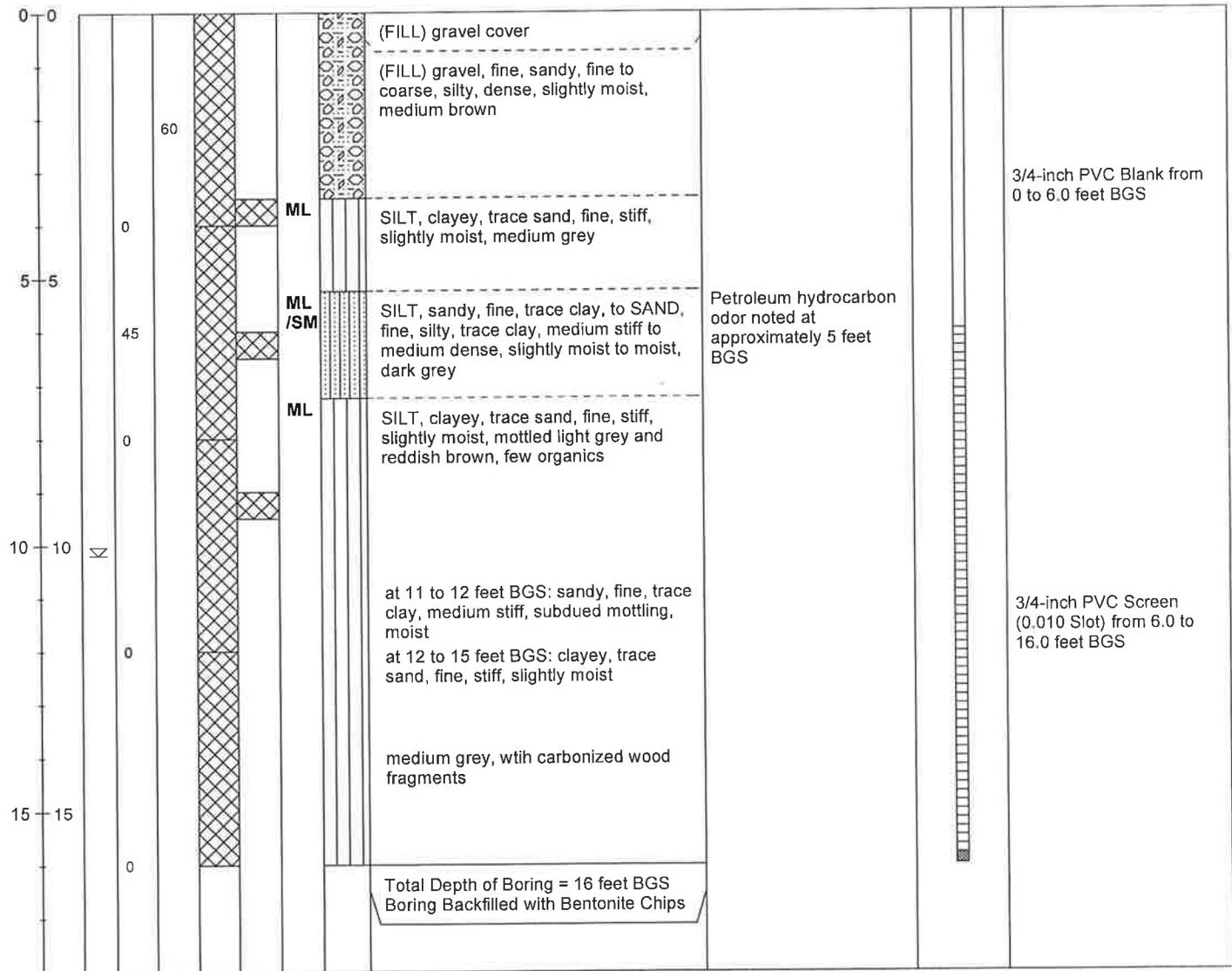
LOGGED BY: R. Rueber

DATE: 3/23/10

**WELL POINT LOG**

**CS-201**

DEPTH (Feet BGS)	WATER LEVEL	SAMPLE					LITHOLOGY PATTERN	SOIL DESCRIPTION	REMARKS	WELL POINT CONSTRUCTION
		OVA READING (ppm)	RECOVERY (%)	DRILLING	LABORATORY	USCS				



**BORING LOG**

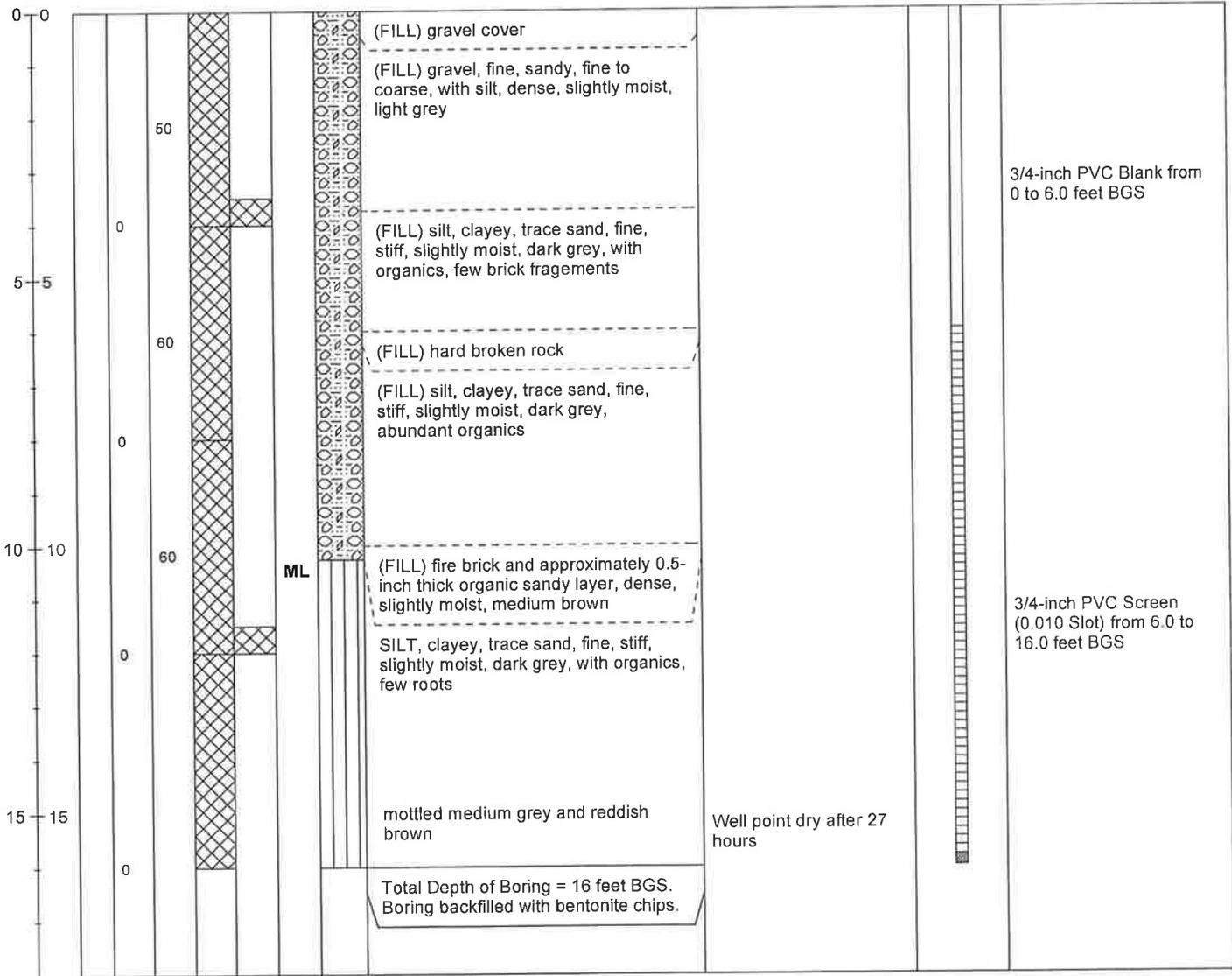


**PROJ. NAME:** Former Carrier Shop Area  
**PROJ. NUMBER:** 002152.910  
**DRILLER:** Fisch Drilling  
**DRILLING METHOD:** Direct Push  
**SAMPLER TYPE:** Dual Tube (DT-22)  
**LOGGED BY:** R. Rueber

**LOCATION:** Scotia, CA  
**TOC ELEVATION:** --  
**DEPTH OF BORING/WELL:** 16 / 16 feet BGS  
**DEPTH TO FIRST WATER:** --  
**SCREEN INTERVAL:** 6.0 to 16.0 feet BGS  
**DATE:** 3/23/10

**WELL POINT LOG**  
  
**CS-202**

DEPTH (Feet BGS)	WATER LEVEL	SAMPLE				LITHOLOGY PATTERN	SOIL DESCRIPTION	REMARKS	WELL POINT CONSTRUCTION
		OVA READING (ppm)	RECOVERY (%)	DRILLING	LABORATORY				



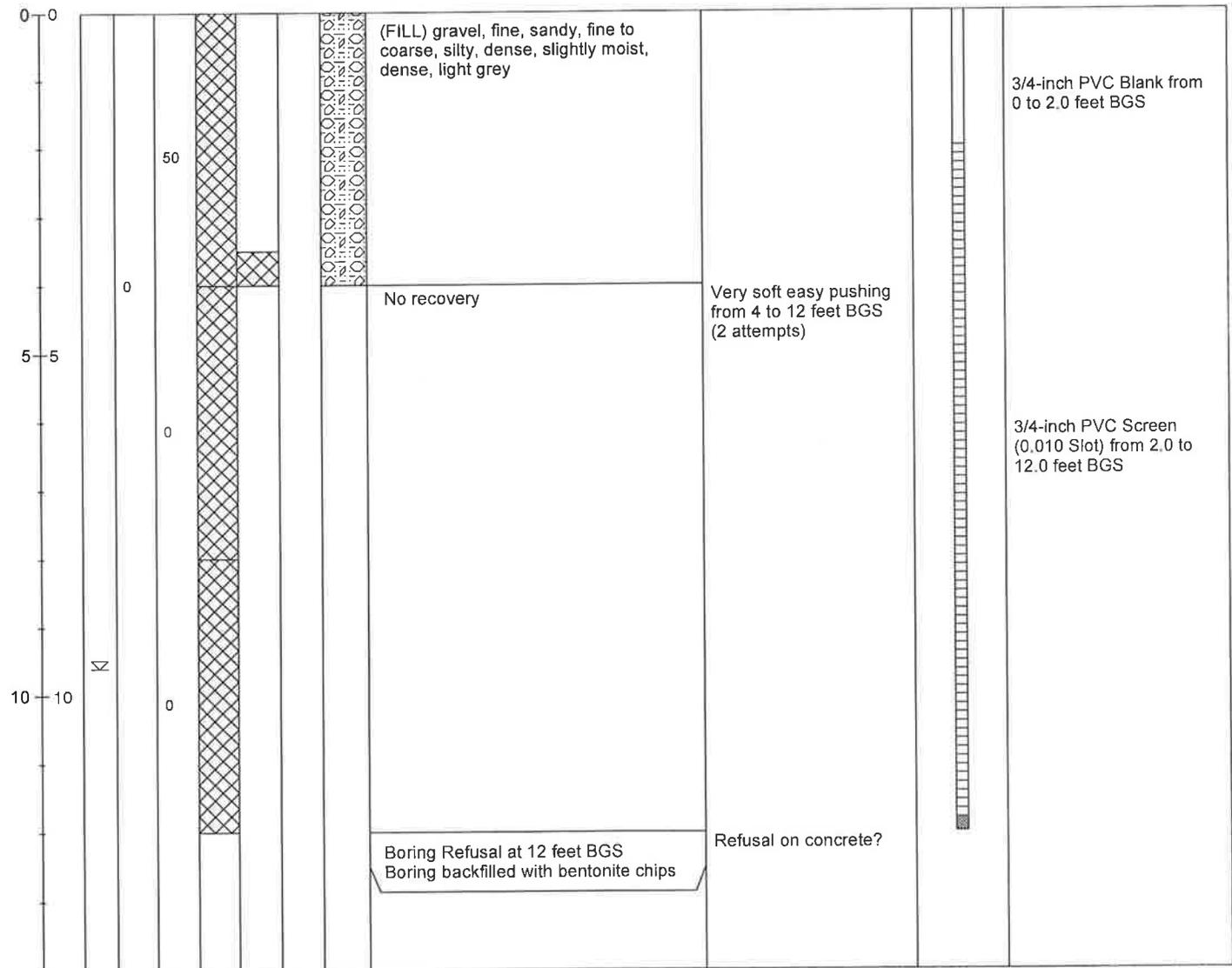


**PROJ. NAME:** Former Carrier Shop Area  
**PROJ. NUMBER:** 002152.910  
**DRILLER:** Fisch Drilling  
**DRILLING METHOD:** Direct Push  
**SAMPLER TYPE:** Dual Tube (DT-22)  
**LOGGED BY:** R. Rueber

**LOCATION:** Scotia, CA  
**TOC ELEVATION:** --  
**DEPTH OF BORING/WELL:** 12 / 12 feet BGS  
**DEPTH TO FIRST WATER:** --  
**SCREEN INTERVAL:** 2.0 to 12.0 feet BGS  
**DATE:** 3/23/10

**WELL POINT LOG**  
  
**CS-203**

DEPTH (Feet BGS)	WATER LEVEL	SAMPLE					LITHOLOGY PATTERN	SOIL DESCRIPTION	REMARKS	WELL POINT CONSTRUCTION
		OVA READING (ppm)	RECOVERY (%)	DRILLING	LABORATORY	USCS				



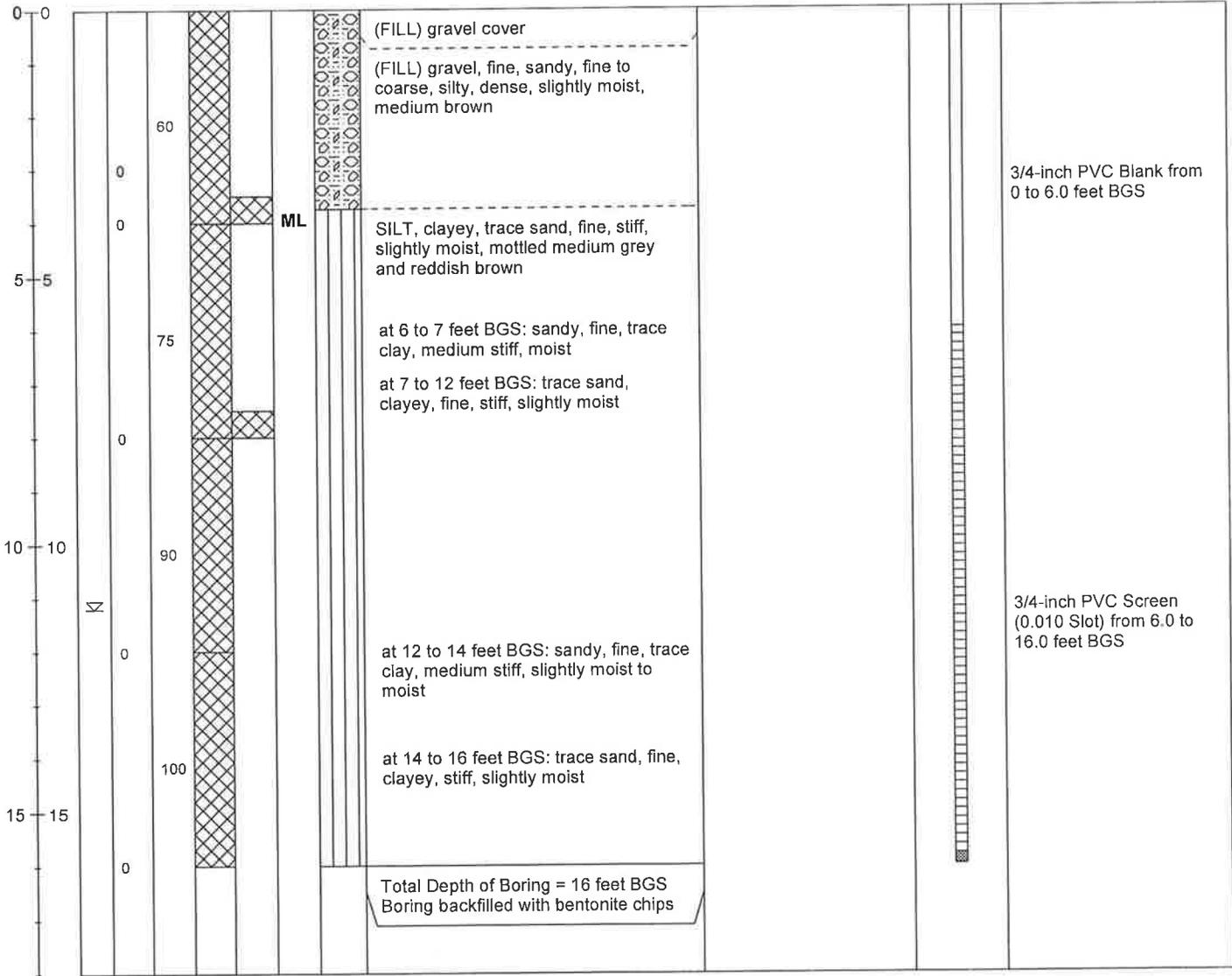


PROJ. NAME: Former Carrier Shop Area  
 PROJ. NUMBER: 002152.910  
 DRILLER: Fisch Drilling  
 DRILLING METHOD: Direct Push  
 SAMPLER TYPE: Dual Tube (DT-22)  
 LOGGED BY: R. Rueber

LOCATION: Scotia, CA  
 TOC ELEVATION: --  
 DEPTH OF BORING/WELL: 16 / 16 feet BGS  
 DEPTH TO FIRST WATER: --  
 SCREEN INTERVAL: 6.0 to 16.0 feet BGS  
 DATE: 3/23/10

**WELL POINT LOG**  
  
**CS-204**

DEPTH (Feet BGS)	WATER LEVEL	SAMPLE			USCS	LITHOLOGY PATTERN	SOIL DESCRIPTION	REMARKS	WELL POINT CONSTRUCTION
		OVA READING (ppm)	RECOVERY (%)	DRILLING					



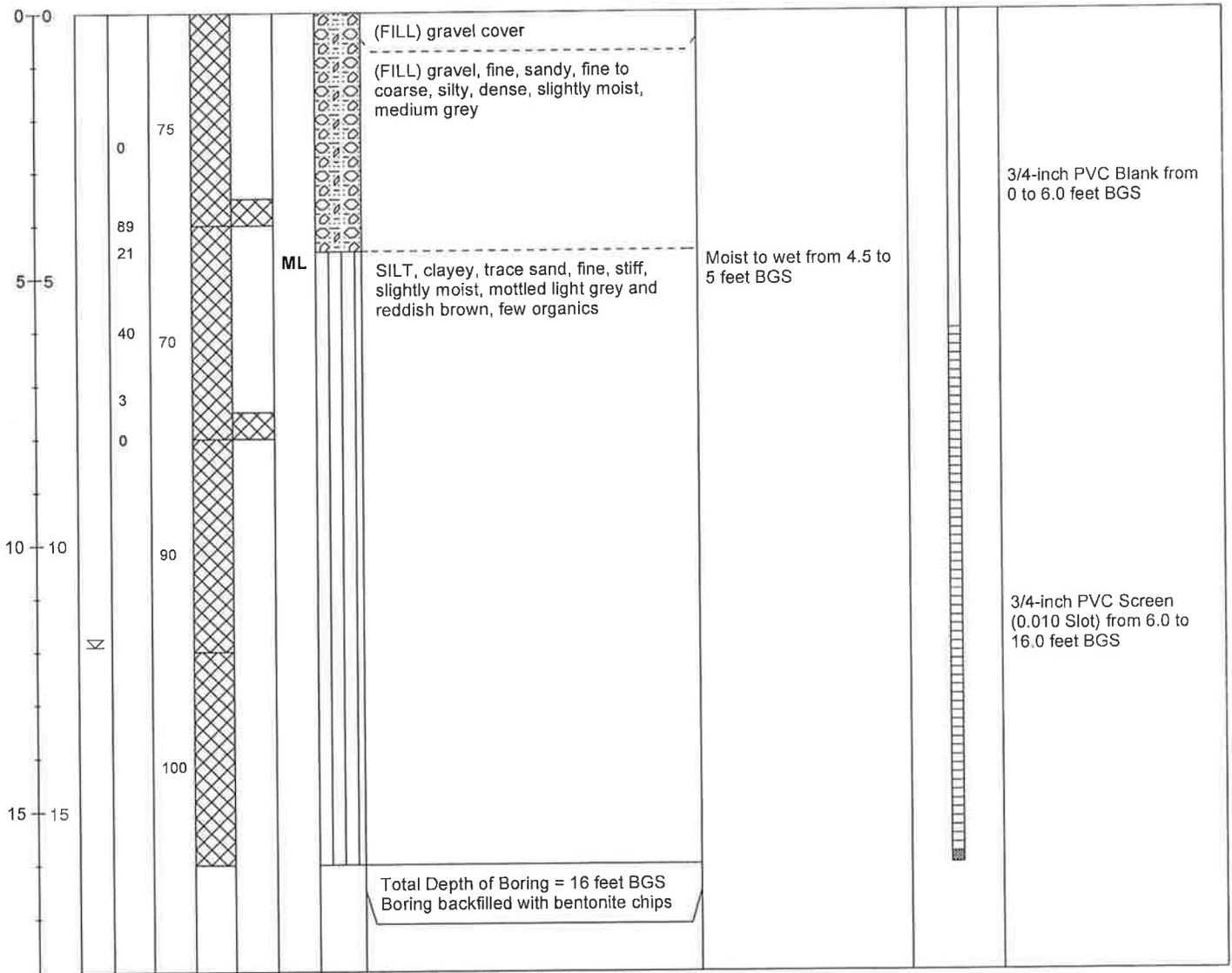


**WELL POINT LOG**  
  
**CS-205**

**PROJ. NAME:** Former Carrier Shop Area  
**PROJ. NUMBER:** 002152.910  
**DRILLER:** Fisch Drilling  
**DRILLING METHOD:** Direct Push  
**SAMPLER TYPE:** Dual Tube (DT-22)  
**LOGGED BY:** R. Rueber

**LOCATION:** Scotia, CA  
**TOC ELEVATION:** --  
**DEPTH OF BORING/WELL:** 16 / 16 feet BGS  
**DEPTH TO FIRST WATER:** --  
**SCREEN INTERVAL:** 6.0 to 16.0 feet BGS  
**DATE:** 3/23/10

DEPTH (Feet BGS)	WATER LEVEL	SAMPLE				LITHOLOGY PATTERN	SOIL DESCRIPTION	REMARKS	WELL POINT CONSTRUCTION
		OVA READING (ppm)	RECOVERY (%)	DRILLING	LABORATORY				



**Appendix D**

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**Laboratory Analytical Reports**

## Roland Rueber

---

**From:** BTorkelson@aol.com  
**Sent:** Thursday, March 24, 2011 7:10 AM  
**To:** RRueber@shn-engr.com  
**Subject:** 11041, Former Carrier Shop - CoC, Gas Chromatogram and brief interpretation

Hi Roland,  
The CoC and gas chromatogram for sample CS-09 are attached.

Based on the characteristics of the gas chromatogram it is my opinion that sample CS-09 is mixture of some sort of weathered lubricating oil and a small amount of weathered stoddard solvent (mineral spirits). Two petroleum products that I have analyzed that have fairly similar chromatograms are air tool oil and 2-cycle oil. CS-09 could be a unique single petroleum product or a mixture of two or more petroleum products.

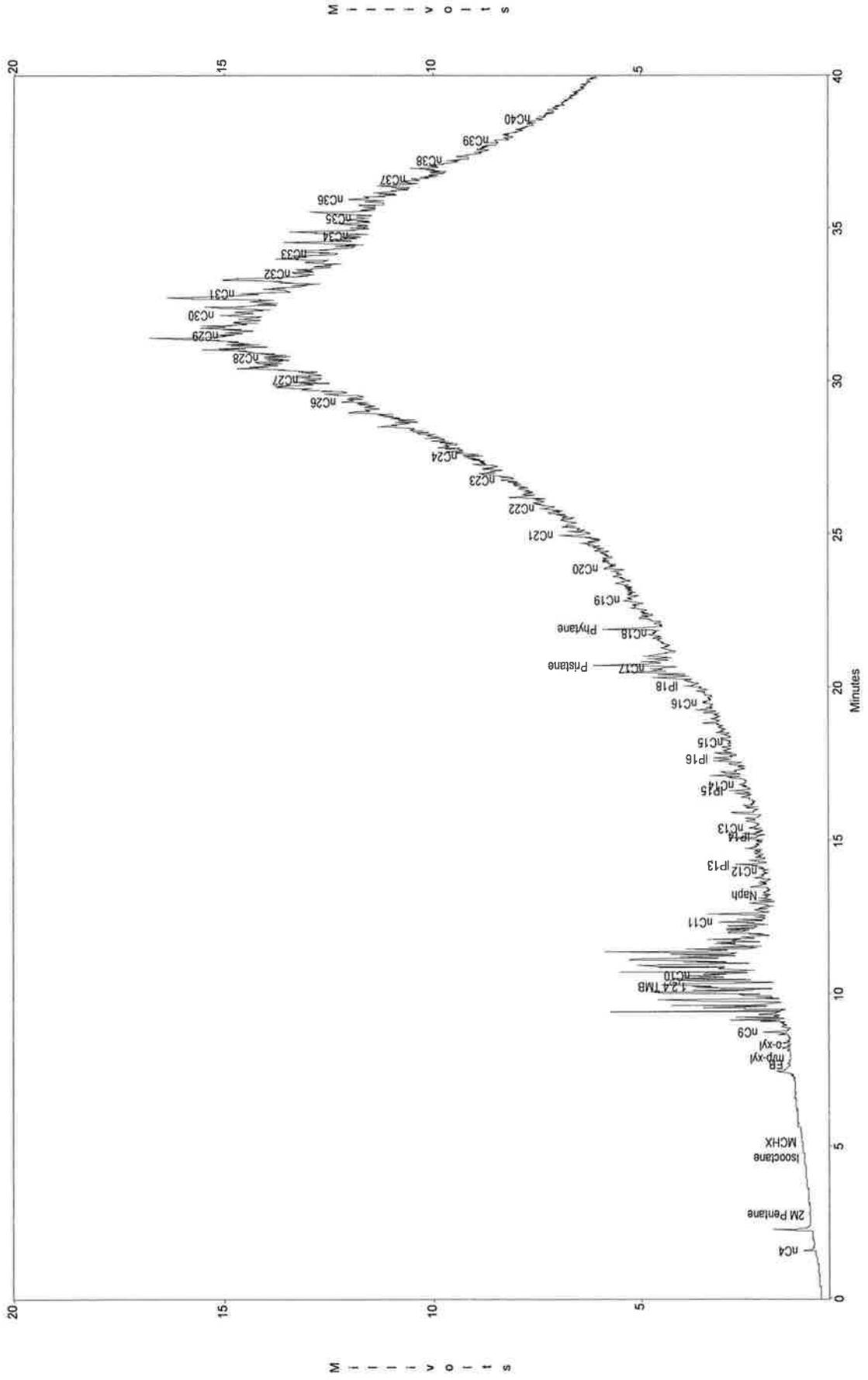
Please let me know if you have any questions.

Bruce Torkelson  
Torkelson Geochemistry, Inc.  
2528 S. Columbia Place  
Tulsa, OK 74114-3233  
voice 918-749-8441  
fax 918-749-6005  
[www.torkelsongeochemistry.com](http://www.torkelsongeochemistry.com)

# Torkelson Geochemistry, Inc.

Former Carrier Shop, Scotia, California  
Sample ID : CS-09  
Acquired : Mar 21, 2011 17:09:30

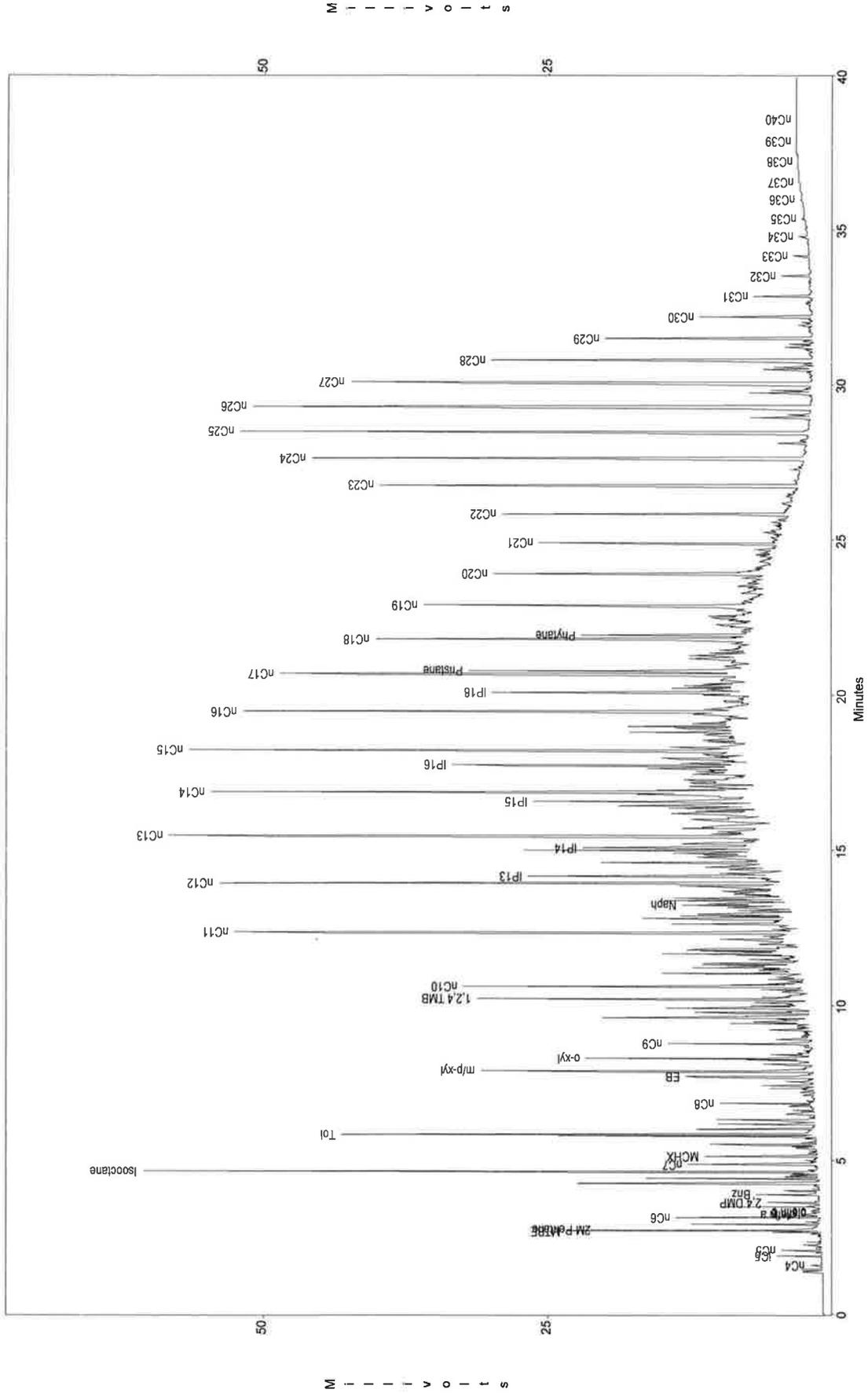
c:\ezchrom\chrom11041\cs-09 -- Channel A



# Torkelson Geochemistry, Inc.

Former Carter Shop, Scotia, California  
Sample ID : Gas/Dies/Wax std  
Acquired : Mar 21, 2011 14:09:09

c:\ezchrom\chrom1\1041\gadiwax2 -- Channel A

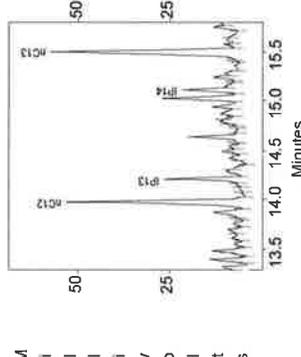




Torkelson Geochemistry, Inc.

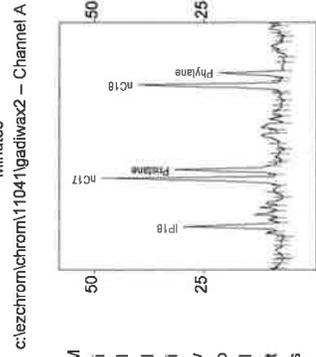
Former Carrier Shop, Scotia, California  
Sample ID : Gas/Dies/Wax std  
Acquired : Mar 21, 2011 14:09:09

c:\ezchrom\chrom\11041\gadiwax2 -- Channel A



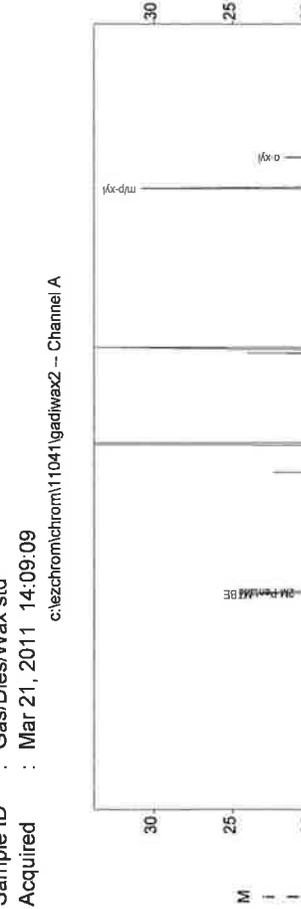
Peak	Area	Height
nC4	859	1026
LC5	3951	4011
nC5	3525	3612
MTBB	17802	22514
2M Pentane	22716	19748
nC6	13188	12767
olefin a	1943	1651
olefin b	810	668
olefin c	840	650
2,4 DNP	5020	4694
Bnz	8294	5563
Isocotane	82477	59460
nC7	15458	11456
MCBX	13014	10086
To1	64877	42008
nC8	11046	8436
B9	21416	11458
m/p-xyl	64160	29341
o-xyl	32043	20107
nC9	20271	12891
1,2,4 TMB	56069	29293
nC10	51660	30379
nC11	128843	49630
Naph	25924	9673
nC12	116041	49880
IP13	43344	22645
IP14	30832	16416
nC13	143624	52178
IP15	43505	20776
nC14	140823	49092
IP16	67330	27887
nC15	146031	59916
nC16	127524	46155
IP18	63190	24191
nC17	117009	42787
Pristane	74702	26204
nC18	93223	34343
Phytane	41242	16167
nC19	85530	30010
nC20	56313	24312
nC21	46660	21202
nC22	59461	25445
nC23	94731	37049
nC24	143401	43435
nC25	166452	50170
nC26	167671	49271
nC27	124355	40805
nC28	76376	28474
nC29	41914	18489
nC30	20024	9905
nC31	5932	4974
nC32	5289	2670
nC33	2787	1438
nC34	1500	743
nC35	847	376
nC36	456	180
nC37	199	81
nC38	319	28
nC39	69	18
nC40	29	10

M i l l i v o l t s



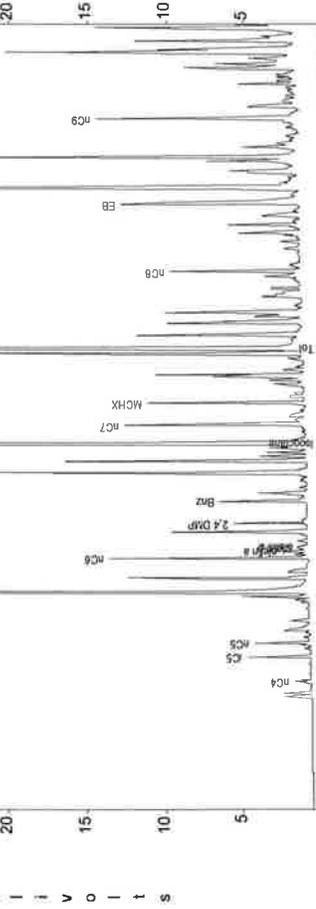
Peak	Area	Height
nC17	20271	12891
nC18	93223	34343
nC19	85530	30010
nC20	56313	24312
nC21	46660	21202
nC22	59461	25445
nC23	94731	37049
nC24	143401	43435
nC25	166452	50170
nC26	167671	49271
nC27	124355	40805
nC28	76376	28474
nC29	41914	18489
nC30	20024	9905
nC31	5932	4974
nC32	5289	2670
nC33	2787	1438
nC34	1500	743
nC35	847	376
nC36	456	180
nC37	199	81
nC38	319	28
nC39	69	18
nC40	29	10

M i l l i v o l t s



Peak	Area	Height
nC4	859	1026
nC5	3951	4011
nC6	3525	3612
nC7	17802	22514
nC8	22716	19748
nC9	13188	12767
nC10	1943	1651
nC11	810	668
nC12	840	650
nC13	5020	4694
nC14	8294	5563
nC15	82477	59460
nC16	15458	11456
nC17	13014	10086
nC18	64877	42008
nC19	11046	8436
nC20	21416	11458
nC21	64160	29341
nC22	32043	20107
nC23	20271	12891
nC24	56069	29293
nC25	51660	30379
nC26	128843	49630
nC27	25924	9673
nC28	116041	49880
nC29	43344	22645
nC30	30832	16416
nC31	143624	52178
nC32	43505	20776
nC33	140823	49092
nC34	67330	27887
nC35	146031	59916
nC36	127524	46155
nC37	63190	24191
nC38	117009	42787
nC39	74702	26204
nC40	93223	34343

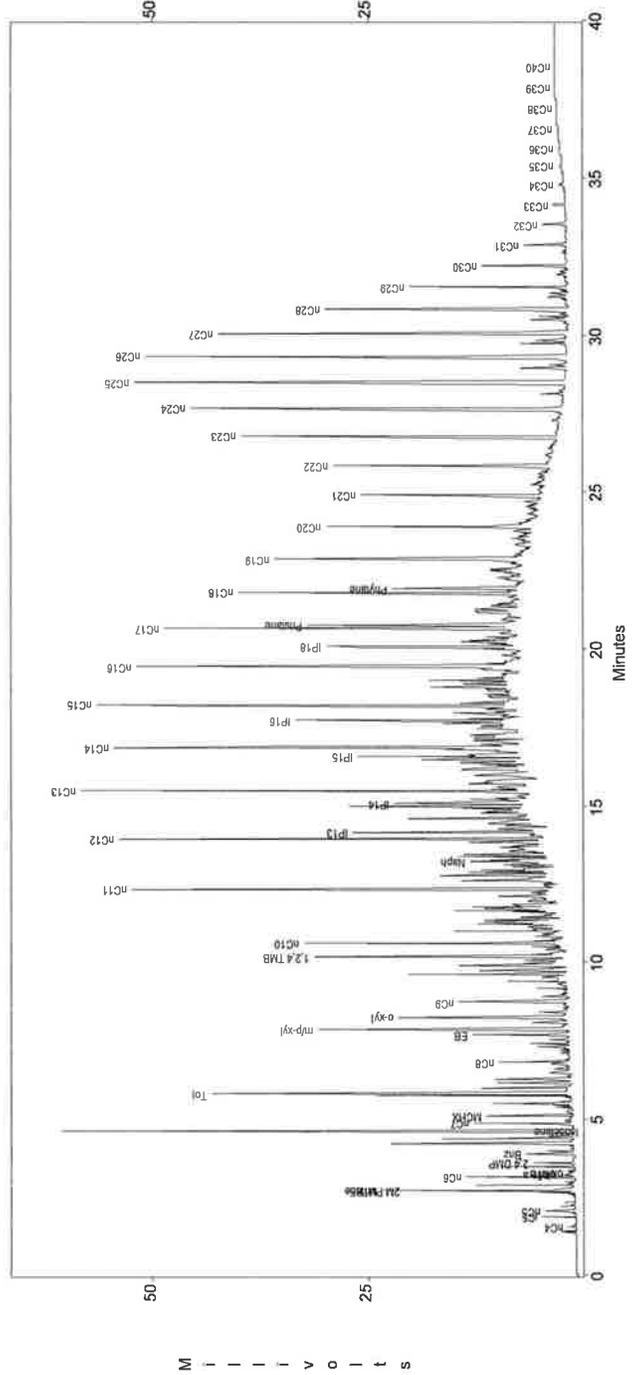
M i l l i v o l t s



Peak	Area	Height
nC17	20271	12891
nC18	93223	34343
nC19	85530	30010
nC20	56313	24312
nC21	46660	21202
nC22	59461	25445
nC23	94731	37049
nC24	143401	43435
nC25	166452	50170
nC26	167671	49271
nC27	124355	40805
nC28	76376	28474
nC29	41914	18489
nC30	20024	9905
nC31	5932	4974
nC32	5289	2670
nC33	2787	1438
nC34	1500	743
nC35	847	376
nC36	456	180
nC37	199	81
nC38	319	28
nC39	69	18
nC40	29	10

M i l l i v o l t s

c:\ezchrom\chrom\11041\gadiwax2 -- Channel A



Peak	Area	Height
nC17	20271	12891
nC18	93223	34343
nC19	85530	30010
nC20	56313	24312
nC21	46660	21202
nC22	59461	25445
nC23	94731	37049
nC24	143401	43435
nC25	166452	50170
nC26	167671	49271
nC27	124355	40805
nC28	76376	28474
nC29	41914	18489
nC30	20024	9905
nC31	5932	4974
nC32	5289	2670
nC33	2787	1438
nC34	1500	743
nC35	847	376
nC36	456	180
nC37	199	81
nC38	319	28
nC39	69	18
nC40	29	10

M i l l i v o l t s



# Torkelson Geochemistry, Inc.

2528 S. Columbia Place  
Tulsa, OK 74114-3233

Phone: 918-749-8441  
Fax: 918-749-6005

e-mail: B.Torkelson@torkelsongeochemistry.com

# CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project: Former Carrier Shop  
Location: Scotia, California  
Proj. No.: 011019  
P.O.: 011019  
Sampled by: Roland Rueber

Report/Bill To: SHN  
Address: 812 W. Wabash  
Eureka, CA 95501  
Phone: 707-411-8855  
Fax: 707-441-8877  
e-mail: rtrueber@shn-engr.com

### Additional Instructions

Product Fingerprinting with approximate age estimate. Please provide a written narrative of results and interpretation. Please retain data or sample for possible future comparison of product weathering

Requested Turn-Around Time: STD.

ITEM NO.	SAMPLE DESCRIPTION	DATE	MATRIX	LAB NO.	Total # Of Vials	PRESERVATIVES		ANALYSES REQUESTED							REMARKS	
						GC Characterization	Density	Viscosity	Water Surface Tension	NAPL Surface Tension	NAPL/Water Interfac. Tens.	Lead	Sulfur			
1	CS-09	3/16/2011	oil/water		1	X		X	X							Density and viscosity if you have enough material
2																
3																
4																
5																
6																
7																
8																
9																
10																

RELINQUISHED BY	DATE	TIME	ACCEPTED BY	DATE	TIME
<i>Roland Rueber</i>	3-17-11	9:00	<i>James Tubular</i>	3-18-11	08:30

RECEIVED APR - 5 2011



**NORTH COAST  
LABORATORIES LTD.**

April 01, 2011

SHN Consulting Engineers and Geologists  
812 West Wabash Avenue  
Eureka, CA 95501

Order No.: 1103350  
Invoice No.: 95663  
PO No.:  
ELAP No.1247-Expires July 2012

Attn: Diana Ward

RE: 011019 Former Carrier Shop

**SAMPLE IDENTIFICATION**

Fraction	Client Sample Description
01A	CS-305
01C	CS-305
02A	CS-304
02C	CS-304
03A	CS-303
03C	CS-303
04A	CS-302
04C	CS-302
05A	CS-301
05C	CS-301
05F	CS-301 (Subcontracted)
06A	CS-308
06C	CS-308
07A	CS-307
07C	CS-307
07F	CS-307 (Subcontracted)
07G	CS-307(DISSOLVED)
08A	CS-309
08C	CS-309
08F	CS-309 (Subcontracted)
08G	CS-309(DISSOLVED)
09A	CS-306
09C	CS-306
10A	CS-09
10C	CS-09
10F	CS-09 (Subcontracted)
10G	CS-09(DISSOLVED)
11A	CS-15

ND = Not Detected at the Reporting Limit  
Limit = Reporting Limit  
Flag = Explanation in Case Narrative  
All solid results are expressed on a wet-weight basis unless otherwise noted.

**REPORT CERTIFIED BY**

\_\_\_\_\_  
Laboratory Supervisor(s)

\_\_\_\_\_  
QA Unit

\_\_\_\_\_  
Jesse G. Chaney, Jr.  
Laboratory Director



**NORTH COAST  
LABORATORIES LTD.**

April 01, 2011

SHN Consulting Engineers and Geologists  
812 West Wabash Avenue  
Eureka, CA 95501

Order No.: 1103350  
Invoice No.: 95663  
PO No.:  
ELAP No.1247-Expires July 2012

Attn: Diana Ward

RE: 011019 Former Carrier Shop

**SAMPLE IDENTIFICATION**

11C	CS-15
11F	CS-15 (Subcontracted)
11G	CS-15(DISSOLVED)
12A	CS-10
12C	CS-10
12F	CS-10 (Subcontracted)
12G	CS-10(DISSOLVED)

**CLIENT:** SHN Consulting Engineers and Geologists  
**Project:** 011019 Former Carrier Shop  
**Lab Order:** 1103350

**CASE NARRATIVE**

D3: The sample contains material in the diesel range of molecular weights, but the material does not exhibit the peak pattern typical of diesel oil.

M3: The sample does not have the typical pattern of fresh motor oil. However, the result reported represents the amount of material in the motor oil range.

**EPA 8260:**

The recoveries of some analytes in the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyzed 3/19/2011@12:53:00 were above the lower acceptance limit. The elevated recoveries equate to a high bias. There were no detectable levels of these analytes in the sample; therefore, the data were accepted.

The recovery of benzene in the laboratory control sample (LCS) analyzed 3/21/2011@15:15:00 was below the lower acceptance limit for benzene. The response of the reporting limit standard was such that the analytes would have been detected even with the low recoveries; therefore, the data were accepted.

The matrix spike (MS) recoveries were above the upper acceptance limits for cis-1,2-dichloroethene, carbon tetrachloride, and bromodichloromethane. The elevated recoveries equate to a high bias. There were no detectable levels of these analytes in the sample; therefore, the data were accepted.

**TPHC-Gasoline:**

The recovery for the matrix spike (MS) in sample CS-15MS was outside of acceptance limits. The recovery was within acceptance limits in the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) indicating that the high recovery may be due to matrix effects.

**Metals:**

Samples CS-307(DISSOLVED) and CS-10(DISSOLVED) were refiltered prior to analysis.

**TPH as Diesel or Diesel/Motor Oil with Silica Gel Cleanup:**

All samples for these analyses were initially analyzed for diesel or diesel/motor oil. Samples that did not show material in the diesel or motor oil range were not subjected to the silica gel cleanup.

Date: 01-Apr-2011  
WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-305  
Lab ID: 1103350-01A

Received: 3/17/2011  
Collected: 3/15/2011 10:35

Test Name: TPH as Diesel/Motor Oil

Reference: LUFT/EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	58	D3	50	µg/L	1.0	3/21/2011	3/21/2011
TPHC Motor Oil	ND		170	µg/L	1.0	3/21/2011	3/21/2011

Client Sample ID: CS-305  
Lab ID: 1103350-01C

Received: 3/17/2011  
Collected: 3/15/2011 10:35

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		50	µg/L	1.0		3/28/2011

Client Sample ID: CS-304  
Lab ID: 1103350-02A

Received: 3/17/2011  
Collected: 3/15/2011 11:40

Test Name: TPH as Diesel/Motor Oil

Reference: LUFT/EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	51	D3	50	µg/L	1.0	3/21/2011	3/22/2011
TPHC Motor Oil	ND		170	µg/L	1.0	3/21/2011	3/22/2011

Client Sample ID: CS-304  
Lab ID: 1103350-02C

Received: 3/17/2011  
Collected: 3/15/2011 11:40

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		50	µg/L	1.0		3/28/2011

Client Sample ID: CS-303  
Lab ID: 1103350-03A

Received: 3/17/2011  
Collected: 3/15/2011 12:25

Test Name: TPH as Diesel/Motor Oil

Reference: LUFT/EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		50	µg/L	1.0	3/21/2011	3/22/2011
TPHC Motor Oil	ND		170	µg/L	1.0	3/21/2011	3/22/2011

Date: 01-Apr-2011  
WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-303  
Lab ID: 1103350-03C

Received: 3/17/2011  
Collected: 3/15/2011 12:25

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		50	µg/L	1.0		3/28/2011

Client Sample ID: CS-302  
Lab ID: 1103350-04A

Received: 3/17/2011  
Collected: 3/15/2011 14:15

Test Name: TPH as Diesel/Motor Oil

Reference: LUFT/EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		50	µg/L	1.0	3/21/2011	3/22/2011
TPHC Motor Oil	ND		170	µg/L	1.0	3/21/2011	3/22/2011

Client Sample ID: CS-302  
Lab ID: 1103350-04C

Received: 3/17/2011  
Collected: 3/15/2011 14:15

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		50	µg/L	1.0		3/28/2011

Client Sample ID: CS-301  
Lab ID: 1103350-05A

Received: 3/17/2011  
Collected: 3/15/2011 15:00

Test Name: TPH as Diesel/Motor Oil

Reference: LUFT/EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	8,000	D3	500	µg/L	10	3/21/2011	3/22/2011
TPHC Motor Oil	51,000		1,700	µg/L	10	3/21/2011	3/22/2011

Date: 01-Apr-2011  
WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-301  
Lab ID: 1103350-05C

Received: 3/17/2011  
Collected: 3/15/2011 15:00

Test Name: EPA 8260B

Reference: EPA 8260B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Chloromethane	ND		2.0	µg/L	1.0		3/19/2011
Vinyl chloride	ND		0.50	µg/L	1.0		3/19/2011
Bromomethane	ND		1.0	µg/L	1.0		3/19/2011
Chloroethane	ND		1.0	µg/L	1.0		3/19/2011
Trichlorofluoromethane	ND		1.0	µg/L	1.0		3/19/2011
1,1-Dichloroethene	ND		1.0	µg/L	1.0		3/19/2011
Methylene chloride	ND		2.0	µg/L	1.0		3/19/2011
trans-1,2-Dichloroethene	ND		1.0	µg/L	1.0		3/19/2011
Methyl tert-butyl ether (MTBE)	ND		1.0	µg/L	1.0		3/19/2011
Tert-butyl alcohol (TBA)	ND		10	µg/L	1.0		3/19/2011
Di-isopropyl ether (DIPE)	ND		1.0	µg/L	1.0		3/19/2011
1,1-Dichloroethane	ND		1.0	µg/L	1.0		3/19/2011
Ethyl tert-butyl ether (ETBE)	ND		1.0	µg/L	1.0		3/19/2011
cis-1,2-Dichloroethene	ND		1.0	µg/L	1.0		3/19/2011
Chloroform	ND		0.50	µg/L	1.0		3/19/2011
Carbon Tetrachloride	ND		1.0	µg/L	1.0		3/19/2011
1,1,1-Trichloroethane	ND		1.0	µg/L	1.0		3/19/2011
Benzene	ND		0.50	µg/L	1.0		3/19/2011
Tert-amyl methyl ether (TAME)	ND		1.0	µg/L	1.0		3/19/2011
1,2-Dichloroethane	ND		1.0	µg/L	1.0		3/19/2011
Trichloroethene	ND		1.0	µg/L	1.0		3/19/2011
1,2-Dichloropropane	ND		1.0	µg/L	1.0		3/19/2011
Bromodichloromethane	ND		0.50	µg/L	1.0		3/19/2011
cis-1,3-Dichloropropene	ND		1.0	µg/L	1.0		3/19/2011
Toluene	ND		0.50	µg/L	1.0		3/19/2011
Tetrachloroethene	ND		1.0	µg/L	1.0		3/19/2011
trans-1,3-Dichloropropene	ND		1.0	µg/L	1.0		3/19/2011
1,1,2-Trichloroethane	ND		1.0	µg/L	1.0		3/19/2011
Dibromochloromethane	ND		0.50	µg/L	1.0		3/19/2011
1,2-Dibromoethane (EDB)	ND		2.0	µg/L	1.0		3/19/2011
Chlorobenzene	ND		1.0	µg/L	1.0		3/19/2011
Ethylbenzene	ND		0.50	µg/L	1.0		3/19/2011
m,p-Xylene	ND		0.50	µg/L	1.0		3/19/2011
o-Xylene	ND		0.50	µg/L	1.0		3/19/2011
Bromoform	ND		0.50	µg/L	1.0		3/19/2011
1,1,1,2-Tetrachloroethane	ND		1.0	µg/L	1.0		3/19/2011
1,3-Dichlorobenzene	ND		1.0	µg/L	1.0		3/19/2011
1,4-Dichlorobenzene	ND		1.0	µg/L	1.0		3/19/2011
1,2-Dichlorobenzene	ND		1.0	µg/L	1.0		3/19/2011
Surrogate: 1,2-Dichloroethane-d4	94.4		70-130	% Rec	1.0		3/19/2011

Date: 01-Apr-2011  
WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-301

Received: 3/17/2011

Lab ID: 1103350-05C

Collected: 3/15/2011 15:00

Surrogate: Dibromofluoromethane	100	70.9-120	% Rec	1.0	3/19/2011
Surrogate: Toluene-d8	95.1	70-130	% Rec	1.0	3/19/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	150		50	µg/L	1.0		3/19/2011

Client Sample ID: CS-308

Received: 3/17/2011

Lab ID: 1103350-06A

Collected: 3/15/2011 15:50

Test Name: TPH as Diesel/Motor Oil

Reference: LUFT/EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		50	µg/L	1.0	3/21/2011	3/22/2011
TPHC Motor Oil	ND		170	µg/L	1.0	3/21/2011	3/22/2011

Client Sample ID: CS-308

Received: 3/17/2011

Lab ID: 1103350-06C

Collected: 3/15/2011 15:50

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		50	µg/L	1.0		3/28/2011

Client Sample ID: CS-307

Received: 3/17/2011

Lab ID: 1103350-07A

Collected: 3/16/2011 09:15

Test Name: TPH as Diesel/Motor Oil

Reference: LUFT/EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	16,000	D3	500	µg/L	10	3/21/2011	3/22/2011
TPHC Motor Oil	50,000		1,700	µg/L	10	3/21/2011	3/22/2011

Date: 01-Apr-2011  
WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-307  
Lab ID: 1103350-07C

Received: 3/17/2011  
Collected: 3/16/2011 09:15

Test Name: EPA 8260B

Reference: EPA 8260B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Chloromethane	ND		2.0	µg/L	1.0		3/19/2011
Vinyl chloride	ND		0.50	µg/L	1.0		3/19/2011
Bromomethane	ND		1.0	µg/L	1.0		3/19/2011
Chloroethane	ND		1.0	µg/L	1.0		3/19/2011
Trichlorofluoromethane	ND		1.0	µg/L	1.0		3/19/2011
1,1-Dichloroethene	ND		1.0	µg/L	1.0		3/19/2011
Methylene chloride	ND		2.0	µg/L	1.0		3/19/2011
trans-1,2-Dichloroethene	ND		1.0	µg/L	1.0		3/19/2011
Methyl tert-butyl ether (MTBE)	ND		1.0	µg/L	1.0		3/19/2011
Tert-butyl alcohol (TBA)	ND		10	µg/L	1.0		3/19/2011
Di-isopropyl ether (DIPE)	ND		1.0	µg/L	1.0		3/19/2011
1,1-Dichloroethane	ND		1.0	µg/L	1.0		3/19/2011
Ethyl tert-butyl ether (ETBE)	ND		1.0	µg/L	1.0		3/19/2011
cis-1,2-Dichloroethene	ND		1.0	µg/L	1.0		3/19/2011
Chloroform	ND		0.50	µg/L	1.0		3/19/2011
Carbon Tetrachloride	ND		1.0	µg/L	1.0		3/19/2011
1,1,1-Trichloroethane	ND		1.0	µg/L	1.0		3/19/2011
Benzene	ND		0.50	µg/L	1.0		3/19/2011
Tert-amyl methyl ether (TAME)	ND		1.0	µg/L	1.0		3/19/2011
1,2-Dichloroethane	ND		1.0	µg/L	1.0		3/19/2011
Trichloroethene	ND		1.0	µg/L	1.0		3/19/2011
1,2-Dichloropropane	ND		1.0	µg/L	1.0		3/19/2011
Bromodichloromethane	ND		0.50	µg/L	1.0		3/19/2011
cis-1,3-Dichloropropene	ND		1.0	µg/L	1.0		3/19/2011
Toluene	ND		0.50	µg/L	1.0		3/19/2011
Tetrachloroethene	ND		1.0	µg/L	1.0		3/19/2011
trans-1,3-Dichloropropene	ND		1.0	µg/L	1.0		3/19/2011
1,1,2-Trichloroethane	ND		1.0	µg/L	1.0		3/19/2011
Dibromochloromethane	ND		0.50	µg/L	1.0		3/19/2011
1,2-Dibromoethane (EDB)	ND		2.0	µg/L	1.0		3/19/2011
Chlorobenzene	ND		1.0	µg/L	1.0		3/19/2011
Ethylbenzene	ND		0.50	µg/L	1.0		3/19/2011
m,p-Xylene	ND		0.50	µg/L	1.0		3/19/2011
o-Xylene	ND		0.50	µg/L	1.0		3/19/2011
Bromoform	ND		0.50	µg/L	1.0		3/19/2011
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1.0		3/19/2011
1,3-Dichlorobenzene	ND		1.0	µg/L	1.0		3/19/2011
1,4-Dichlorobenzene	ND		1.0	µg/L	1.0		3/19/2011
1,2-Dichlorobenzene	ND		1.0	µg/L	1.0		3/19/2011
Surrogate: 1,2-Dichloroethane-d4	94.1		70-130	% Rec	1.0		3/19/2011

Date: 01-Apr-2011  
WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-307

Received: 3/17/2011

Lab ID: 1103350-07C

Collected: 3/16/2011 09:15

Surrogate: Dibromofluoromethane	99.9	70.9-120	% Rec	1.0	3/19/2011
Surrogate: Toluene-d8	97.7	70-130	% Rec	1.0	3/19/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		50	µg/L	1.0		3/19/2011

Client Sample ID: CS-307(DISSOLVED)

Received: 3/17/2011

Lab ID: 1103350-07G

Collected: 3/16/2011 09:15

Test Name: ICP-MS Metals

Reference: EPA 200.8 Rev 5.4 (1998)

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Antimony	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Arsenic	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Barium	150		5.0	µg/L	1.0	3/22/2011	3/22/2011
Beryllium	ND		1.0	µg/L	1.0	3/22/2011	3/22/2011
Cadmium	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Chromium	8.7		5.0	µg/L	1.0	3/22/2011	3/22/2011
Cobalt	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Copper	8.2		5.0	µg/L	1.0	3/22/2011	3/22/2011
Lead	27		5.0	µg/L	1.0	3/22/2011	3/22/2011
Molybdenum	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Nickel	10		5.0	µg/L	1.0	3/22/2011	3/22/2011
Selenium	ND		10	µg/L	1.0	3/22/2011	3/22/2011
Silver	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Thallium	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Vanadium	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Zinc	120		10	µg/L	1.0	3/22/2011	3/22/2011

Test Name: Mercury

Reference: EPA 245.1 Rev 3.0 (1994)

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Mercury	ND		1.0	µg/L	1.0	3/22/2011	3/23/2011

Client Sample ID: CS-309

Received: 3/17/2011

Lab ID: 1103350-08A

Collected: 3/16/2011 11:00

Test Name: TPH as Diesel/Motor Oil

Reference: LUFT/EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	200	D3	50	µg/L	1.0	3/21/2011	3/22/2011
TPHC Motor Oil	ND		170	µg/L	1.0	3/21/2011	3/22/2011

Date: 01-Apr-2011  
WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-309  
Lab ID: 1103350-08A

Received: 3/17/2011  
Collected: 3/16/2011 11:00

Test Name: TPH passed through Silica Gel Column

Reference: EPA 3511/3630/8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		50	µg/L	1.0	3/21/2011	3/26/2011
TPHC Motor Oil	ND		170	µg/L	1.0	3/21/2011	3/26/2011

Date: 01-Apr-2011  
 WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-309  
 Lab ID: 1103350-08C

Received: 3/17/2011  
 Collected: 3/16/2011 11:00

Test Name: EPA 8260B

Reference: EPA 8260B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Chloromethane	ND		2.0	µg/L	1.0		3/19/2011
Vinyl chloride	ND		0.50	µg/L	1.0		3/19/2011
Bromomethane	ND		1.0	µg/L	1.0		3/19/2011
Chloroethane	ND		1.0	µg/L	1.0		3/19/2011
Trichlorofluoromethane	ND		1.0	µg/L	1.0		3/19/2011
1,1-Dichloroethene	ND		1.0	µg/L	1.0		3/19/2011
Methylene chloride	ND		2.0	µg/L	1.0		3/19/2011
trans-1,2-Dichloroethene	ND		1.0	µg/L	1.0		3/19/2011
Methyl tert-butyl ether (MTBE)	ND		1.0	µg/L	1.0		3/19/2011
Tert-butyl alcohol (TBA)	ND		10	µg/L	1.0		3/19/2011
Di-isopropyl ether (DIPE)	ND		1.0	µg/L	1.0		3/19/2011
1,1-Dichloroethane	ND		1.0	µg/L	1.0		3/19/2011
Ethyl tert-butyl ether (ETBE)	ND		1.0	µg/L	1.0		3/19/2011
cis-1,2-Dichloroethene	ND		1.0	µg/L	1.0		3/19/2011
Chloroform	ND		0.50	µg/L	1.0		3/19/2011
Carbon Tetrachloride	ND		1.0	µg/L	1.0		3/19/2011
1,1,1-Trichloroethane	ND		1.0	µg/L	1.0		3/19/2011
<b>Benzene</b>	<b>1.2</b>		0.50	µg/L	1.0		3/19/2011
Tert-amyl methyl ether (TAME)	ND		1.0	µg/L	1.0		3/19/2011
1,2-Dichloroethane	ND		1.0	µg/L	1.0		3/19/2011
Trichloroethene	ND		1.0	µg/L	1.0		3/19/2011
1,2-Dichloropropane	ND		1.0	µg/L	1.0		3/19/2011
Bromodichloromethane	ND		0.50	µg/L	1.0		3/19/2011
cis-1,3-Dichloropropene	ND		1.0	µg/L	1.0		3/19/2011
Toluene	ND		0.50	µg/L	1.0		3/19/2011
Tetrachloroethene	ND		1.0	µg/L	1.0		3/19/2011
trans-1,3-Dichloropropene	ND		1.0	µg/L	1.0		3/19/2011
1,1,2-Trichloroethane	ND		1.0	µg/L	1.0		3/19/2011
Dibromochloromethane	ND		0.50	µg/L	1.0		3/19/2011
1,2-Dibromoethane (EDB)	ND		2.0	µg/L	1.0		3/19/2011
Chlorobenzene	ND		1.0	µg/L	1.0		3/19/2011
Ethylbenzene	ND		0.50	µg/L	1.0		3/19/2011
m,p-Xylene	ND		0.50	µg/L	1.0		3/19/2011
o-Xylene	ND		0.50	µg/L	1.0		3/19/2011
Bromoform	ND		0.50	µg/L	1.0		3/19/2011
1,1,1,2-Tetrachloroethane	ND		1.0	µg/L	1.0		3/19/2011
<b>1,3-Dichlorobenzene</b>	<b>1.0</b>		1.0	µg/L	1.0		3/19/2011
1,4-Dichlorobenzene	ND		1.0	µg/L	1.0		3/19/2011
1,2-Dichlorobenzene	ND		1.0	µg/L	1.0		3/19/2011
Surrogate: 1,2-Dichloroethane-d4	93.9		70-130	% Rec	1.0		3/19/2011

Date: 01-Apr-2011  
 WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-309

Received: 3/17/2011

Lab ID: 1103350-08C

Collected: 3/16/2011 11:00

Surrogate: Dibromofluoromethane	101	70.9-120	% Rec	1.0	3/19/2011
Surrogate: Toluene-d8	94.9	70-130	% Rec	1.0	3/19/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		50	µg/L	1.0		3/19/2011

Client Sample ID: CS-309(DISSOLVED)

Received: 3/17/2011

Lab ID: 1103350-08G

Collected: 3/16/2011 11:00

Test Name: ICP-MS Metals

Reference: EPA 200.8 Rev 5.4 (1998)

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Antimony	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Arsenic	77		5.0	µg/L	1.0	3/22/2011	3/22/2011
Barium	94		5.0	µg/L	1.0	3/22/2011	3/22/2011
Beryllium	ND		1.0	µg/L	1.0	3/22/2011	3/22/2011
Cadmium	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Chromium	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Cobalt	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Copper	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Lead	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Molybdenum	15		5.0	µg/L	1.0	3/22/2011	3/22/2011
Nickel	20		5.0	µg/L	1.0	3/22/2011	3/22/2011
Selenium	ND		10	µg/L	1.0	3/22/2011	3/22/2011
Silver	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Thallium	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Vanadium	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Zinc	ND		10	µg/L	1.0	3/22/2011	3/22/2011

Test Name: Mercury

Reference: EPA 245.1 Rev 3.0 (1994)

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Mercury	ND		1.0	µg/L	1.0	3/22/2011	3/23/2011

Client Sample ID: CS-306

Received: 3/17/2011

Lab ID: 1103350-09A

Collected: 3/16/2011 12:30

Test Name: TPH as Diesel/Motor Oil

Reference: LUFT/EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		50	µg/L	1.0	3/21/2011	3/22/2011
TPHC Motor Oil	ND		170	µg/L	1.0	3/21/2011	3/22/2011

Date: 01-Apr-2011  
WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-306  
Lab ID: 1103350-09C

Received: 3/17/2011  
Collected: 3/16/2011 12:30

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		50	µg/L	1.0		3/28/2011

Client Sample ID: CS-09  
Lab ID: 1103350-10A

Received: 3/17/2011  
Collected: 3/16/2011 15:00

Test Name: TPH as Diesel/Motor Oil

Reference: LUFT/EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	1,100	D3	50	µg/L	1.0	3/21/2011	3/22/2011
TPHC Motor Oil	3,600		170	µg/L	1.0	3/21/2011	3/22/2011

Date: 01-Apr-2011  
WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-09  
Lab ID: 1103350-10C

Received: 3/17/2011  
Collected: 3/16/2011 15:00

Test Name: EPA 8260B

Reference: EPA 8260B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Chloromethane	ND		2.0	µg/L	1.0		3/19/2011
Vinyl chloride	ND		0.50	µg/L	1.0		3/19/2011
Bromomethane	ND		1.0	µg/L	1.0		3/19/2011
Chloroethane	ND		1.0	µg/L	1.0		3/19/2011
Trichlorofluoromethane	ND		1.0	µg/L	1.0		3/19/2011
1,1-Dichloroethene	ND		1.0	µg/L	1.0		3/19/2011
Methylene chloride	ND		2.0	µg/L	1.0		3/19/2011
trans-1,2-Dichloroethene	ND		1.0	µg/L	1.0		3/19/2011
Methyl tert-butyl ether (MTBE)	ND		1.0	µg/L	1.0		3/19/2011
Tert-butyl alcohol (TBA)	ND		10	µg/L	1.0		3/19/2011
Di-isopropyl ether (DIPE)	ND		1.0	µg/L	1.0		3/19/2011
1,1-Dichloroethane	ND		1.0	µg/L	1.0		3/19/2011
Ethyl tert-butyl ether (ETBE)	ND		1.0	µg/L	1.0		3/19/2011
cis-1,2-Dichloroethene	ND		1.0	µg/L	1.0		3/19/2011
Chloroform	ND		0.50	µg/L	1.0		3/19/2011
Carbon Tetrachloride	ND		1.0	µg/L	1.0		3/19/2011
1,1,1-Trichloroethane	ND		1.0	µg/L	1.0		3/19/2011
Benzene	ND		0.50	µg/L	1.0		3/19/2011
Tert-amyl methyl ether (TAME)	ND		1.0	µg/L	1.0		3/19/2011
1,2-Dichloroethane	ND		1.0	µg/L	1.0		3/19/2011
Trichloroethene	ND		1.0	µg/L	1.0		3/19/2011
1,2-Dichloropropane	ND		1.0	µg/L	1.0		3/19/2011
Bromodichloromethane	ND		0.50	µg/L	1.0		3/19/2011
cis-1,3-Dichloropropene	ND		1.0	µg/L	1.0		3/19/2011
Toluene	ND		0.50	µg/L	1.0		3/19/2011
Tetrachloroethene	ND		1.0	µg/L	1.0		3/19/2011
trans-1,3-Dichloropropene	ND		1.0	µg/L	1.0		3/19/2011
1,1,2-Trichloroethane	ND		1.0	µg/L	1.0		3/19/2011
Dibromochloromethane	ND		0.50	µg/L	1.0		3/19/2011
1,2-Dibromoethane (EDB)	ND		2.0	µg/L	1.0		3/19/2011
Chlorobenzene	ND		1.0	µg/L	1.0		3/19/2011
Ethylbenzene	ND		0.50	µg/L	1.0		3/19/2011
m,p-Xylene	ND		0.50	µg/L	1.0		3/19/2011
o-Xylene	ND		0.50	µg/L	1.0		3/19/2011
Bromoform	ND		0.50	µg/L	1.0		3/19/2011
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1.0		3/19/2011
1,3-Dichlorobenzene	ND		1.0	µg/L	1.0		3/19/2011
1,4-Dichlorobenzene	ND		1.0	µg/L	1.0		3/19/2011
1,2-Dichlorobenzene	ND		1.0	µg/L	1.0		3/19/2011
Surrogate: 1,2-Dichloroethane-d4	93.5		70-130	% Rec	1.0		3/19/2011

Date: 01-Apr-2011  
WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-09

Received: 3/17/2011

Lab ID: 1103350-10C

Collected: 3/16/2011 15:00

Surrogate: Dibromofluoromethane	103	70.9-120	% Rec	1.0	3/19/2011
Surrogate: Toluene-d8	95.3	70-130	% Rec	1.0	3/19/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	75		50	µg/L	1.0		3/19/2011

Client Sample ID: CS-09(DISSOLVED)

Received: 3/17/2011

Lab ID: 1103350-10G

Collected: 3/16/2011 15:00

Test Name: ICP-MS Metals

Reference: EPA 200.8 Rev 5.4 (1998)

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Cadmium	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Chromium	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Lead	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Nickel	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Zinc	ND		10	µg/L	1.0	3/22/2011	3/22/2011

Client Sample ID: CS-15

Received: 3/17/2011

Lab ID: 1103350-11A

Collected: 3/17/2011 13:20

Test Name: TPH as Diesel/Motor Oil

Reference: LUFT/EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		50	µg/L	1.0	3/21/2011	3/22/2011
TPHC Motor Oil	ND		170	µg/L	1.0	3/21/2011	3/22/2011

Date: 01-Apr-2011  
WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-15  
Lab ID: 1103350-11C

Received: 3/17/2011  
Collected: 3/17/2011 13:20

Test Name: EPA 8260B

Reference: EPA 8260B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Chloromethane	ND		2.0	µg/L	1.0		3/21/2011
Vinyl chloride	ND		0.50	µg/L	1.0		3/21/2011
Bromomethane	ND		1.0	µg/L	1.0		3/21/2011
Chloroethane	ND		1.0	µg/L	1.0		3/21/2011
Trichlorofluoromethane	ND		1.0	µg/L	1.0		3/21/2011
1,1-Dichloroethene	ND		1.0	µg/L	1.0		3/21/2011
Methylene chloride	ND		2.0	µg/L	1.0		3/21/2011
trans-1,2-Dichloroethene	ND		1.0	µg/L	1.0		3/21/2011
Methyl tert-butyl ether (MTBE)	ND		1.0	µg/L	1.0		3/21/2011
Tert-butyl alcohol (TBA)	ND		10	µg/L	1.0		3/21/2011
Di-isopropyl ether (DIPE)	ND		1.0	µg/L	1.0		3/21/2011
1,1-Dichloroethane	ND		1.0	µg/L	1.0		3/21/2011
Ethyl tert-butyl ether (ETBE)	ND		1.0	µg/L	1.0		3/21/2011
cis-1,2-Dichloroethene	ND		1.0	µg/L	1.0		3/21/2011
Chloroform	ND		0.50	µg/L	1.0		3/21/2011
Carbon Tetrachloride	ND		1.0	µg/L	1.0		3/21/2011
1,1,1-Trichloroethane	ND		1.0	µg/L	1.0		3/21/2011
Benzene	ND		0.50	µg/L	1.0		3/21/2011
Tert-amyl methyl ether (TAME)	ND		1.0	µg/L	1.0		3/21/2011
1,2-Dichloroethane	ND		1.0	µg/L	1.0		3/21/2011
Trichloroethene	ND		1.0	µg/L	1.0		3/21/2011
1,2-Dichloropropane	ND		1.0	µg/L	1.0		3/21/2011
Bromodichloromethane	ND		0.50	µg/L	1.0		3/21/2011
cis-1,3-Dichloropropene	ND		1.0	µg/L	1.0		3/21/2011
Toluene	ND		0.50	µg/L	1.0		3/21/2011
Tetrachloroethene	ND		1.0	µg/L	1.0		3/21/2011
trans-1,3-Dichloropropene	ND		1.0	µg/L	1.0		3/21/2011
1,1,2-Trichloroethane	ND		1.0	µg/L	1.0		3/21/2011
Dibromochloromethane	ND		0.50	µg/L	1.0		3/21/2011
1,2-Dibromoethane (EDB)	ND		2.0	µg/L	1.0		3/21/2011
Chlorobenzene	ND		1.0	µg/L	1.0		3/21/2011
Ethylbenzene	ND		0.50	µg/L	1.0		3/21/2011
m,p-Xylene	ND		0.50	µg/L	1.0		3/21/2011
o-Xylene	ND		0.50	µg/L	1.0		3/21/2011
Bromoform	ND		0.50	µg/L	1.0		3/21/2011
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1.0		3/21/2011
1,3-Dichlorobenzene	ND		1.0	µg/L	1.0		3/21/2011
1,4-Dichlorobenzene	ND		1.0	µg/L	1.0		3/21/2011
1,2-Dichlorobenzene	ND		1.0	µg/L	1.0		3/21/2011
Surrogate: 1,2-Dichloroethane-d4	89.2		70-130	% Rec	1.0		3/21/2011

Date: 01-Apr-2011  
 WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-15

Received: 3/17/2011

Lab ID: 1103350-11C

Collected: 3/17/2011 13:20

Surrogate: Dibromofluoromethane	91.7	70.9-120	% Rec	1.0	3/21/2011
Surrogate: Toluene-d8	115	70-130	% Rec	1.0	3/21/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		50	µg/L	1.0		3/21/2011

Client Sample ID: CS-15(DISSOLVED)

Received: 3/17/2011

Lab ID: 1103350-11G

Collected: 3/17/2011 13:20

Test Name: ICP-MS Metals

Reference: EPA 200.8 Rev 5.4 (1998)

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Cadmium	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Chromium	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Lead	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Nickel	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Zinc	ND		10	µg/L	1.0	3/22/2011	3/22/2011

Client Sample ID: CS-10

Received: 3/17/2011

Lab ID: 1103350-12A

Collected: 3/17/2011 10:20

Test Name: TPH as Diesel/Motor Oil

Reference: LUFT/EPA 3511/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		50	µg/L	1.0	3/21/2011	3/22/2011
TPHC Motor Oil	220	M3	170	µg/L	1.0	3/21/2011	3/22/2011

Date: 01-Apr-2011  
WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-10  
Lab ID: 1103350-12C

Received: 3/17/2011  
Collected: 3/17/2011 10:20

Test Name: EPA 8260B

Reference: EPA 8260B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Chloromethane	ND		2.0	µg/L	1.0		3/21/2011
Vinyl chloride	ND		0.50	µg/L	1.0		3/21/2011
Bromomethane	ND		1.0	µg/L	1.0		3/21/2011
Chloroethane	ND		1.0	µg/L	1.0		3/21/2011
Trichlorofluoromethane	ND		1.0	µg/L	1.0		3/21/2011
1,1-Dichloroethene	ND		1.0	µg/L	1.0		3/21/2011
Methylene chloride	ND		2.0	µg/L	1.0		3/21/2011
trans-1,2-Dichloroethene	ND		1.0	µg/L	1.0		3/21/2011
Methyl tert-butyl ether (MTBE)	ND		1.0	µg/L	1.0		3/21/2011
Tert-butyl alcohol (TBA)	ND		10	µg/L	1.0		3/21/2011
Di-isopropyl ether (DIPE)	ND		1.0	µg/L	1.0		3/21/2011
1,1-Dichloroethane	ND		1.0	µg/L	1.0		3/21/2011
Ethyl tert-butyl ether (ETBE)	ND		1.0	µg/L	1.0		3/21/2011
cis-1,2-Dichloroethene	ND		1.0	µg/L	1.0		3/21/2011
Chloroform	ND		0.50	µg/L	1.0		3/21/2011
Carbon Tetrachloride	ND		1.0	µg/L	1.0		3/21/2011
1,1,1-Trichloroethane	ND		1.0	µg/L	1.0		3/21/2011
Benzene	ND		0.50	µg/L	1.0		3/21/2011
Tert-amyl methyl ether (TAME)	ND		1.0	µg/L	1.0		3/21/2011
1,2-Dichloroethane	ND		1.0	µg/L	1.0		3/21/2011
Trichloroethene	ND		1.0	µg/L	1.0		3/21/2011
1,2-Dichloropropane	ND		1.0	µg/L	1.0		3/21/2011
Bromodichloromethane	ND		0.50	µg/L	1.0		3/21/2011
cis-1,3-Dichloropropene	ND		1.0	µg/L	1.0		3/21/2011
Toluene	ND		0.50	µg/L	1.0		3/21/2011
Tetrachloroethene	ND		1.0	µg/L	1.0		3/21/2011
trans-1,3-Dichloropropene	ND		1.0	µg/L	1.0		3/21/2011
1,1,2-Trichloroethane	ND		1.0	µg/L	1.0		3/21/2011
Dibromochloromethane	ND		0.50	µg/L	1.0		3/21/2011
1,2-Dibromoethane (EDB)	ND		2.0	µg/L	1.0		3/21/2011
Chlorobenzene	ND		1.0	µg/L	1.0		3/21/2011
Ethylbenzene	ND		0.50	µg/L	1.0		3/21/2011
m,p-Xylene	ND		0.50	µg/L	1.0		3/21/2011
o-Xylene	ND		0.50	µg/L	1.0		3/21/2011
Bromoform	ND		0.50	µg/L	1.0		3/21/2011
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1.0		3/21/2011
1,3-Dichlorobenzene	ND		1.0	µg/L	1.0		3/21/2011
1,4-Dichlorobenzene	ND		1.0	µg/L	1.0		3/21/2011
1,2-Dichlorobenzene	ND		1.0	µg/L	1.0		3/21/2011
Surrogate: 1,2-Dichloroethane-d4	85.5		70-130	% Rec	1.0		3/21/2011

Date: 01-Apr-2011  
WorkOrder: 1103350

# ANALYTICAL REPORT

Client Sample ID: CS-10

Received: 3/17/2011

Lab ID: 1103350-12C

Collected: 3/17/2011 10:20

Surrogate: Dibromofluoromethane	91.5	70.9-120	% Rec	1.0	3/21/2011
Surrogate: Toluene-d8	117	70-130	% Rec	1.0	3/21/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		50	µg/L	1.0		3/21/2011

Client Sample ID: CS-10(DISSOLVED)

Received: 3/17/2011

Lab ID: 1103350-12G

Collected: 3/17/2011 10:20

Test Name: ICP-MS Metals

Reference: EPA 200.8 Rev 5.4 (1998)

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Cadmium	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Chromium	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Lead	ND		5.0	µg/L	1.0	3/22/2011	3/22/2011
Nickel	8.4		5.0	µg/L	1.0	3/22/2011	3/22/2011
Zinc	80		10	µg/L	1.0	3/22/2011	3/22/2011

**QC SUMMARY REPORT**  
Method Blank

**CLIENT:** SHN Consulting Engineers and Geologists  
**Work Order:** 1103350  
**Project:** 011019 Former Carrier Shop

**Sample ID:** MB01 032111      **Batch ID:** R65450      **Test Code:** 8260W      **Units:** µg/L      **Analysis Date:** 3/21/2011 19:34:00      **Prep Date:**  
**Client ID:**      **Run ID:** ORGCMS2\_110321B      **SeqNo:** 951813

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	ND	2.0									
Vinyl chloride	ND	0.50									
Bromomethane	ND	1.0									
Chloroethane	ND	1.0									
Trichlorofluoromethane	ND	1.0									
1,1-Dichloroethene	ND	1.0									
Methylene chloride	ND	2.0									
trans-1,2-Dichloroethene	ND	1.0									
Methyl tert-butyl ether (MTBE)	ND	1.0									
Tert-butyl alcohol (TBA)	ND	10									
Di-isopropyl ether (DIPE)	ND	1.0									
1,1-Dichloroethane	ND	1.0									
Ethyl tert-butyl ether (ETBE)	ND	1.0									
cis-1,2-Dichloroethene	ND	1.0									
Chloroform	ND	0.50									
Carbon Tetrachloride	ND	1.0									
1,1,1-Trichloroethane	ND	1.0									
Benzene	ND	0.50									
Tert-amyl methyl ether (TAME)	ND	1.0									
1,2-Dichloroethane	ND	1.0									
Trichloroethene	ND	1.0									
1,2-Dichloropropane	ND	1.0									
Bromodichloromethane	ND	0.50									
cis-1,3-Dichloropropene	ND	1.0									
Toluene	ND	0.50									
Tetrachloroethene	ND	1.0									
trans-1,3-Dichloropropene	ND	1.0									
1,1,2-Trichloroethane	ND	1.0									

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits

**QC SUMMARY REPORT**  
Method Blank

**CLIENT:** SHN Consulting Engineers and Geologists  
**Work Order:** 1103350  
**Project:** 011019 Former Carrier Shop

Dibromochloromethane	ND	0.50							
1,2-Dibromoethane (EDB)	ND	2.0							
Chlorobenzene	ND	1.0							
Ethylbenzene	ND	0.50							
m,p-Xylene	ND	0.50							
o-Xylene	ND	0.50							
Bromoform	ND	0.50							
1,1,1,2-Tetrachloroethane	ND	1.0							
1,3-Dichlorobenzene	ND	1.0							
1,4-Dichlorobenzene	ND	1.0							
1,2-Dichlorobenzene	ND	1.0							
Surrogate: 1,2-Dichloroethane-d4	0.910	1.00	0	91.0%	70	130	0		
Surrogate: Dibromofluoromethane	0.933	1.00	0	93.3%	71	120	0		
Surrogate: Toluene-d8	1.15	1.00	0	115%	70	130	0		

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits  
S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits  
B - Analyte detected in the associated Method Blank

# QC SUMMARY REPORT

Method Blank

CLIENT: SHN Consulting Engineers and Geologists  
 Work Order: 1103350  
 Project: 011019 Former Carrier Shop

Sample ID: MB01 031911      Batch ID: R65467      Test Code: 8260W      Units: µg/L      Analysis Date: 3/19/2011 6:05:00 PM      Prep Date:  
 Client ID:      Run ID: ORGCMS2\_110319B      SeqNo: 952006

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	ND	2.0									
Vinyl chloride	ND	0.50									
Bromomethane	ND	1.0									
Chloroethane	ND	1.0									
Trichlorofluoromethane	ND	1.0									
1,1-Dichloroethene	ND	1.0									
Methylene chloride	ND	2.0									
trans-1,2-Dichloroethene	ND	1.0									
Methyl tert-butyl ether (MTBE)	ND	1.0									
Tert-butyl alcohol (TBA)	ND	10									
Di-isopropyl ether (DIPE)	ND	1.0									
1,1-Dichloroethane	ND	1.0									
Ethyl tert-butyl ether (ETBE)	ND	1.0									
cis-1,2-Dichloroethene	ND	1.0									
Chloroform	ND	0.50									
Carbon Tetrachloride	ND	1.0									
1,1,1-Trichloroethane	ND	1.0									
Benzene	ND	0.50									
Tert-amyl methyl ether (TAME)	ND	1.0									
1,2-Dichloroethane	ND	1.0									
Trichloroethene	ND	1.0									
1,2-Dichloropropane	ND	1.0									
Bromodichloromethane	ND	0.50									
cis-1,3-Dichloropropene	ND	1.0									
Toluene	ND	0.50									
Tetrachloroethene	ND	1.0									
trans-1,3-Dichloropropene	ND	1.0									
1,1,2-Trichloroethane	ND	1.0									
Dibromochloromethane	ND	0.50									

Qualifiers: ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits

# QC SUMMARY REPORT

Method Blank

CLIENT: SHN Consulting Engineers and Geologists  
 Work Order: 1103350  
 Project: 011019 Former Carrier Shop

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane (EDB)	ND	2.0									
Chlorobenzene	ND	1.0									
Ethylbenzene	ND	0.50									
m,p-Xylene	ND	0.50									
o-Xylene	ND	0.50									
Bromoform	ND	0.50									
1,1,2,2-Tetrachloroethane	ND	1.0									
1,3-Dichlorobenzene	ND	1.0									
1,4-Dichlorobenzene	ND	1.0									
1,2-Dichlorobenzene	ND	1.0									
Surrogate: 1,2-Dichloroethane-d4	0.941	0.10	1.00	0	94.1%	70	130	0			
Surrogate: Dibromofluoromethane	1.01	0.10	1.00	0	101%	71	120	0			
Surrogate: Toluene-d8	0.985	0.10	1.00	0	98.5%	70	130	0			

Sample ID: MB01 032111 Batch ID: R65449 Test Code: GASW-MS Units: µg/L Analysis Date: 3/21/2011 7:34:00 PM Prep Date:  
 Client ID: Run ID: ORGCMS2\_110321A SeqNo: 951795

Analyte Result Limit SPK value SPK Ref Val % Rec LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual  
 TPHC Gasoline ND 50

Sample ID: MB01 031911 Batch ID: R65466 Test Code: GASW-MS Units: µg/L Analysis Date: 3/19/2011 6:05:00 PM Prep Date:  
 Client ID: Run ID: ORGCMS2\_110319A SeqNo: 951995

Analyte Result Limit SPK value SPK Ref Val % Rec LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual  
 TPHC Gasoline ND 50

Sample ID: MB 032811 Batch ID: R65536 Test Code: GASW-MS Units: µg/L Analysis Date: 3/28/2011 1:35:00 PM Prep Date:  
 Client ID: Run ID: ORGCMS2\_110328A SeqNo: 953016

Analyte Result Limit SPK value SPK Ref Val % Rec LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual  
 TPHC Gasoline ND 50

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

**QC SUMMARY REPORT**  
Method Blank

**CLIENT:** SHN Consulting Engineers and Geologists  
**Work Order:** 1103350  
**Project:** 011019 Former Carrier Shop

**Sample ID:** MB-25461      **Batch ID:** 25461      **Test Code:** ICPMSW      **Units:** µg/L      **Analysis Date:** 3/22/2011 13:41:36      **Prep Date:** 3/22/2011  
**Client ID:**      **Run ID:** ICPMS\_110322B      **SeqNo:** 951934

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	5.0									
Arsenic	ND	5.0									
Barium	ND	5.0									
Beryllium	ND	1.0									
Cadmium	ND	5.0									
Chromium	ND	5.0									
Cobalt	ND	5.0									
Copper	ND	5.0									
Lead	ND	5.0									
Molybdenum	ND	5.0									
Nickel	ND	5.0									
Selenium	ND	10									
Silver	ND	5.0									
Thallium	ND	5.0									
Vanadium	ND	5.0									
Zinc	ND	10									

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits

# QC SUMMARY REPORT

Method Blank

CLIENT: SHN Consulting Engineers and Geologists  
 Work Order: 1103350  
 Project: 011019 Former Carrier Shop

Sample ID: MB-25461      Batch ID: 25461      Test Code: ICPMSW      Units: µg/L      Prep Date: 3/22/2011  
 Client ID:      Analysis Date 3/22/2011 14:31:11      SeqNo: 951945

Analyte	Result	Limit	SPK value	SPK Ref Val	Units: µg/L	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	5.0										
Arsenic	ND	5.0										
Barium	ND	5.0										
Beryllium	ND	1.0										
Cadmium	ND	5.0										
Chromium	ND	5.0										
Cobalt	ND	5.0										
Copper	ND	5.0										
Lead	ND	5.0										
Molybdenum	ND	5.0										
Nickel	ND	5.0										
Selenium	ND	10										
Silver	ND	5.0										
Thallium	ND	5.0										
Vanadium	ND	5.0										
Zinc	ND	10										

Sample ID: MB-25453      Batch ID: 25453      Test Code: SGTPDMW      Units: µg/L      Prep Date: 3/21/2011  
 Client ID:      Analysis Date 3/26/2011 08:00:56      SeqNo: 952784

Analyte	Result	Limit	SPK value	SPK Ref Val	Units: µg/L	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	ND	50										
TPHC Motor Oil	ND	170										

Qualifiers: ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits

# QC SUMMARY REPORT

Method Blank

**CLIENT:** SHN Consulting Engineers and Geologists  
**Work Order:** 1103350  
**Project:** 011019 Former Carrier Shop

**Sample ID:** MB-25452      **Batch ID:** 25452      **Test Code:** TPHDMW      **Units:** µg/L      **Analysis Date:** 3/21/2011 17:21:16      **Prep Date:** 3/21/2011  
**Client ID:** ORGC14\_110321A      **Run ID:**      **SeqNo:** 951846

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	ND	50									
TPHC Motor Oil	ND	170									

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits

North Coast Laboratories, Ltd.

CLIENT: SHN Consulting Engineers and Geologists  
 Work Order: 1103350  
 Project: 011019 Former Carrier Shop

**QC SUMMARY REPORT**  
 Laboratory Control Spike

Sample ID: LCS11097	Batch ID: R65450	Test Code: 8260W	Units: µg/L	Analysis Date 3/21/2011 15:15:00	Prep Date:						
Client ID:	Run ID: ORGCMS2_110321B	Limit	SPK value	SPK Ref Val	SeqNo: 951811						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	8.195	2.0	20.0	0	41.0%	29	140	0			
Vinyl chloride	10.02	0.50	20.0	0	50.1%	12	175	0			
Bromomethane	15.63	1.0	20.0	0	78.2%	37	140	0			
Chloroethane	11.15	1.0	20.0	0	55.7%	17	159	0			
Trichlorofluoromethane	13.78	1.0	20.0	0	68.9%	24	161	0			
1,1-Dichloroethene	15.03	1.0	20.0	0	75.2%	50	143	0			
Methylene chloride	20.23	2.0	20.0	0	101%	70	125	0			
trans-1,2-Dichloroethene	18.04	1.0	20.0	0	90.2%	65	129	0			
Methyl tert-butyl ether (MTBE)	18.42	1.0	20.0	0	92.1%	60	152	0			
Tert-butyl alcohol (TBA)	383.9	10	400	0	96.0%	35	174	0			
Di-isopropyl ether (DIPE)	18.09	1.0	20.0	0	90.4%	80	120	0			
1,1-Dichloroethane	16.92	1.0	20.0	0	84.6%	66	133	0			
Ethyl tert-butyl ether (ETBE)	18.44	1.0	20.0	0	92.2%	80	131	0			
cis-1,2-Dichloroethene	19.21	1.0	20.0	0	96.0%	69	126	0			
Chloroform	17.66	0.50	20.0	0	88.3%	72	125	0			
Carbon Tetrachloride	17.72	1.0	20.0	0	88.6%	78	123	0			
1,1,1-Trichloroethane	17.58	1.0	20.0	0	87.9%	75	130	0			
Benzene	16.33	0.50	20.0	0	81.6%	83	120	0			S
Tert-amyl methyl ether (TAME)	18.47	1.0	20.0	0	92.3%	76	137	0			
1,2-Dichloroethane	18.54	1.0	20.0	0	92.7%	69	131	0			
Trichloroethene	16.96	1.0	20.0	0	84.8%	81	122	0			
1,2-Dichloropropane	17.03	1.0	20.0	0	85.2%	80	118	0			
Bromodichloromethane	19.19	0.50	20.0	0	95.9%	77	125	0			
cis-1,3-Dichloropropene	19.62	1.0	20.0	0	98.1%	72	136	0			
Toluene	19.38	0.50	20.0	0	96.9%	83	118	0			
Tetrachloroethene	17.94	1.0	20.0	0	89.7%	76	120	0			
trans-1,3-Dichloropropene	21.02	1.0	20.0	0	105%	81	121	0			
1,1,2-Trichloroethane	19.43	1.0	20.0	0	97.1%	74	122	0			

Qualifiers: ND - Not Detected at the Reporting Limit  
 S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank

# QC SUMMARY REPORT

Laboratory Control Spike

CLIENT: SHN Consulting Engineers and Geologists  
 Work Order: 1103350  
 Project: 011019 Former Carrier Shop

Dibromochloromethane	22.45	0.50	20.0	0	112%	70	130	0
1,2-Dibromoethane (EDB)	19.63	2.0	20.0	0	98.1%	70	130	0
Chlorobenzene	20.28	1.0	20.0	0	101%	70	130	0
Ethylbenzene	21.61	0.50	20.0	0	108%	70	130	0
m,p-Xylene	45.04	0.50	40.0	0	113%	68	134	0
o-Xylene	21.47	0.50	20.0	0	107%	68	134	0
Bromoform	25.25	0.50	20.0	0	126%	72	133	0
1,1,2,2-Tetrachloroethane	20.39	1.0	20.0	0	102%	54	144	0
1,3-Dichlorobenzene	22.37	1.0	20.0	0	112%	72	122	0
1,4-Dichlorobenzene	21.79	1.0	20.0	0	109%	71	126	0
1,2-Dichlorobenzene	21.19	1.0	20.0	0	106%	70	125	0
Surrogate: 1,2-Dichloroethane-d4	1.07	0.10	1.00	0	107%	70	130	0
Surrogate: Dibromofluoromethane	1.05	0.10	1.00	0	105%	71	120	0
Surrogate: Toluene-d8	1.07	0.10	1.00	0	107%	70	130	0

Qualifiers: ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank

# QC SUMMARY REPORT

Laboratory Control Spike Duplicate

CLIENT: SHN Consulting Engineers and Geologists  
 Work Order: 1103350  
 Project: 011019 Former Carrier Shop

Sample ID: LCSD 11097 Batch ID: R65450 Test Code: 8260W Units: µg/L Prep Date:  
 Client ID: Run ID: ORGCMS2\_110321B SeqNo: 951812 Analysis Date 3/21/2011 15:46:00

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	8.316	2.0	20.0	0	41.6%	29	140	8.20	1.47%	20	
Vinyl chloride	10.88	0.50	20.0	0	54.4%	12	175	10.0	8.30%	20	
Bromomethane	16.84	1.0	20.0	0	84.2%	37	140	15.6	7.46%	20	
Chloroethane	12.08	1.0	20.0	0	60.4%	17	159	11.2	7.97%	20	
Trichlorofluoromethane	14.96	1.0	20.0	0	74.8%	24	161	13.8	8.24%	20	
1,1-Dichloroethene	16.53	1.0	20.0	0	82.6%	50	143	15.0	9.47%	20	
Methylene chloride	20.93	2.0	20.0	0	105%	70	125	20.2	3.42%	20	
trans-1,2-Dichloroethene	19.22	1.0	20.0	0	96.1%	65	129	18.0	6.35%	20	
Methyl tert-butyl ether (MTBE)	18.45	1.0	20.0	0	92.3%	60	152	18.4	0.211%	20	
Tert-butyl alcohol (TBA)	396.3	10	400	0	99.1%	35	174	384	3.18%	20	
Di-isopropyl ether (DIPE)	18.54	1.0	20.0	0	92.7%	80	120	18.1	2.45%	20	
1,1-Dichloroethane	18.18	1.0	20.0	0	90.9%	66	133	16.9	7.18%	20	
Ethyl tert-butyl ether (ETBE)	18.73	1.0	20.0	0	93.7%	80	131	18.4	1.56%	20	
cis-1,2-Dichloroethene	19.97	1.0	20.0	0	99.8%	69	126	19.2	3.90%	20	
Chloroform	19.11	0.50	20.0	0	95.6%	72	125	17.7	7.89%	20	
Carbon Tetrachloride	19.73	1.0	20.0	0	98.7%	78	123	17.7	10.8%	20	
1,1,1-Trichloroethane	19.37	1.0	20.0	0	96.8%	75	130	17.6	9.67%	20	
Benzene	17.44	0.50	20.0	0	87.2%	83	120	16.3	6.60%	20	
Tert-amyl methyl ether (TAME)	18.53	1.0	20.0	0	92.7%	76	137	18.5	0.363%	20	
1,2-Dichloroethane	18.85	1.0	20.0	0	94.2%	69	131	18.5	1.65%	20	
Trichloroethene	18.21	1.0	20.0	0	91.0%	81	122	17.0	7.11%	20	
1,2-Dichloropropane	17.38	1.0	20.0	0	86.9%	80	118	17.0	2.02%	20	
Bromodichloromethane	19.43	0.50	20.0	0	97.1%	77	125	19.2	1.24%	20	
cis-1,3-Dichloropropene	19.97	1.0	20.0	0	99.8%	72	136	19.6	1.76%	20	
Toluene	20.84	0.50	20.0	0	104%	83	118	19.4	7.28%	20	
Tetrachloroethene	19.59	1.0	20.0	0	97.9%	76	120	17.9	8.76%	20	
trans-1,3-Dichloropropene	21.68	1.0	20.0	0	108%	81	121	21.0	3.12%	20	
1,1,2-Trichloroethane	19.75	1.0	20.0	0	98.8%	74	122	19.4	1.65%	20	
Dibromochloromethane	22.89	0.50	20.0	0	114%	70	130	22.4	1.91%	20	

Qualifiers: ND - Not Detected at the Reporting Limit  
 S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank

# QC SUMMARY REPORT

Laboratory Control Spike Duplicate

CLIENT: SHN Consulting Engineers and Geologists

Work Order: 1103350

Project: 011019 Former Carrier Shop

Compound	19.60	2.0	20.0	0	98.0%	70	130	19.6	0.111%	20
1,2-Dibromoethane (EDB)	19.60	2.0	20.0	0	98.0%	70	130	19.6	0.111%	20
Chlorobenzene	21.24	1.0	20.0	0	106%	70	130	20.3	4.66%	20
Ethylbenzene	22.98	0.50	20.0	0	115%	70	130	21.6	6.16%	20
m,p-Xylene	47.49	0.50	40.0	0	119%	68	134	45.0	5.31%	20
o-Xylene	22.66	0.50	20.0	0	113%	68	134	21.5	5.41%	20
Bromoform	24.66	0.50	20.0	0	123%	72	133	25.2	2.39%	20
1,1,2,2-Tetrachloroethane	20.87	1.0	20.0	0	104%	54	144	20.4	2.36%	20
1,3-Dichlorobenzene	23.53	1.0	20.0	0	118%	72	122	22.4	5.08%	20
1,4-Dichlorobenzene	22.57	1.0	20.0	0	113%	71	126	21.8	3.52%	20
1,2-Dichlorobenzene	22.13	1.0	20.0	0	111%	70	125	21.2	4.30%	20
Surrogate: 1,2-Dichloroethane-d4	1.08	0.10	1.00	0	107%	70	130	1.07	0.206%	20
Surrogate: Dibromofluoromethane	1.06	0.10	1.00	0	106%	71	120	1.05	0.271%	20
Surrogate: Toluene-d8	1.09	0.10	1.00	0	109%	70	130	1.07	1.15%	20

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

Qualifiers: ND - Not Detected at the Reporting Limit

R - RPD outside accepted recovery limits

J - Analyte detected below quantitation limits

**CLIENT:** SHN Consulting Engineers and Geologists

**Work Order:** 1103350

**Project:** 011019 Former Carrier Shop

**QC SUMMARY REPORT**

Laboratory Control Spike

Sample ID:	LCS 11091	Batch ID:	R65467	Test Code:	8260W	Units:	µg/L	Analysis Date	3/19/2011 12:53:00	Prep Date:			
Client ID:		Run ID:	ORGCMS2_110319B	SeqNo:	952003			LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Analyte	Result	Limit	SPK value	SPK RefVal	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Chloromethane	12.86	2.0	20.0	0	64.3%	29	140	0					
Vinyl chloride	15.51	0.50	20.0	0	77.6%	12	175	0					
Bromomethane	23.82	1.0	20.0	0	119%	37	140	0					
Chloroethane	17.41	1.0	20.0	0	87.1%	17	159	0					
Trichlorofluoromethane	20.95	1.0	20.0	0	105%	24	161	0					
1,1-Dichloroethene	22.25	1.0	20.0	0	111%	50	143	0					
Methylene chloride	23.51	2.0	20.0	0	118%	70	125	0					
trans-1,2-Dichloroethene	25.40	1.0	20.0	0	127%	65	129	0					
Methyl tert-butyl ether (MTBE)	23.40	1.0	20.0	0	117%	60	152	0					
Tert-butyl alcohol (TBA)	472.5	10	400	0	118%	35	174	0					
Di-isopropyl ether (DIPE)	24.03	1.0	20.0	0	120%	80	120	0			S		
1,1-Dichloroethane	24.16	1.0	20.0	0	121%	66	133	0					
Ethyl tert-butyl ether (ETBE)	23.15	1.0	20.0	0	116%	80	131	0			S		
cis-1,2-Dichloroethene	26.38	1.0	20.0	0	132%	69	126	0					
Chloroform	24.90	0.50	20.0	0	124%	72	125	0			S		
Carbon Tetrachloride	25.98	1.0	20.0	0	130%	78	123	0					
1,1,1-Trichloroethane	24.96	1.0	20.0	0	125%	75	130	0					
Benzene	22.67	0.50	20.0	0	113%	83	120	0					
Tert-amyl methyl ether (TAME)	23.42	1.0	20.0	0	117%	76	137	0					
1,2-Dichloroethane	23.84	1.0	20.0	0	119%	69	131	0					
Trichloroethene	23.74	1.0	20.0	0	119%	81	122	0					
1,2-Dichloropropane	22.76	1.0	20.0	0	114%	80	118	0					
Bromodichloromethane	25.16	0.50	20.0	0	126%	77	125	0			S		
cis-1,3-Dichloropropene	25.41	1.0	20.0	0	127%	72	136	0					
Toluene	21.00	0.50	20.0	0	105%	83	118	0					
Tetrachloroethene	20.05	1.0	20.0	0	100%	76	120	0					
trans-1,3-Dichloropropene	22.06	1.0	20.0	0	110%	81	121	0					
1,1,2-Trichloroethane	20.21	1.0	20.0	0	101%	74	122	0					
Dibromochloromethane	22.76	0.50	20.0	0	114%	70	130	0					

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 S - Spike Recovery outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank  
 R - RPD outside accepted recovery limits  
 J - Analyte detected below quantitation limits

**CLIENT:** SHN Consulting Engineers and Geologists

**Work Order:** 1103350

**Project:** 011019 Former Carrier Shop

# QC SUMMARY REPORT

Laboratory Control Spike

	19.76	2.0	20.0	0	98.8%	70	130	0
1,2-Dibromoethane (EDB)	19.76	2.0	20.0	0	98.8%	70	130	0
Chlorobenzene	20.50	1.0	20.0	0	103%	70	130	0
Ethylbenzene	22.00	0.50	20.0	0	110%	70	130	0
m,p-Xylene	45.90	0.50	40.0	0	115%	68	134	0
o-Xylene	21.86	0.50	20.0	0	109%	68	134	0
Bromoform	22.09	0.50	20.0	0	110%	72	133	0
1,1,2,2-Tetrachloroethane	19.66	1.0	20.0	0	98.3%	54	144	0
1,3-Dichlorobenzene	22.71	1.0	20.0	0	114%	72	122	0
1,4-Dichlorobenzene	21.91	1.0	20.0	0	110%	71	126	0
1,2-Dichlorobenzene	21.21	1.0	20.0	0	106%	70	125	0
Surrogate: 1,2-Dichloroethane-d4	1.11	0.10	1.00	0	111%	70	130	0
Surrogate: Dibromofluoromethane	1.12	0.10	1.00	0	113%	71	120	0
Surrogate: Toluene-d8	0.950	0.10	1.00	0	95.0%	70	130	0

**Qualifiers:** ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

# QC SUMMARY REPORT

## Laboratory Control Spike Duplicate

**CLIENT:** SHN Consulting Engineers and Geologists  
**Work Order:** 1103350  
**Project:** 011019 Former Carrier Shop

Sample ID:	LCSD 11091	Batch ID:	R65467	Test Code:	8260W	Units:	µg/L	Analysis Date:	3/19/2011 13:24:00	Prep Date:	
Client ID:		Run ID:	ORGCMS2_110319B	SeqNo:	952004	HighLimit	RPD Ref Val	LowLimit	HighLimit	RPD Ref Val	
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	% RPD	RPDLimit	Qual
Chloromethane	12.56	2.0	20.0	0	62.8%	29	140	12.9	2.34%	20	
Vinyl chloride	15.00	0.50	20.0	0	75.0%	12	175	15.5	3.37%	20	
Bromomethane	23.59	1.0	20.0	0	118%	37	140	23.8	0.963%	20	
Chloroethane	16.77	1.0	20.0	0	83.8%	17	159	17.4	3.77%	20	
Trichlorofluoromethane	20.23	1.0	20.0	0	101%	24	161	21.0	3.54%	20	
1,1-Dichloroethene	21.74	1.0	20.0	0	109%	50	143	22.2	2.32%	20	
Methylene chloride	23.54	2.0	20.0	0	118%	70	125	23.5	0.115%	20	
trans-1,2-Dichloroethene	24.77	1.0	20.0	0	124%	65	129	25.4	2.50%	20	
Methyl tert-butyl ether (MTBE)	23.68	1.0	20.0	0	118%	60	152	23.4	1.18%	20	
Tert-butyl alcohol (TBA)	497.1	10	400	0	124%	35	174	472	5.09%	20	
Di-isopropyl ether (DIPE)	23.65	1.0	20.0	0	118%	80	120	24.0	1.60%	20	
1,1-Dichloroethane	23.61	1.0	20.0	0	118%	66	133	24.2	2.30%	20	
Ethyl tert-butyl ether (ETBE)	23.50	1.0	20.0	0	118%	80	131	23.2	1.50%	20	S
cis-1,2-Dichloroethene	26.09	1.0	20.0	0	130%	69	126	26.4	1.09%	20	
Chloroform	24.46	0.50	20.0	0	122%	72	125	24.9	1.76%	20	S
Carbon Tetrachloride	24.77	1.0	20.0	0	124%	78	123	26.0	4.79%	20	
1,1,1-Trichloroethane	24.22	1.0	20.0	0	121%	75	130	25.0	3.02%	20	
Benzene	21.97	0.50	20.0	0	110%	83	120	22.7	3.15%	20	
Tert-amyl methyl ether (TAME)	23.51	1.0	20.0	0	118%	76	137	23.4	0.392%	20	
1,2-Dichloroethane	23.86	1.0	20.0	0	119%	69	131	23.8	0.0773%	20	
Trichloroethene	22.96	1.0	20.0	0	115%	81	122	23.7	3.36%	20	
1,2-Dichloropropane	22.46	1.0	20.0	0	112%	80	118	22.8	1.30%	20	
Bromodichloromethane	25.46	0.50	20.0	0	127%	77	125	25.2	1.19%	20	
cis-1,3-Dichloropropene	25.47	1.0	20.0	0	127%	72	136	25.4	0.222%	20	
Toluene	20.57	0.50	20.0	0	103%	83	118	21.0	2.07%	20	S
Tetrachloroethene	19.34	1.0	20.0	0	96.7%	76	120	20.0	3.64%	20	
trans-1,3-Dichloropropene	22.04	1.0	20.0	0	110%	81	121	22.1	0.0715%	20	
1,1,2-Trichloroethane	20.47	1.0	20.0	0	102%	74	122	20.2	1.27%	20	
Dibromochloromethane	22.83	0.50	20.0	0	114%	70	130	22.8	0.304%	20	

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank

# QC SUMMARY REPORT

Laboratory Control Spike Duplicate

CLIENT: SHN Consulting Engineers and Geologists  
 Work Order: 1103350  
 Project: 011019 Former Carrier Shop

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane (EDB)	19.69	2.0	20.0	0	98.4%	70	130	19.8	0.361%	20	20
Chlorobenzene	20.14	1.0	20.0	0	101%	70	130	20.5	1.76%	20	20
Ethylbenzene	22.09	0.50	20.0	0	110%	70	130	22.0	0.433%	20	20
m,p-Xylene	45.96	0.50	40.0	0	115%	68	134	45.9	0.149%	20	20
o-Xylene	21.73	0.50	20.0	0	109%	68	134	21.9	0.591%	20	20
Bromoform	22.19	0.50	20.0	0	111%	72	133	22.1	0.438%	20	20
1,1,2,2-Tetrachloroethane	20.16	1.0	20.0	0	101%	54	144	19.7	2.55%	20	20
1,3-Dichlorobenzene	22.71	1.0	20.0	0	114%	72	122	22.7	0.0252%	20	20
1,4-Dichlorobenzene	21.67	1.0	20.0	0	108%	71	126	21.9	1.12%	20	20
1,2-Dichlorobenzene	21.18	1.0	20.0	0	106%	70	125	21.2	0.129%	20	20
Surrogate: 1,2-Dichloroethane-d4	1.14	0.10	1.00	0	114%	70	130	1.11	2.33%	20	20
Surrogate: Dibromofluoromethane	1.15	0.10	1.00	0	115%	71	120	1.12	1.90%	20	20
Surrogate: Toluene-d8	0.944	0.10	1.00	0	94.4%	70	130	0.950	0.624%	20	20

Sample ID:	LCS 11098	Batch ID:	R65449	Test Code:	GASW-MS	Units:	µg/L	Analysis Date:	3/21/2011 16:57:00	Prep Date:		
Client ID:		Run ID:	ORGCMS2_110321A	SeqNo:	951793							
Analyte		Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline		1,091	50	1,000	0	109%	77	124	0			

Sample ID:	LCSD 11098	Batch ID:	R65449	Test Code:	GASW-MS	Units:	µg/L	Analysis Date:	3/21/2011 17:28:00	Prep Date:		
Client ID:		Run ID:	ORGCMS2_110321A	SeqNo:	951794							
Analyte		Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline		1,171	50	1,000	0	117%	77	124	1,090	7.10%	20	

Sample ID:	LCS 11095	Batch ID:	R65466	Test Code:	GASW-MS	Units:	µg/L	Analysis Date:	3/19/2011 14:58:00	Prep Date:		
Client ID:		Run ID:	ORGCMS2_110319A	SeqNo:	951992							
Analyte		Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline		1,011	50	1,000	0	101%	77	124	0			

Qualifiers: ND - Not Detected at the Reporting Limit  
 S - Spike Recovery outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits  
 R - RPD outside accepted recovery limits  
 Page 8 of 12

CLIENT: SHN Consulting Engineers and Geologists

Work Order: 1103350

Project: 011019 Former Carrier Shop

# QC SUMMARY REPORT

Laboratory Control Spike Duplicate

Sample ID: LCSD 11095      Batch ID: R65466      Test Code: GASW-MS      Units: µg/L      Analysis Date 3/19/2011 15:29:00      Prep Date:  
Client ID:      Run ID: ORGCMS2\_110319A      SeqNo: 951993  
Analyte      Result      Limit      SPK value      SPK Ref Val      % Rec      LowLimit      HighLimit      RPD Ref Val      %RPD      RPDLimit      Qual  
TPHC Gasoline      1,018      50      1,000      0      102%      77      124      1,010      0.697%      20

Sample ID: LCS-11108      Batch ID: R65536      Test Code: GASW-MS      Units: µg/L      Analysis Date 3/28/2011 10:32:00      Prep Date:  
Client ID:      Run ID: ORGCMS2\_110328A      SeqNo: 953006  
Analyte      Result      Limit      SPK value      SPK Ref Val      % Rec      LowLimit      HighLimit      RPD Ref Val      %RPD      RPDLimit      Qual  
TPHC Gasoline      1,040      50      1,000      0      104%      77      124      0      2.63%      20

Sample ID: LCSD-11108      Batch ID: R65536      Test Code: GASW-MS      Units: µg/L      Analysis Date 3/28/2011 10:59:00      Prep Date:  
Client ID:      Run ID: ORGCMS2\_110328A      SeqNo: 953007  
Analyte      Result      Limit      SPK value      SPK Ref Val      % Rec      LowLimit      HighLimit      RPD Ref Val      %RPD      RPDLimit      Qual  
TPHC Gasoline      1,013      50      1,000      0      101%      77      124      1,040      2.63%      20

Qualifiers: ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

# QC SUMMARY REPORT

Laboratory Control Spike

CLIENT: SHN Consulting Engineers and Geologists  
 Work Order: 1103350  
 Project: 011019 Former Carrier Shop

Sample ID: LCS-25461 Batch ID: 25461 Test Code: ICPMSW Units: µg/L Analysis Date: 3/22/2011 13:45:54 Prep Date: 3/22/2011  
 Client ID: Run ID: ICPMS\_110322B SeqNo: 951935

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	483.0	5.0	500	0	96.6%	85	115	0			
Arsenic	456.5	5.0	500	0	91.3%	85	115	0			
Barium	462.2	5.0	500	0	92.4%	85	115	0			
Beryllium	471.4	1.0	500	0	94.3%	85	115	0			
Cadmium	459.5	5.0	500	0	91.9%	85	115	0			
Chromium	465.2	5.0	500	0	93.0%	85	115	0			
Cobalt	467.5	5.0	500	0	93.5%	85	115	0			
Copper	461.6	5.0	500	0	92.3%	85	115	0			
Lead	461.9	5.0	500	0.130	92.4%	85	115	0			
Molybdenum	479.9	5.0	500	0.130	96.0%	85	115	0			
Nickel	467.6	5.0	500	0.200	93.5%	85	115	0			
Selenium	470.1	10	500	0	94.0%	85	115	0			
Silver	58.51	5.0	62.5	0	93.6%	85	115	0			
Thallium	446.5	5.0	500	0.130	89.3%	85	115	0			
Vanadium	472.9	5.0	500	0	94.6%	85	115	0			
Zinc	462.9	10	500	0	92.6%	85	115	0			

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits



# QC SUMMARY REPORT

Laboratory Control Spike Duplicate

**CLIENT:** SHN Consulting Engineers and Geologists  
**Work Order:** 1103350  
**Project:** 011019 Former Carrier Shop

**Sample ID:** LCSD-25453    **Batch ID:** 25453    **Test Code:** SGTPDMW    **Units:** µg/L    **Analysis Date:** 3/26/2011 09:09:19    **Prep Date:** 3/21/2011  
**Client ID:**    **Run ID:** ORGC14\_110325C    **SeqNo:** 952786

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	493.2	50	500	0	98.6%	70	117	506	2.64%	30	
TPHC Motor Oil	1,041	170	1,000	0	104%	86	124	1,030	0.836%	30	

**Sample ID:** LCS-25452    **Batch ID:** 25452    **Test Code:** TPHDMW    **Units:** µg/L    **Analysis Date:** 3/21/2011 17:51:17    **Prep Date:** 3/21/2011  
**Client ID:**    **Run ID:** ORGC14\_110321A    **SeqNo:** 951847

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	491.3	50	500	0	98.3%	74	120	0			
TPHC Motor Oil	1,015	170	1,000	0	101%	81	126	0			

**Sample ID:** LCSD-25452    **Batch ID:** 25452    **Test Code:** TPHDMW    **Units:** µg/L    **Analysis Date:** 3/21/2011 18:21:17    **Prep Date:** 3/21/2011  
**Client ID:**    **Run ID:** ORGC14\_110321A    **SeqNo:** 951848

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	493.1	50	500	0	98.6%	74	120	491	0.377%	30	
TPHC Motor Oil	1,052	170	1,000	0	105%	81	126	1,020	3.61%	30	

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank

**CLIENT:** SHN Consulting Engineers and Geologists  
**Work Order:** 1103350  
**Project:** 011019 Former Carrier Shop

**QC SUMMARY REPORT**  
 Sample Matrix Spike

Sample ID: 1103350-12CMS    Batch ID: R65467    Test Code: 8260W    Units: µg/L    Analysis Date 3/19/2011 13:56:00    Prep Date:  
 Client ID: CS-10    Run ID: ORGCMS2\_110319B    SeqNo: 952005

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD RefVal	%RPD	RPDLimit	Qual
Chloromethane	14.03	2.0	20.0	0	70.2%	29	140	0			
Vinyl chloride	17.45	0.50	20.0	0	87.2%	12	175	0			
Bromomethane	25.75	1.0	20.0	0	129%	37	140	0			
Chloroethane	18.64	1.0	20.0	0	93.2%	17	159	0			
Trichlorofluoromethane	23.58	1.0	20.0	0	118%	24	161	0			
1,1-Dichloroethene	23.36	1.0	20.0	0	117%	50	143	0			
Methylene chloride	23.75	2.0	20.0	0	119%	70	125	0			
trans-1,2-Dichloroethene	25.75	1.0	20.0	0	129%	65	129	0			
Methyl tert-butyl ether (MTBE)	23.27	1.0	20.0	0	116%	60	152	0			
Tert-butyl alcohol (TBA)	494.6	10	400	0	124%	35	174	0			
Di-isopropyl ether (DIPE)	23.17	1.0	20.0	0	116%	80	120	0			
1,1-Dichloroethane	23.81	1.0	20.0	0	119%	66	133	0			
Ethyl tert-butyl ether (ETBE)	22.84	1.0	20.0	0	114%	80	131	0			
cis-1,2-Dichloroethene	26.31	1.0	20.0	0	132%	69	126	0			S
Chloroform	24.82	0.50	20.0	0	124%	72	125	0			
Carbon Tetrachloride	25.75	1.0	20.0	0	129%	78	123	0			S
1,1,1-Trichloroethane	25.46	1.0	20.0	0	127%	75	130	0			
Benzene	22.36	0.50	20.0	0	112%	83	120	0			
Tert-amyl methyl ether (TAME)	22.88	1.0	20.0	0	114%	76	137	0			
1,2-Dichloroethane	23.31	1.0	20.0	0	117%	69	131	0			
Trichloroethene	23.30	1.0	20.0	0	116%	81	122	0			
1,2-Dichloropropane	22.20	1.0	20.0	0	111%	80	118	0			
Bromodichloromethane	25.25	0.50	20.0	0	126%	77	125	0			
cis-1,3-Dichloropropene	24.60	1.0	20.0	0	123%	72	136	0			
Toluene	20.11	0.50	20.0	0	101%	83	118	0			S
Tetrachloroethene	18.37	1.0	20.0	0	91.8%	76	120	0			
trans-1,3-Dichloropropene	20.48	1.0	20.0	0	102%	81	121	0			
1,1,2-Trichloroethane	18.33	1.0	20.0	0	91.7%	74	122	0			

**Qualifiers:** ND - Not Detected at the Reporting Limit    S - Spike Recovery outside accepted recovery limits    B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits    R - RPD outside accepted recovery limits

# QC SUMMARY REPORT

Sample Matrix Spike

CLIENT: SHN Consulting Engineers and Geologists  
 Work Order: 1103350  
 Project: 011019 Former Carrier Shop

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromochloromethane	20.42	0.50	20.0	0	102%	70	130	0		130	0
1,2-Dibromoethane (EDB)	18.11	2.0	20.0	0	90.5%	70	130	0		130	0
Chlorobenzene	19.37	1.0	20.0	0	96.9%	70	130	0		130	0
Ethylbenzene	21.09	0.50	20.0	0	105%	70	130	0		130	0
m,p-Xylene	44.46	0.50	40.0	0	111%	68	134	0		134	0
o-Xylene	20.45	0.50	20.0	0	102%	68	134	0		134	0
Bromoform	21.12	0.50	20.0	0	106%	72	133	0		133	0
1,1,2,2-Tetrachloroethane	18.14	1.0	20.0	0	90.7%	54	144	0		144	0
1,3-Dichlorobenzene	21.20	1.0	20.0	0	106%	72	122	0		122	0
1,4-Dichlorobenzene	20.45	1.0	20.0	0	102%	71	126	0		126	0
1,2-Dichlorobenzene	19.81	1.0	20.0	0	99.0%	70	125	0		125	0
Surrogate: 1,2-Dichloroethane-d4	1.16	0.10	1.00	0	116%	70	130	0		130	0
Surrogate: Dibromofluoromethane	1.17	0.10	1.00	0	117%	71	120	0		120	0
Surrogate: Toluene-d8	0.924	0.10	1.00	0	92.4%	70	130	0		130	0

Sample ID: 1103350-11CMS    Batch ID: R65466    Test Code: GASW-MS    Units: µg/L    Analysis Date: 3/19/2011 16:00:00    Prep Date:  
 Client ID: CS-15    Run ID: ORGCMS2\_110319A    SeqNo: 951994

TPHC Gasoline    Result: 1,470    Limit: 50    SPK value: 1,000    SPK Ref Val: 0    % Rec: 147%    LowLimit: 77    HighLimit: 124    RPD Ref Val: 0    %RPD:    RPDLimit:    Qual: S

Sample ID: 1103350-01CMS    Batch ID: R65536    Test Code: GASW-MS    Units: µg/L    Analysis Date: 3/28/2011 12:15:00    Prep Date:  
 Client ID: CS-305    Run ID: ORGCMS2\_110328A    SeqNo: 953008

TPHC Gasoline    Result: 1,203    Limit: 50    SPK value: 1,000    SPK Ref Val: 24.2    % Rec: 118%    LowLimit: 77    HighLimit: 124    RPD Ref Val: 0    %RPD:    RPDLimit:    Qual: S

Qualifiers: ND - Not Detected at the Reporting Limit    S - Spike Recovery outside accepted recovery limits    B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits    R - RPD outside accepted recovery limits



# Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778  
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

## ANALYTICAL REPORT

Northcoast Laboratories  
5680 West End Road  
Arcata, CA 95521  
Job: 1103350

Attn: Laura Miller  
Phone: (707) 822-4649  
Fax: (707) 822-6831

Alpha Analytical Number: NOC11032120-01A  
Client I.D. Number: 1103350-05F/CS-301

Sampled: 03/15/11 15:00  
Received: 03/19/11  
Extracted: 03/22/11 12:05  
Analyzed: 03/26/11

### Semivolatile Organics by GC/MS (SIM) EPA Method SW8270C

Compound	Concentration	Reporting Limit
1 Naphthalene	ND	0.20 µg/L
2 Acenaphthylene	ND	0.20 µg/L
3 Acenaphthene	ND	0.20 µg/L
4 Fluorene	0.35	0.20 µg/L
5 Phenanthrene	0.29	0.20 µg/L
6 Anthracene	ND	0.20 µg/L
7 Fluoranthene	ND	0.20 µg/L
8 Pyrene	0.23	0.20 µg/L
9 Benzo(a)anthracene	ND	0.20 µg/L
10 Chrysene	ND	0.20 µg/L
11 Benzo(b&k)fluoranthene, isomeric pair	ND	0.40 µg/L
12 Benzo(a)pyrene	ND	0.20 µg/L
13 Indeno(1,2,3-cd)pyrene	ND	0.20 µg/L
14 Dibenz(a,h)anthracene	ND	0.20 µg/L
15 Benzo(g,h,i)perylene	ND	0.20 µg/L
16 Surr: 2-Fluorobiphenyl	83	(10-138) %REC
17 Surr: 4-Terphenyl-d14	82	(39-163) %REC

Note: EPA Method 8270C CC compounds Acenaphthene, Fluoranthene and Benzo(a)pyrene were evaluated in the CV at the method criteria of 80-120% recovery.  
Reporting Limits were increased due to the hydrocarbons present in the sample.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

3/30/11

Report Date



# Alpha Analytical, Inc.

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(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

## ANALYTICAL REPORT

Northcoast Laboratories  
5680 West End Road  
Arcata, CA 95521  
Job: 1103350

Attn: Laura Miller  
Phone: (707) 822-4649  
Fax: (707) 822-6831

Alpha Analytical Number: NOC11032120-02A  
Client I.D. Number: 1103350-07F/CS-307

Sampled: 03/16/11 09:15  
Received: 03/19/11  
Extracted: 03/22/11 12:05  
Analyzed: 03/26/11

### Semivolatile Organics by GC/MS (SIM) EPA Method SW8270C

	Compound	Concentration	Reporting Limit
1	Naphthalene	0.093	0.040 µg/L
2	Acenaphthylene	ND	0.040 µg/L
3	Acenaphthene	ND	0.040 µg/L
4	Fluorene	0.13	0.040 µg/L
5	Phenanthrene	0.089	0.040 µg/L
6	Anthracene	ND	0.040 µg/L
7	Fluoranthene	ND	0.040 µg/L
8	Pyrene	0.041	0.040 µg/L
9	Benzo(a)anthracene	ND	0.040 µg/L
10	Chrysene	ND	0.040 µg/L
11	Benzo(b&k)fluoranthene, isomeric pair	ND	0.080 µg/L
12	Benzo(a)pyrene	ND	0.040 µg/L
13	Indeno(1,2,3-cd)pyrene	ND	0.040 µg/L
14	Dibenz(a,h)anthracene	ND	0.040 µg/L
15	Benzo(g,h,i)perylene	ND	0.040 µg/L
16	Surr: 2-Fluorobiphenyl	79	(10-138) %REC
17	Surr: 4-Terphenyl-d14	87	(39-163) %REC

Note: EPA Method 8270C CC compounds Acenaphthene, Fluoranthene and Benzo(a)pyrene were evaluated in the CV at the method criteria of 80-120% recovery.  
Reporting Limits were increased due to the hydrocarbons present in the sample.

ND = Not Detected

*Roger Scholl*

*Randy Gardner*

*Walter Hinchman*

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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*PS*  
3/30/11

Report Date



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## ANALYTICAL REPORT

Northcoast Laboratories  
5680 West End Road  
Arcata, CA 95521  
Job: 1103350

Attn: Laura Miller  
Phone: (707) 822-4649  
Fax: (707) 822-6831

Alpha Analytical Number: NOC11032120-03A  
Client I.D. Number: 1103350-08F/CS-309

Sampled: 03/16/11 11:00  
Received: 03/19/11  
Extracted: 03/22/11 12:05  
Analyzed: 03/26/11

### Semivolatile Organics by GC/MS (SIM) EPA Method SW8270C

Compound	Concentration	Reporting Limit
1 Naphthalene	ND	0.020 µg/L
2 Acenaphthylene	ND	0.020 µg/L
3 Acenaphthene	ND	0.020 µg/L
4 Fluorene	ND	0.020 µg/L
5 Phenanthrene	ND	0.020 µg/L
6 Anthracene	ND	0.020 µg/L
7 Fluoranthene	ND	0.020 µg/L
8 Pyrene	ND	0.020 µg/L
9 Benzo(a)anthracene	ND	0.020 µg/L
10 Chrysene	ND	0.020 µg/L
11 Benzo(b&k)fluoranthene, isomeric pair	ND	0.040 µg/L
12 Benzo(a)pyrene	ND	0.020 µg/L
13 Indeno(1,2,3-cd)pyrene	ND	0.020 µg/L
14 Dibenz(a,h)anthracene	ND	0.020 µg/L
15 Benzo(g,h,i)perylene	ND	0.020 µg/L
16 Surr: 2-Fluorobiphenyl	69	(10-138) %REC
17 Surr: 4-Terphenyl-d14	98	(39-163) %REC

Note: EPA Method 8270C CC compounds Acenaphthene, Fluoranthene and Benzo(a)pyrene were evaluated in the CV at the method criteria of 80-120% recovery.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
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Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

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3/30/11

Report Date

Page 1 of 1



# Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778  
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

## ANALYTICAL REPORT

Northcoast Laboratories  
5680 West End Road  
Arcata, CA 95521  
Job: 1103350

Attn: Laura Miller  
Phone: (707) 822-4649  
Fax: (707) 822-6831

Alpha Analytical Number: NOC11032120-04A  
Client I.D. Number: 1103350-10F/CS-09

Sampled: 03/16/11 15:00  
Received: 03/19/11  
Extracted: 03/22/11 12:05  
Analyzed: 03/26/11

### Semivolatile Organics by GC/MS (SIM) EPA Method SW8270C

Compound	Concentration	Reporting Limit
1 Naphthalene	ND	0.040 µg/L
2 Acenaphthylene	ND	0.040 µg/L
3 Acenaphthene	ND	0.040 µg/L
4 Fluorene	ND	0.040 µg/L
5 Phenanthrene	ND	0.040 µg/L
6 Anthracene	ND	0.040 µg/L
7 Fluoranthene	ND	0.040 µg/L
8 Pyrene	0.051	0.040 µg/L
9 Benzo(a)anthracene	ND	0.040 µg/L
10 Chrysene	ND	0.040 µg/L
11 Benzo(b&k)fluoranthene, isomeric pair	ND	0.080 µg/L
12 Benzo(a)pyrene	ND	0.040 µg/L
13 Indeno(1,2,3-cd)pyrene	ND	0.040 µg/L
14 Dibenz(a,h)anthracene	ND	0.040 µg/L
15 Benzo(g,h,i)perylene	ND	0.040 µg/L
16 Surr: 2-Fluorobiphenyl	83	(10-138) %REC
17 Surr: 4-Terphenyl-d14	81	(39-163) %REC

Note: EPA Method 8270C CC compounds Acenaphthene, Fluoranthene and Benzo(a)pyrene were evaluated in the CV at the method criteria of 80-120% recovery. Reporting Limits were increased due to the hydrocarbons present in the sample.

ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

3/30/11

Report Date



# Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778  
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

## ANALYTICAL REPORT

Northcoast Laboratories  
5680 West End Road  
Arcata, CA 95521  
Job: 1103350

Attn: Laura Miller  
Phone: (707) 822-4649  
Fax: (707) 822-6831

Alpha Analytical Number: NOC11032120-05A  
Client I.D. Number: 1103350-11F/CS-15

Sampled: 03/17/11 13:20  
Received: 03/19/11  
Extracted: 03/22/11 12:05  
Analyzed: 03/26/11

### Semivolatile Organics by GC/MS (SIM) EPA Method SW8270C

Compound	Concentration	Reporting Limit
1 Naphthalene	ND	0.020 µg/L
2 Acenaphthylene	ND	0.020 µg/L
3 Acenaphthene	ND	0.020 µg/L
4 Fluorene	ND	0.020 µg/L
5 Phenanthrene	ND	0.020 µg/L
6 Anthracene	ND	0.020 µg/L
7 Fluoranthene	ND	0.020 µg/L
8 Pyrene	ND	0.020 µg/L
9 Benzo(a)anthracene	ND	0.020 µg/L
10 Chrysene	ND	0.020 µg/L
11 Benzo(b&k)fluoranthene, isomeric pair	ND	0.040 µg/L
12 Benzo(a)pyrene	ND	0.020 µg/L
13 Indeno(1,2,3-cd)pyrene	ND	0.020 µg/L
14 Dibenz(a,h)anthracene	ND	0.020 µg/L
15 Benzo(g,h,i)perylene	ND	0.020 µg/L
16 Surr: 2-Fluorobiphenyl	77	(10-138) %REC
17 Surr: 4-Terphenyl-d14	90	(39-163) %REC

Note: EPA Method 8270C CC compounds Acenaphthene, Fluoranthene and Benzo(a)pyrene were evaluated in the CV at the method criteria of 80-120% recovery.

ND = Not Detected

*Roger Scholl*      *Randy Gardner*      *Walter Hinchman*  
 Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
 Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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**3/30/11**

**Report Date**

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# Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778  
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

## ANALYTICAL REPORT

Northcoast Laboratories  
5680 West End Road  
Arcata, CA 95521  
Job: 1103350

Attn: Laura Miller  
Phone: (707) 822-4649  
Fax: (707) 822-6831

Alpha Analytical Number: NOC11032120-06A  
Client I.D. Number: 1103350-12F/CS-10

Sampled: 03/17/11 10:20  
Received: 03/19/11  
Extracted: 03/22/11 12:05  
Analyzed: 03/26/11

### Semivolatile Organics by GC/MS (SIM) EPA Method SW8270C

	Compound	Concentration	Reporting Limit
1	Naphthalene	ND	0.020 µg/L
2	Acenaphthylene	ND	0.020 µg/L
3	Acenaphthene	ND	0.020 µg/L
4	Fluorene	ND	0.020 µg/L
5	Phenanthrene	0.087	0.020 µg/L
6	Anthracene	ND	0.020 µg/L
7	Fluoranthene	0.027	0.020 µg/L
8	Pyrene	0.093	0.020 µg/L
9	Benzo(a)anthracene	ND	0.020 µg/L
10	Chrysene	0.025	0.020 µg/L
11	Benzo(b&k)fluoranthene, isomeric pair	ND	0.040 µg/L
12	Benzo(a)pyrene	ND	0.020 µg/L
13	Indeno(1,2,3-cd)pyrene	ND	0.020 µg/L
14	Dibenz(a,h)anthracene	ND	0.020 µg/L
15	Benzo(g,h,i)perylene	ND	0.020 µg/L
16	Surr: 2-Fluorobiphenyl	72	(10-138) %REC
17	Surr: 4-Terphenyl-d14	83	(39-163) %REC

Note: EPA Method 8270C CC compounds Acenaphthene, Fluoranthene and Benzo(a)pyrene were evaluated in the CV at the method criteria of 80-120% recovery.

ND = Not Detected

*Roger Scholl*      *Randy Gardner*      *Walter Hinchman*

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

3/30/11

**Report Date**

Page 1 of 1



# Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778  
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:  
31-Mar-11

## QC Summary Report

Work Order:  
11032120

### Method Blank

File ID: 11032517.D

Type: MBLK Test Code: EPA Method SW8270C

Batch ID: 26195

Analysis Date: 03/25/2011 23:11

Sample ID: MBLK-26195

Units : µg/L

Run ID: MSD\_16\_110322A

Prep Date: 03/22/2011 12:05

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Naphthalene	ND	0.02								
Acenaphthylene	ND	0.02								
Acenaphthene	ND	0.02								
Fluorene	ND	0.02								
Phenanthrene	ND	0.02								
Anthracene	ND	0.02								
Fluoranthene	ND	0.02								
Pyrene	ND	0.02								
Benzo(a)anthracene	ND	0.02								
Chrysene	ND	0.02								
Benzo(b&k)fluoranthene, isomeric pair	ND	0.04								
Benzo(a)pyrene	ND	0.02								
Indeno(1,2,3-cd)pyrene	ND	0.02								
Dibenz(a,h)anthracene	ND	0.02								
Benzo(g,h,i)perylene	ND	0.02								
Surr: 2-Fluorobiphenyl	0.208		0.25		83	10	138			
Surr: 4-Terphenyl-d14	0.223		0.25		89	39	163			

### Laboratory Control Spike

File ID: 11032518.D

Type: LCS Test Code: EPA Method SW8270C

Batch ID: 26195

Analysis Date: 03/25/2011 23:35

Sample ID: LCS-26195

Units : µg/L

Run ID: MSD\_16\_110322A

Prep Date: 03/22/2011 12:05

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Acenaphthene	0.173	0.02	0.25		69	28	130			
Pyrene	0.189	0.02	0.25		76	38	138			
Surr: 2-Fluorobiphenyl	0.225		0.25		90	10	138			
Surr: 4-Terphenyl-d14	0.246		0.25		98	39	163			

### Sample Matrix Spike

File ID: 11032807.D

Type: MS Test Code: EPA Method SW8270C

Batch ID: 26195

Analysis Date: 03/28/2011 18:14

Sample ID: 11032120-04AMS

Units : µg/L

Run ID: MSD\_16\_110322A

Prep Date: 03/22/2011 12:05

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Acenaphthene	1.27	0.32	4	0	32	4	130			
Pyrene	1.63	0.32	4	0.05105	39	4	173			
Surr: 2-Fluorobiphenyl	1.5		4		38	10	138			
Surr: 4-Terphenyl-d14	1.83		4		46	39	163			

### Sample Matrix Spike Duplicate

File ID: 11032808.D

Type: MSD Test Code: EPA Method SW8270C

Batch ID: 26195

Analysis Date: 03/28/2011 18:39

Sample ID: 11032120-04AMSD

Units : µg/L

Run ID: MSD\_16\_110322A

Prep Date: 03/22/2011 12:05

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Acenaphthene	1.52	0.32	4	0	38	4	130	1.27	18.1(47)	
Pyrene	2.02	0.32	4	0.05105	49	4	173	1.628	21.7(38)	
Surr: 2-Fluorobiphenyl	1.88		4		47	10	138			
Surr: 4-Terphenyl-d14	2.35		4		59	39	163			

### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

# CHAIN-OF-CUSTODY RECORD

# CA

## Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778  
 TEL: (775) 355-1044 FAX: (775) 355-0406

WorkOrder : NOC11032120

Report Due By : 5:00 PM On : 31-Mar-11

Report Attention	Phone Number	E-Mail Address
Laura Miller	(707) 822-4649 x	llmiller@northcoastlabs.com
Tracie Haughey	(707) 822-4649 x	thaughy@northcoastlabs.com

Client: Northcoast Laboratories  
 5680 West End Road  
 Arcata, CA 95521

EDD Required : No

Sampled by : Client

PO : 1103350

Cooler Temp 0 °C

Client's COC # : none

Samples Received 19-Mar-11

Date Printed 21-Mar-11

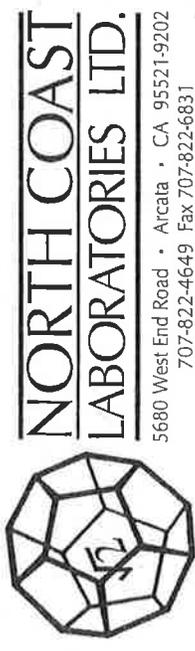
QC Level : S3 = Final Rpt, MBLK, LCS, MS/MSD With Surrogates

Alpha Sample ID	Client Sample ID	Matrix	Collection Date	No. of Bottles		PNA_SIM W	Requested Tests	Sample Remarks
				Alpha	Sub			
NOC11032120-01A	1103350-05F/CS-301	AQ	03/15/11 15:00	1	0	8	SIM	
NOC11032120-02A	1103350-07F/CS-307	AQ	03/16/11 09:15	1	0	8	SIM	
NOC11032120-03A	1103350-08F/CS-309	AQ	03/16/11 11:00	1	0	8	SIM	
NOC11032120-04A	1103350-10F/CS-09	AQ	03/16/11 15:00	1	0	8	SIM	
NOC11032120-05A	1103350-11F/CS-15	AQ	03/17/11 13:20	1	0	8	SIM	
NOC11032120-06A	1103350-12F/CS-10	AQ	03/17/11 10:20	1	0	8	SIM	

Comments: No security seals. Frozen ice. Saturday delivery. Samples kept cold and secure until login on Monday. Samples 01A through 04A received 5 and 6 days into the 7 day holding time...

Logged in by: K Murray Signature      K Murray Print Name      Alpha Analytical, Inc. Company      3/21/11 0905 Date/Time

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report. Matrix Type : AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other) Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other



# Chain of Custody

5680 West End Road • Arcata • CA 95521-9202  
707-822-4649 Fax 707-822-6831

LABORATORY NUMBER: 103336

Attention: DIANA WARD  
 Results & Invoice to: SHA  
 Address: 212 W. WABASH  
EUREKA, CA  
 Phone: 441-8855  
 Copies of Report to: ROLAND RUEBER  
 Sampler (Sign & Print): Rueber

**PROJECT INFORMATION**  
 Project Number: 011019  
 Project Name: FORMER CARRIER SHOP  
 Purchase Order Number: \_\_\_\_\_

PRELIMINARY	CONTAINER	ANALYSIS	DATE/TIME	RECEIVED BY (Sign)	DATE/TIME
	9	TTHG			
	8	HCL			
	7	HCL			
		TTHMO/ID w/ SILICA GEL			
		8270 SIM			
		8260 LIST 6			
		CAM-5 (DISSOLVED)			
		CAM 17 (DISSOLVED)			

**TAT:**  STD (2-3 WK)  Other:  
 PRIOR AUTHORIZATION IS REQUIRED FOR RUSH SAMPLES.

**REPORTING REQUIREMENTS:**  
 State Forms  
 Geotracker  SWAMP  Other EDD:  
 Final Report PDF  FAX  By:

**CONTAINER CODES:** 1—½ gal. pl; 2—250 ml pl; 3—500 ml pl; 4—1 L Nalgene; 5—250 ml BG; 6—500 ml BG; 7—1 L BG; 8—40 ml VOA; 9—60 ml VOA; 10—125 ml VOA; 11—4 oz glass jar; 12—8 oz glass jar; 13—brass tube; 14—other  
**PRESERVATIVE CODES:** a—HNO<sub>3</sub>; b—HCl; c—H<sub>2</sub>SO<sub>4</sub>; d—Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; e—NaOH; f—C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>Cl; g—other

SPECIAL INSTRUCTIONS	SAMPLE CONDITION
REPORT PREPARED	Temperature 5.2 °C
POST SILICA GEL RESULTS	12°C
METAL SAMPLES	Received On Ice? Y/N
FILTERED & PRESERVED	Samples Intact? Y/N
IN THE FIELD	Preserved? Y/N
HOLD EXTRA SAMPLES @ NCL	Preserved @ NCL? Y/N/NA

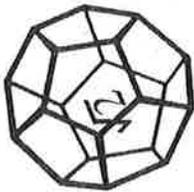
**SAMPLE DISPOSAL**  
 NCL Disposal of Non-Contaminated  
 Return  Pickup  
**CHAIN OF CUSTODY SEALS Y/N/NA**  
 SHIPPED VIA: UPS Fed-Ex Hand

LAB ID	SAMPLE ID	DATE	TIME	MATRIX*
	<del>B-30</del> CS-305	3-15-11	1035	GW
	CS-304		1140	
	CS-303		1225	
	CS-302		1415	
	CS-301		1500	
	CS-308		1550	
	CS-307	3-16-11	9:15	
	CS-309		1100	
	CS-306		1230	
	CS-09		1500	

RELINQUISHED BY (Sign & Print)	DATE/TIME	RECEIVED BY (Sign)	DATE/TIME
<u>Rueber</u>	3-17-11	<u>John Montgomerie</u>	3-15-11
<u>John Montgomerie</u>	3-17-11	<u>Rueber</u>	3-15-11

\*MATRIX: DW=Drinking Water; Eff=Effluent; Inf=Influent; SW=Surface Water; GW=Ground Water; WW=Waste Water; S=Soil; O=Other.

**ALL CONTAMINATED NON-AQUEOUS SAMPLES WILL BE RETURNED TO CLIENT**



# NORTH COAST LABORATORIES LTD.

5680 West End Road • Arcata • CA 95521-9202  
707-822-4649 Fax 707-822-6831

# Chain of Custody

P. 2 of 2

LABORATORY NUMBER: 110331

Attention: DIANA WARD  
 Results & Invoice to: SHN  
 Address: 812 W. WABASH  
SUREKA CO  
 Phone: 441-8855  
 Copies of Report to: ROLAND RUBSOR

Sampler (Sign & Print): [Signature]

### PROJECT INFORMATION

Project Number: 011019  
 Project Name: FORMER CARRIER SHOP  
 Purchase Order Number: \_\_\_\_\_

CONTAINER PRESERVATIVE	DATE/TIME	RECEIVED BY (Sign)	DATE/TIME
9			
TPH6			
HCL			
HCL			
7			
CAM-5 (Dissolved)			
CAM-17 (Dissolved)			

TAT:  STD (2-3 WK)  Other:  
 PRIOR AUTHORIZATION IS REQUIRED FOR RUSH SAMPLES.

REPORTING REQUIREMENTS:  
 State Forms  
 Geotracker  SWAMP  Other EDD:  
 Final Report PDF  FAX By:

CONTAINER CODES: 1—½ gal. pl; 2—250 ml pl;  
 3—500 ml pl; 4—1 L Nalgene; 5—250 ml BG;  
 6—500 ml BG; 7—1 L BG; 8—40 ml VOA;  
 9—60 ml VOA; 10—125 ml VOA; 11—4 oz glass jar;  
 12—8 oz glass jar; 13—brass tube; 14—other  
 PRESERVATIVE CODES: a—HNO<sub>3</sub>; b—HCl; c—H<sub>2</sub>SO<sub>4</sub>;  
 d—Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>; e—NaOH; f—C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>Cl; g—other

SPECIAL INSTRUCTIONS SAMPLE CONDITION  
 METALS Temperature 3.2 °C  
 FILTERED & 12  
 PRESERVED IN Received On Ice?  Y/N  
 THE FIELD Samples Intact?  Y/N  
 Preserved?  Y/N  
 Preserved @ NCL?  Y/N/NA

SAMPLE DISPOSAL  
 NCL Disposal of Non-Contaminated  
 Return  Pickup

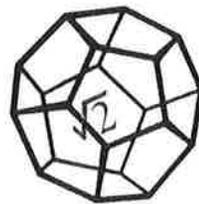
CHAIN OF CUSTODY SEALS Y/N/NA  
 SHIPPED VIA: UPS Fed-Ex Hand

RELINQUISHED BY (Sign & Print)	DATE/TIME	RECEIVED BY (Sign)	DATE/TIME
<u>[Signature]</u>	<u>3-17-11</u>	<u>[Signature]</u>	<u>3/17/11</u>
<u>[Signature]</u>	<u>3/15/11</u>	<u>[Signature]</u>	<u>3/15/11</u>

\*MATRIX: DW=Drinking Water; Eff=Effluent; Inf=Influent; SW=Surface Water; GW=Ground Water; WW=Waste Water; S=Soil; O=Other.

ALL CONTAMINATED NON-AQUEOUS SAMPLES WILL BE RETURNED TO CLIENT

RECEIVED APR 12 2011



**NORTH COAST  
LABORATORIES LTD.**

April 01, 2011

SHN Consulting Engineers and Geologists  
812 West Wabash Avenue  
Eureka, CA 95501

Order No.: 1103351  
Invoice No.: 95664  
PO No.:  
ELAP No.1247-Expires July 2012

Attn: Diana Ward

RE: 011019 Former Carrier Shop

**SAMPLE IDENTIFICATION**

Fraction	Client Sample Description
01A	CS-305@4'
02A	CS-305@8'
03A	CS-305@12'
04A	CS-304@4'
05A	CS-304@8'
06A	CS-304@12'
07A	CS-303@4'
08A	CS-303@8'
09A	CS-303@12'
10A	CS-302@4'
11A	CS-302@8'
12A	CS-302@12'
13A	CS-301@4'
13B	CS-301@4' (Subcontracted)
14A	CS-301@8'
14B	CS-301@8' (Subcontracted)
15A	CS-301@12'
16A	CS-308@4'
17A	CS-308@8'
18A	CS-308@12'
19A	CS-309@4'
19B	CS-309@4' (Subcontracted)
20A	CS-309@8'
21A	CS-309@12'
22A	CS-309@16'
23A	CS-309@20'
23B	CS-309@20' (Subcontracted)
24A	CS-309@24'
25A	CS-306@4'
26A	CS-306@8'
27A	CS-306@12'

ND = Not Detected at the Reporting Limit  
Limit = Reporting Limit  
Flag = Explanation in Case Narrative  
All solid results are expressed on a wet-weight basis unless otherwise noted.

**REPORT CERTIFIED BY**

\_\_\_\_\_  
Laboratory Supervisor(s)

\_\_\_\_\_  
QA Unit

\_\_\_\_\_  
Jesse G. Chaney, Jr.  
Laboratory Director

**CLIENT:** SHN Consulting Engineers and Geologists  
**Project:** 011019 Former Carrier Shop  
**Lab Order:** 1103351

**CASE NARRATIVE**

D3: The sample contains material in the diesel range of molecular weights, but the material does not exhibit the peak pattern typical of diesel oil.

G2: The sample does not present a peak pattern consistent with that of gasoline. The peaks elute towards the end of the gasoline range. In our judgment the material appears to be a product heavier than gasoline. Due to the differences in the purging efficiency of these heavier materials the results may be variable. The reported result represents the amount of material in the gasoline range.

M2: The sample does not have the typical pattern of fresh motor oil. The material is heavier than motor oil. However, the result reported represents the amount of material in the motor oil range.

**EPA 8260:**

The surrogate recovery of toluene-d8 was above the upper control limit in samples CS-301@8', CS-309@20', MB-25486, MB-25487, LCS-25486, LCSD-25486, LCS-25487, and LCSD-25487. The recoveries were not significantly above the upper control limit and the impact to the quality of the data was minimal.

The laboratory control sample (LCS-25487) recovery was below the lower acceptance limit for carbon tetrachloride. The response of the reporting limit standard was such that the analyte would have been detected even with the low recovery; therefore, the data were accepted.

The laboratory control sample (LCS-25486) recovery was above the upper acceptance limit for bromoform. The elevated recovery equates to a high bias. There were no detectable levels of the analyte in the sample; therefore, the data were accepted.

**TPHC as Gasoline:**

The TPHC-Gasoline recovery for the matrix spike (MS) on sample CS-309@24' was outside of acceptance limits. The recoveries were within acceptance limits in the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) indicating that the low recovery may be due to matrix effects.

The TPHC-Gasoline recovery for the matrix spike (MS) on sample CS-309@8' was outside of acceptance limits. The recovery was within acceptance limits in the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) indicating that the high recovery may be due to matrix effects.

Date: 01-Apr-2011  
WorkOrder: 1103351

# ANALYTICAL REPORT

Client Sample ID: CS-305@4'  
Lab ID: 1103351-01A

Received: 3/17/2011  
Collected: 3/15/2011 10:00

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/23/2011	3/23/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/23/2011	3/23/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Client Sample ID: CS-305@8'  
Lab ID: 1103351-02A

Received: 3/17/2011  
Collected: 3/15/2011 10:05

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/23/2011	3/23/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/23/2011	3/23/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Client Sample ID: CS-305@12'  
Lab ID: 1103351-03A

Received: 3/17/2011  
Collected: 3/15/2011 10:10

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/23/2011	3/24/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/23/2011	3/24/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Date: 01-Apr-2011  
WorkOrder: 1103351

# ANALYTICAL REPORT

Client Sample ID: CS-304@4'  
Lab ID: 1103351-04A

Received: 3/17/2011  
Collected: 3/15/2011 11:20

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	1.2	D3	1.0	mg/kg	1.0	3/23/2011	3/24/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/23/2011	3/24/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Client Sample ID: CS-304@8'  
Lab ID: 1103351-05A

Received: 3/17/2011  
Collected: 3/15/2011 11:25

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/23/2011	3/24/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/23/2011	3/24/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Client Sample ID: CS-304@12'  
Lab ID: 1103351-06A

Received: 3/17/2011  
Collected: 3/15/2011 11:30

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/23/2011	3/24/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/23/2011	3/24/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Date: 01-Apr-2011  
WorkOrder: 1103351

# ANALYTICAL REPORT

Client Sample ID: CS-303@4'  
Lab ID: 1103351-07A

Received: 3/17/2011  
Collected: 3/15/2011 12:05

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/23/2011	3/24/2011
TPHC Motor Oil	19		10	mg/kg	1.0	3/23/2011	3/24/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Client Sample ID: CS-303@8'  
Lab ID: 1103351-08A

Received: 3/17/2011  
Collected: 3/15/2011 12:10

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/23/2011	3/24/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/23/2011	3/24/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Client Sample ID: CS-303@12'  
Lab ID: 1103351-09A

Received: 3/17/2011  
Collected: 3/15/2011 12:15

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/23/2011	3/24/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/23/2011	3/24/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Date: 01-Apr-2011

WorkOrder: 1103351

# ANALYTICAL REPORT

Client Sample ID: CS-302@4'

Received: 3/17/2011

Lab ID: 1103351-10A

Collected: 3/15/2011 14:00

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/23/2011	3/24/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/23/2011	3/24/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Client Sample ID: CS-302@8'

Received: 3/17/2011

Lab ID: 1103351-11A

Collected: 3/15/2011 14:05

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/23/2011	3/24/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/23/2011	3/24/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Client Sample ID: CS-302@12'

Received: 3/17/2011

Lab ID: 1103351-12A

Collected: 3/15/2011 14:10

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/23/2011	3/24/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/23/2011	3/24/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Date: 01-Apr-2011  
 WorkOrder: 1103351

# ANALYTICAL REPORT

Client Sample ID: CS-301@4'  
 Lab ID: 1103351-13A

Received: 3/17/2011  
 Collected: 3/15/2011 14:45

Test Name: EPA 8260B

Reference: EPA 5030/EPA 8260B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Chloromethane	ND		0.040	mg/kg	1.0	3/19/2011	3/23/2011
Vinyl chloride	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Bromomethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Chloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Trichlorofluoromethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,1-Dichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Methylene chloride	ND		0.040	mg/kg	1.0	3/19/2011	3/23/2011
trans-1,2-Dichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Methyl tert-butyl ether (MTBE)	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Tert-butyl alcohol (TBA)	ND		0.40	mg/kg	1.0	3/19/2011	3/23/2011
Di-isopropyl ether (DIPE)	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,1-Dichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Ethyl tert-butyl ether (ETBE)	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
cis-1,2-Dichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Chloroform	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Carbon Tetrachloride	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,1,1-Trichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Benzene	ND		0.0050	mg/kg	1.0	3/19/2011	3/23/2011
Tert-amyl methyl ether (TAME)	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,2-Dichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Trichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,2-Dichloropropane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Bromodichloromethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
cis-1,3-Dichloropropene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Toluene	ND		0.0050	mg/kg	1.0	3/19/2011	3/23/2011
Tetrachloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
trans-1,3-Dichloropropene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,1,2-Trichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Dibromochloromethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,2-Dibromoethane (EDB)	ND		0.040	mg/kg	1.0	3/19/2011	3/23/2011
Chlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Ethylbenzene	ND		0.0050	mg/kg	1.0	3/19/2011	3/23/2011
m,p-Xylene	ND		0.010	mg/kg	1.0	3/19/2011	3/23/2011
o-Xylene	ND		0.0050	mg/kg	1.0	3/19/2011	3/23/2011
Bromoform	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,1,1,2-Tetrachloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,3-Dichlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,4-Dichlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,2-Dichlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Surrogate: 1,2-Dichloroethane-d4	88.9		44.9-146	% Rec	1.0	3/19/2011	3/23/2011

Date: 01-Apr-2011  
WorkOrder: 1103351

# ANALYTICAL REPORT

Client Sample ID: CS-301@4'

Received: 3/17/2011

Lab ID: 1103351-13A

Collected: 3/15/2011 14:45

Surrogate: Dibromofluoromethane	85.0	61.5-123	% Rec	1.0	3/19/2011	3/23/2011
Surrogate: Toluene-d8	95.9	90.5-108	% Rec	1.0	3/19/2011	3/23/2011

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	290		20	mg/kg	20	3/23/2011	3/25/2011
TPHC Motor Oil	1,700		200	mg/kg	20	3/23/2011	3/25/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	280	G2	20	mg/kg	20	3/19/2011	3/25/2011

Date: 01-Apr-2011  
WorkOrder: 1103351

# ANALYTICAL REPORT

Client Sample ID: CS-301@8'  
Lab ID: 1103351-14A

Received: 3/17/2011  
Collected: 3/15/2011 14:50

Test Name: EPA 8260B

Reference: EPA 5030/EPA 8260B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Chloromethane	ND		0.040	mg/kg	1.0	3/19/2011	3/24/2011
Vinyl chloride	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Bromomethane	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Chloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Trichlorofluoromethane	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
1,1-Dichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Methylene chloride	ND		0.040	mg/kg	1.0	3/19/2011	3/24/2011
trans-1,2-Dichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Methyl tert-butyl ether (MTBE)	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Tert-butyl alcohol (TBA)	ND		0.40	mg/kg	1.0	3/19/2011	3/24/2011
Di-isopropyl ether (DIPE)	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
1,1-Dichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Ethyl tert-butyl ether (ETBE)	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
cis-1,2-Dichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Chloroform	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Carbon Tetrachloride	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
1,1,1-Trichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Benzene	ND		0.0050	mg/kg	1.0	3/19/2011	3/24/2011
Tert-amyl methyl ether (TAME)	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
1,2-Dichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Trichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
1,2-Dichloropropane	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Bromodichloromethane	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
cis-1,3-Dichloropropene	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Toluene	ND		0.0050	mg/kg	1.0	3/19/2011	3/24/2011
Tetrachloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
trans-1,3-Dichloropropene	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
1,1,2-Trichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Dibromochloromethane	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
1,2-Dibromoethane (EDB)	ND		0.040	mg/kg	1.0	3/19/2011	3/24/2011
Chlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Ethylbenzene	ND		0.0050	mg/kg	1.0	3/19/2011	3/24/2011
m,p-Xylene	ND		0.010	mg/kg	1.0	3/19/2011	3/24/2011
o-Xylene	ND		0.0050	mg/kg	1.0	3/19/2011	3/24/2011
Bromoform	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
1,1,2,2-Tetrachloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
1,3-Dichlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
1,4-Dichlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
1,2-Dichlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/24/2011
Surrogate: 1,2-Dichloroethane-d4	94.6		44.9-146	% Rec	1.0	3/19/2011	3/24/2011

Date: 01-Apr-2011  
WorkOrder: 1103351

# ANALYTICAL REPORT

Client Sample ID: CS-301@8'

Received: 3/17/2011

Lab ID: 1103351-14A

Collected: 3/15/2011 14:50

Surrogate: Dibromofluoromethane	82.0	61.5-123	% Rec	1.0	3/19/2011	3/24/2011
Surrogate: Toluene-d8	112	90.5-108	% Rec	1.0	3/19/2011	3/24/2011

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	3.4	D3	1.0	mg/kg	1.0	3/23/2011	3/25/2011
TPHC Motor Oil	12		10	mg/kg	1.0	3/23/2011	3/25/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/24/2011

Client Sample ID: CS-301@12'

Received: 3/17/2011

Lab ID: 1103351-15A

Collected: 3/15/2011 14:55

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/23/2011	3/24/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/23/2011	3/24/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Client Sample ID: CS-308@4'

Received: 3/17/2011

Lab ID: 1103351-16A

Collected: 3/15/2011 15:30

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	1.0	D3	1.0	mg/kg	1.0	3/24/2011	3/25/2011
TPHC Motor Oil	14	M2	10	mg/kg	1.0	3/24/2011	3/25/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Date: 01-Apr-2011  
WorkOrder: 1103351

# ANALYTICAL REPORT

Client Sample ID: CS-308@8'  
Lab ID: 1103351-17A

Received: 3/17/2011  
Collected: 3/15/2011 15:35

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/24/2011	3/25/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/24/2011	3/25/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Client Sample ID: CS-308@12'  
Lab ID: 1103351-18A

Received: 3/17/2011  
Collected: 3/15/2011 15:40

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/24/2011	3/25/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/24/2011	3/25/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Date: 01-Apr-2011  
WorkOrder: 1103351

# ANALYTICAL REPORT

Client Sample ID: CS-309@4'  
Lab ID: 1103351-19A

Received: 3/17/2011  
Collected: 3/16/2011 09:35

Test Name: EPA 8260B

Reference: EPA 5030/EPA 8260B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Chloromethane	ND		0.040	mg/kg	1.0	3/19/2011	3/23/2011
Vinyl chloride	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Bromomethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Chloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Trichlorofluoromethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,1-Dichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Methylene chloride	ND		0.040	mg/kg	1.0	3/19/2011	3/23/2011
trans-1,2-Dichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Methyl tert-butyl ether (MTBE)	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Tert-butyl alcohol (TBA)	ND		0.40	mg/kg	1.0	3/19/2011	3/23/2011
Di-isopropyl ether (DIPE)	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,1-Dichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Ethyl tert-butyl ether (ETBE)	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
cis-1,2-Dichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Chloroform	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Carbon Tetrachloride	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,1,1-Trichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Benzene	ND		0.0050	mg/kg	1.0	3/19/2011	3/23/2011
Tert-amyl methyl ether (TAME)	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,2-Dichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Trichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,2-Dichloropropane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Bromodichloromethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
cis-1,3-Dichloropropene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Toluene	ND		0.0050	mg/kg	1.0	3/19/2011	3/23/2011
Tetrachloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
trans-1,3-Dichloropropene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,1,2-Trichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Dibromochloromethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,2-Dibromoethane (EDB)	ND		0.040	mg/kg	1.0	3/19/2011	3/23/2011
Chlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Ethylbenzene	ND		0.0050	mg/kg	1.0	3/19/2011	3/23/2011
m,p-Xylene	ND		0.010	mg/kg	1.0	3/19/2011	3/23/2011
o-Xylene	ND		0.0050	mg/kg	1.0	3/19/2011	3/23/2011
Bromoform	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,1,2,2-Tetrachloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,3-Dichlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,4-Dichlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,2-Dichlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Surrogate: 1,2-Dichloroethane-d4	94.4		44.9-146	% Rec	1.0	3/19/2011	3/23/2011

Date: 01-Apr-2011  
WorkOrder: 1103351

# ANALYTICAL REPORT

Client Sample ID: CS-309@4'

Received: 3/17/2011

Lab ID: 1103351-19A

Collected: 3/16/2011 9:35

Surrogate: Dibromofluoromethane	83.4	61.5-123	% Rec	1.0	3/19/2011	3/23/2011
Surrogate: Toluene-d8	106	90.5-108	% Rec	1.0	3/19/2011	3/23/2011

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	480	D3	50	mg/kg	50	3/24/2011	3/26/2011
TPHC Motor Oil	2,400		500	mg/kg	50	3/24/2011	3/26/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	300	G2	10	mg/kg	10	3/19/2011	3/24/2011

Client Sample ID: CS-309@8'

Received: 3/17/2011

Lab ID: 1103351-20A

Collected: 3/16/2011 9:40

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	39	D3	5.0	mg/kg	5.0	3/24/2011	3/26/2011
TPHC Motor Oil	210		100	mg/kg	10	3/24/2011	3/26/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	1.5	G2	1.0	mg/kg	1.0	3/19/2011	3/24/2011

Client Sample ID: CS-309@12'

Received: 3/17/2011

Lab ID: 1103351-21A

Collected: 3/16/2011 9:45

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/24/2011	3/25/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/24/2011	3/25/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Date: 01-Apr-2011  
WorkOrder: 1103351

# ANALYTICAL REPORT

Client Sample ID: CS-309@16'  
Lab ID: 1103351-22A

Received: 3/17/2011  
Collected: 3/16/2011 09:50

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/24/2011	3/25/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/24/2011	3/25/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Date: 01-Apr-2011  
WorkOrder: 1103351

# ANALYTICAL REPORT

Client Sample ID: CS-309@20'  
Lab ID: 1103351-23A

Received: 3/17/2011  
Collected: 3/16/2011 09:55

Test Name: EPA 8260B

Reference: EPA 5030/EPA 8260B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
Chloromethane	ND		0.040	mg/kg	1.0	3/19/2011	3/23/2011
Vinyl chloride	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Bromomethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Chloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Trichlorofluoromethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,1-Dichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Methylene chloride	ND		0.040	mg/kg	1.0	3/19/2011	3/23/2011
trans-1,2-Dichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Methyl tert-butyl ether (MTBE)	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Tert-butyl alcohol (TBA)	ND		0.40	mg/kg	1.0	3/19/2011	3/23/2011
Di-isopropyl ether (DIPE)	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,1-Dichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Ethyl tert-butyl ether (ETBE)	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
cis-1,2-Dichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Chloroform	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Carbon Tetrachloride	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,1,1-Trichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Benzene	ND		0.0050	mg/kg	1.0	3/19/2011	3/23/2011
Tert-amyl methyl ether (TAME)	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,2-Dichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Trichloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,2-Dichloropropane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Bromodichloromethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
cis-1,3-Dichloropropene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Toluene	ND		0.0050	mg/kg	1.0	3/19/2011	3/23/2011
Tetrachloroethene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
trans-1,3-Dichloropropene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,1,2-Trichloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Dibromochloromethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,2-Dibromoethane (EDB)	ND		0.040	mg/kg	1.0	3/19/2011	3/23/2011
Chlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Ethylbenzene	ND		0.0050	mg/kg	1.0	3/19/2011	3/23/2011
m,p-Xylene	ND		0.010	mg/kg	1.0	3/19/2011	3/23/2011
o-Xylene	ND		0.0050	mg/kg	1.0	3/19/2011	3/23/2011
Bromoform	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,1,2,2-Tetrachloroethane	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,3-Dichlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,4-Dichlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
1,2-Dichlorobenzene	ND		0.020	mg/kg	1.0	3/19/2011	3/23/2011
Surrogate: 1,2-Dichloroethane-d4	92.4		44.9-146	% Rec	1.0	3/19/2011	3/23/2011

Date: 01-Apr-2011  
WorkOrder: 1103351

# ANALYTICAL REPORT

Client Sample ID: CS-309@20'

Received: 3/17/2011

Lab ID: 1103351-23A

Collected: 3/16/2011 9:55

Surrogate: Dibromofluoromethane	82.0	61.5-123	% Rec	1.0	3/19/2011	3/23/2011
Surrogate: Toluene-d8	112	90.5-108	% Rec	1.0	3/19/2011	3/23/2011

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/24/2011	3/25/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/24/2011	3/25/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Client Sample ID: CS-309@24'

Received: 3/17/2011

Lab ID: 1103351-24A

Collected: 3/16/2011 10:00

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/24/2011	3/25/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/24/2011	3/25/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Client Sample ID: CS-306@4'

Received: 3/17/2011

Lab ID: 1103351-25A

Collected: 3/16/2011 11:00

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/24/2011	3/25/2011
TPHO Motor Oil	ND		10	mg/kg	1.0	3/24/2011	3/25/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/23/2011

Date: 01-Apr-2011  
WorkOrder: 1103351

# ANALYTICAL REPORT

Client Sample ID: CS-306@8'  
Lab ID: 1103351-26A

Received: 3/17/2011  
Collected: 3/16/2011 11:05

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/24/2011	3/25/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/24/2011	3/25/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/24/2011

Client Sample ID: CS-306@12'  
Lab ID: 1103351-27A

Received: 3/17/2011  
Collected: 3/16/2011 11:10

Test Name: TPH as Diesel/Motor Oil

Reference: EPA 3550/EPA 8015B

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Diesel (C12-C22)	ND		1.0	mg/kg	1.0	3/24/2011	3/25/2011
TPHC Motor Oil	ND		10	mg/kg	1.0	3/24/2011	3/25/2011

Test Name: TPH as Gasoline

Reference: LUFT/EPA 8260B Modified

<u>Parameter</u>	<u>Result</u>	<u>Flag</u>	<u>Limit</u>	<u>Units</u>	<u>DF</u>	<u>Extracted</u>	<u>Analyzed</u>
TPHC Gasoline	ND		1.0	mg/kg	1.0	3/19/2011	3/24/2011

**CLIENT:** SHN Consulting Engineers and Geologists  
**Work Order:** 1103351  
**Project:** 011019 Former Carrier Shop

**QC SUMMARY REPORT**  
 Method Blank

**Sample ID:** MB-25487      **Batch ID:** 25487      **Test Code:** 8260S      **Units:** mg/kg      **Analysis Date:** 3/23/2011 00:33:00      **Prep Date:** 3/19/2011  
**Client ID:**      **Run ID:** ORGCMS2\_110322A      **SeqNo:** 952522

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	ND	0.040									
Vinyl chloride	ND	0.020									
Bromomethane	ND	0.020									
Chloroethane	ND	0.020									
Trichlorofluoromethane	ND	0.020									
1,1-Dichloroethene	ND	0.020									
Methylene chloride	ND	0.040									
trans-1,2-Dichloroethene	ND	0.020									
Methyl tert-butyl ether (MTBE)	ND	0.020									
Tert-butyl alcohol (TBA)	ND	0.40									
Di-isopropyl ether (DIPE)	ND	0.020									
1,1-Dichloroethane	ND	0.020									
Ethyl tert-butyl ether (ETBE)	ND	0.020									
cis-1,2-Dichloroethene	ND	0.020									
Chloroform	ND	0.020									
Carbon Tetrachloride	ND	0.020									
1,1,1-Trichloroethane	ND	0.020									
Benzene	ND	0.0050									
Tert-amyl methyl ether (TAME)	ND	0.020									
1,2-Dichloroethane	ND	0.020									
Trichloroethene	ND	0.020									
1,2-Dichloropropane	ND	0.020									
Bromodichloromethane	ND	0.020									
cis-1,3-Dichloropropene	ND	0.020									
Toluene	ND	0.0050									
Tetrachloroethene	ND	0.020									
trans-1,3-Dichloropropene	ND	0.020									
1,1,2-Trichloroethane	ND	0.020									

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits      Page 1 of 5

**QC SUMMARY REPORT**  
Method Blank

**CLIENT:** SHN Consulting Engineers and Geologists  
**Work Order:** 1103351  
**Project:** 011019 Former Carrier Shop

Compound	Reporting Limit	Concentration	Recovery	Accepted	Outside	Surrogate
Dibromochloromethane	ND	0.020				
1,2-Dibromoethane (EDB)	ND	0.040				
Chlorobenzene	ND	0.020				
Ethylbenzene	ND	0.0050				
m,p-Xylene	ND	0.010				
o-Xylene	ND	0.0050				
Bromoform	ND	0.020				
1,1,1,2-Tetrachloroethane	ND	0.020				
1,3-Dichlorobenzene	ND	0.020				
1,4-Dichlorobenzene	ND	0.020				
1,2-Dichlorobenzene	ND	0.020				
Surrogate: 1,2-Dichloroethane-d4	0.892	0.0020	89.2%	45	146	0
Surrogate: Dibromofluoromethane	0.877	0.0020	87.7%	62	123	0
Surrogate: Toluene-d8	1.12	0.0020	112%	91	108	0

S

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits  
S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits  
B - Analyte detected in the associated Method Blank

CLIENT: SHN Consulting Engineers and Geologists  
 Work Order: 1103351  
 Project: 011019 Former Carrier Shop

# QC SUMMARY REPORT

Method Blank

Sample ID: MB-25486 Batch ID: 25486 Test Code: 8260S Units: mg/kg Analysis Date 3/23/2011 00:02:00 Prep Date: 3/19/2011  
 Client ID: Run ID: ORGCMS2\_110322D SeqNo: 952942

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD RefVal	%RPD	RPDLimit	Qual
Chloromethane	ND	0.040									
Vinyl chloride	ND	0.020									
Bromomethane	ND	0.020									
Chloroethane	ND	0.020									
Trichlorofluoromethane	ND	0.020									
1,1-Dichloroethene	ND	0.020									
Methylene chloride	ND	0.040									
trans-1,2-Dichloroethene	ND	0.020									
Methyl tert-butyl ether (MTBE)	ND	0.020									
Tert-butyl alcohol (TBA)	ND	0.40									
Di-isopropyl ether (DIPE)	ND	0.020									
1,1-Dichloroethane	ND	0.020									
Ethyl tert-butyl ether (ETBE)	ND	0.020									
cis-1,2-Dichloroethene	ND	0.020									
Chloroform	ND	0.020									
Carbon Tetrachloride	ND	0.020									
1,1,1-Trichloroethane	ND	0.020									
Benzene	ND	0.0050									
Tert-amyl methyl ether (TAME)	ND	0.020									
1,2-Dichloroethane	ND	0.020									
Trichloroethene	ND	0.020									
1,2-Dichloropropane	ND	0.020									
Bromodichloromethane	ND	0.020									
cis-1,3-Dichloropropene	ND	0.020									
Toluene	ND	0.0050									
Tetrachloroethene	ND	0.020									
trans-1,3-Dichloropropene	ND	0.020									
1,1,2-Trichloroethane	ND	0.020									
Dibromochloromethane	ND	0.020									

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits

**QC SUMMARY REPORT**  
Method Blank

**CLIENT:** SHN Consulting Engineers and Geologists  
**Work Order:** 1103351  
**Project:** 011019 Former Carrier Shop

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromoethane (EDB)	ND	0.040									
Chlorobenzene	ND	0.020									
Ethylbenzene	ND	0.0050									
m,p-Xylene	ND	0.010									
o-Xylene	ND	0.0050									
Bromofom	ND	0.020									
1,1,2,2-Tetrachloroethane	ND	0.020									
1,3-Dichlorobenzene	ND	0.020									
1,4-Dichlorobenzene	ND	0.020									
1,2-Dichlorobenzene	ND	0.020									
Surrogate: 1,2-Dichloroethane-d4	0.930	0.0020	1.00	0	93.0%	0	45	146	0		
Surrogate: Dibromofluoromethane	0.898	0.0020	1.00	0	89.8%	0	62	123	0		
Surrogate: Toluene-d8	1.10	0.0020	1.00	0	110%	0	91	108	0		S

**Sample ID:** MB-25487 **Batch ID:** 25487 **Test Code:** GASS-MS **Units:** mg/kg **Analysis Date:** 3/23/2011 00:33:00 **Prep Date:** 3/19/2011  
**Client ID:** Run ID: ORGCMS2\_110322B **SeqNo:** 952532

**Analyte** **Result** **Limit** **SPK value** **SPK Ref Val** **% Rec** **LowLimit** **HighLimit** **RPD Ref Val** **%RPD** **RPDLimit** **Qual**  
TPHC Gasoline ND 1.0

**Sample ID:** MB-25486 **Batch ID:** 25486 **Test Code:** GASS-MS **Units:** mg/kg **Analysis Date:** 3/23/2011 00:02:00 **Prep Date:** 3/19/2011  
**Client ID:** Run ID: ORGCMS2\_110322C **SeqNo:** 952551

**Analyte** **Result** **Limit** **SPK value** **SPK Ref Val** **% Rec** **LowLimit** **HighLimit** **RPD Ref Val** **%RPD** **RPDLimit** **Qual**  
TPHC Gasoline ND 1.0

**Sample ID:** MB-25467 **Batch ID:** 25467 **Test Code:** TPHDMS **Units:** mg/kg **Analysis Date:** 3/23/2011 19:30:30 **Prep Date:** 3/23/2011  
**Client ID:** Run ID: ORGC14\_110323A **SeqNo:** 952374

**Analyte** **Result** **Limit** **SPK value** **SPK Ref Val** **% Rec** **LowLimit** **HighLimit** **RPD Ref Val** **%RPD** **RPDLimit** **Qual**  
TPHC Diesel (C12-C22) ND 1.0  
TPHC Motor Oil ND 10

**Qualifiers:** ND - Not Detected at the Reporting Limit **B - Analyte detected in the associated Method Blank**  
J - Analyte detected below quantitation limits **R - RPD outside accepted recovery limits**  
S - Spike Recovery outside accepted recovery limits

**QC SUMMARY REPORT**  
Method Blank

**CLIENT:** SHN Consulting Engineers and Geologists  
**Work Order:** 1103351  
**Project:** 011019 Former Carrier Shop

**Sample ID:** MB-25477      **Batch ID:** 25477      **Test Code:** TPHDMS      **Units:** mg/kg      **Analysis Date:** 3/25/2011 03:11:55      **Prep Date:** 3/24/2011  
**Client ID:**      **Run ID:** ORGC14\_110324B      **SeqNo:** 952731  
**Analyte**      **Result**      **Limit**      **SPK value**      **SPK Ref Val**      **% Rec**      **LowLimit**      **HighLimit**      **RPD Ref Val**      **%RPD**      **RPDLimit**      **Qual**

TPHC Diesel (C12-C22)      ND      1.0  
TPHC Motor Oil      ND      10

**Qualifiers:**      ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits      Page 5 of 5

**CLIENT:** SHN Consulting Engineers and Geologists  
**Work Order:** 1103351  
**Project:** 011019 Former Carrier Shop

**QC SUMMARY REPORT**  
 Laboratory Control Spike

**Sample ID:** LCS-25487 **Batch ID:** 25487 **Test Code:** 8260S **Units:** mg/kg **Analysis Date:** 3/22/2011 17:08:00 **Prep Date:** 3/19/2011  
**Client ID:** Run ID: ORGCMS2\_110322A **SeqNo:** 952520

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.3871	0.020	0.400	0	96.8%	45	154	0			
Methylene chloride	0.2413	0.040	0.400	0	60.3%	26	175	0			
trans-1,2-Dichloroethene	0.3017	0.020	0.400	0	75.4%	40	156	0			
Methyl tert-butyl ether (MTBE)	0.2694	0.020	0.400	0	67.3%	42	135	0			
Tert-butyl alcohol (TBA)	5.383	0.40	8.00	0	67.3%	49	185	0			
Di-isopropyl ether (DIPE)	0.2796	0.020	0.400	0	69.9%	36	159	0			
1,1-Dichloroethane	0.2505	0.020	0.400	0	62.6%	35	164	0			
Ethyl tert-butyl ether (ETBE)	0.2639	0.020	0.400	0	66.0%	54	128	0			
cis-1,2-Dichloroethene	0.2834	0.020	0.400	0	70.9%	34	159	0			
Chloroform	0.2872	0.020	0.400	0	71.8%	31	160	0			S
Carbon Tetrachloride	0.2488	0.020	0.400	0	62.2%	65	162	0			
1,1,1-Trichloroethane	0.2748	0.020	0.400	0	68.7%	57	148	0			
Benzene	0.3403	0.0050	0.400	0	85.1%	45	145	0			
Tert-amyl methyl ether (TAME)	0.2619	0.020	0.400	0	65.5%	55	126	0			
1,2-Dichloroethane	0.2852	0.020	0.400	0	71.3%	45	129	0			
Trichloroethene	0.2922	0.020	0.400	0	73.1%	63	129	0			
1,2-Dichloropropane	0.2821	0.020	0.400	0	70.5%	62	126	0			
Bromodichloromethane	0.2772	0.020	0.400	0	69.3%	57	132	0			
cis-1,3-Dichloropropene	0.2566	0.020	0.400	0	64.2%	48	138	0			
Toluene	0.4044	0.0050	0.400	0	101%	42	153	0			
Tetrachloroethene	0.3867	0.020	0.400	0	96.7%	40	182	0			
trans-1,3-Dichloropropene	0.2634	0.020	0.400	0	65.8%	59	128	0			
1,1,2-Trichloroethane	0.3067	0.020	0.400	0	76.7%	67	121	0			
Dibromochloromethane	0.3453	0.020	0.400	0	86.6%	63	126	0			
1,2-Dibromoethane (EDB)	0.3398	0.040	0.400	0	84.9%	63	127	0			
Chlorobenzene	0.3844	0.020	0.400	0	96.1%	54	145	0			
Ethylbenzene	0.4322	0.0050	0.400	0	108%	57	148	0			
m,p-Xylene	0.8355	0.010	0.800	0	104%	68	126	0			

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 S - Spike Recovery outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits  
 R - RPD outside accepted recovery limits

# QC SUMMARY REPORT

Laboratory Control Spike

CLIENT: SHN Consulting Engineers and Geologists

Work Order: 1103351

Project: 011019 Former Carrier Shop

Compound	0.3724	0.0050	0.400	0	93.1%	59	131
o-Xylene	0.3724	0.0050	0.400	0	93.1%	59	131
Bromoform	0.3460	0.020	0.400	0	86.5%	64	127
1,1,2,2-Tetrachloroethane	0.3305	0.020	0.400	0	82.6%	70	124
1,3-Dichlorobenzene	0.3588	0.020	0.400	0	89.7%	48	152
1,4-Dichlorobenzene	0.3473	0.020	0.400	0	86.8%	49	146
1,2-Dichlorobenzene	0.3399	0.020	0.400	0	85.0%	66	125
Surrogate: 1,2-Dichloroethane-d4	0.887	0.0020	1.00	0	88.7%	45	146
Surrogate: Dibromofluoromethane	0.854	0.0020	1.00	0	85.4%	62	123
Surrogate: Toluene-d8	1.14	0.0020	1.00	0	114%	91	108

S

Qualifiers: ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank

J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits

# QC SUMMARY REPORT

Laboratory Control Spike Duplicate

CLIENT: SHN Consulting Engineers and Geologists  
 Work Order: 1103351  
 Project: 011019 Former Carrier Shop

Sample ID:	LCSD-25487	Batch ID:	25487	Test Code:	8260S	Units:	mg/kg	Analysis Date	3/22/2011	17:40:00	Prep Date:	3/19/2011
Client ID:				Run ID:	ORGCMS2_110322A			SeqNo:	952521			
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
1,1-Dichloroethene	0.4392	0.020	0.400	0	110%	45	154	0.387	12.6%	20		
Methylene chloride	0.2826	0.040	0.400	0	70.7%	26	175	0.241	15.8%	20		
trans-1,2-Dichloroethene	0.3254	0.020	0.400	0	81.3%	40	156	0.302	7.56%	20		
Methyl tert-butyl ether (MTBE)	0.2797	0.020	0.400	0	69.9%	42	135	0.269	3.74%	20		
Tert-butyl alcohol (TBA)	5.404	0.40	8.00	0	67.5%	49	185	5.38	0.385%	20		
Di-isopropyl ether (DIPE)	0.3127	0.020	0.400	0	78.2%	36	159	0.280	11.2%	20		
1,1-Dichloroethane	0.2790	0.020	0.400	0	69.7%	35	164	0.250	10.8%	20		
Ethyl tert-butyl ether (ETBE)	0.2924	0.020	0.400	0	73.1%	54	128	0.264	10.2%	20		
cis-1,2-Dichloroethene	0.3125	0.020	0.400	0	78.1%	34	159	0.283	9.77%	20		
Chloroform	0.3041	0.020	0.400	0	76.0%	31	160	0.287	5.74%	20		
Carbon Tetrachloride	0.2727	0.020	0.400	0	68.2%	65	162	0.249	9.18%	20		
1,1,1-Trichloroethane	0.3068	0.020	0.400	0	76.7%	57	148	0.275	11.0%	20		
Benzene	0.3791	0.0050	0.400	0	94.8%	45	145	0.340	10.8%	20		
Tert-amyl methyl ether (TAME)	0.2974	0.020	0.400	0	74.4%	55	126	0.262	12.7%	20		
1,2-Dichloroethane	0.3106	0.020	0.400	0	77.6%	45	129	0.285	8.51%	20		
Trichloroethene	0.3237	0.020	0.400	0	80.9%	63	129	0.292	10.2%	20		
1,2-Dichloropropane	0.3278	0.020	0.400	0	82.0%	62	126	0.282	15.0%	20		
Bromodichloromethane	0.3083	0.020	0.400	0	77.1%	57	132	0.277	10.6%	20		
cis-1,3-Dichloropropene	0.2825	0.020	0.400	0	70.6%	48	138	0.257	9.61%	20		
Toluene	0.4463	0.0050	0.400	0	112%	42	153	0.404	9.86%	20		
Tetrachloroethene	0.4524	0.020	0.400	0	113%	40	182	0.387	15.6%	20		
trans-1,3-Dichloropropene	0.2907	0.020	0.400	0	72.7%	59	128	0.263	9.87%	20		
1,1,2-Trichloroethane	0.3413	0.020	0.400	0	85.3%	67	121	0.307	10.7%	20		
Dibromochloromethane	0.3866	0.020	0.400	0	96.6%	63	126	0.346	11.0%	20		
1,2-Dibromoethane (EDB)	0.3697	0.040	0.400	0	92.4%	63	127	0.340	8.43%	20		
Chlorobenzene	0.4125	0.020	0.400	0	103%	54	145	0.384	7.05%	20		
Ethylbenzene	0.4605	0.0050	0.400	0	115%	57	148	0.432	6.34%	20		
m,p-Xylene	0.8951	0.010	0.800	0	112%	68	126	0.836	6.89%	20		
o-Xylene	0.3994	0.0050	0.400	0	99.8%	59	131	0.372	6.99%	20		

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits

**CLIENT:** SHN Consulting Engineers and Geologists  
**Work Order:** 1103351  
**Project:** 011019 Former Carrier Shop

## QC SUMMARY REPORT

Laboratory Control Spike Duplicate

Bromoform	0.3533	0.020	0.400	0	88.3%	64	127	0.346	2.08%	20
1,1,2,2-Tetrachloroethane	0.3562	0.020	0.400	0	89.1%	70	124	0.330	7.50%	20
1,3-Dichlorobenzene	0.4083	0.020	0.400	0	102%	48	152	0.359	12.9%	20
1,4-Dichlorobenzene	0.3876	0.020	0.400	0	96.9%	49	146	0.347	11.0%	20
1,2-Dichlorobenzene	0.3850	0.020	0.400	0	96.3%	66	125	0.340	12.4%	20
Surrogate: 1,2-Dichloroethane-d4	0.863	0.0020	1.00	0	86.3%	45	146	0.887	2.68%	20
Surrogate: Dibromofluoromethane	0.840	0.0020	1.00	0	84.0%	62	123	0.854	1.70%	20
Surrogate: Toluene-d8	1.12	0.0020	1.00	0	112%	91	108	1.14	1.97%	20

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank

# QC SUMMARY REPORT

Laboratory Control Spike

CLIENT: SHN Consulting Engineers and Geologists  
 Work Order: 1103351  
 Project: 011019 Former Carrier Shop

Sample ID:	LCS-25486	Batch ID:	25486	Test Code:	8260S	Units:	mg/kg	Analysis Date:	3/22/2011 15:33:00	Prep Date:	3/19/2011
Client ID:		Run ID:	ORGCMS2_110322D	SeqNo:	952939						
Analyte	Result	Limit	SPK value	SPK RefVal	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.4838	0.020	0.400	0	121%	45	154	0	0	0	
Methylene chloride	0.3027	0.040	0.400	0	75.7%	26	175	0	0	0	
trans-1,2-Dichloroethene	0.3502	0.020	0.400	0	87.5%	40	156	0	0	0	
Methyl tert-butyl ether (MTBE)	0.3405	0.020	0.400	0	85.1%	42	135	0	0	0	
Tert-butyl alcohol (TBA)	6.140	0.40	8.00	0	76.8%	49	185	0	0	0	
Di-isopropyl ether (DIPE)	0.3249	0.020	0.400	0	81.2%	36	159	0	0	0	
1,1-Dichloroethane	0.2913	0.020	0.400	0	72.8%	35	164	0	0	0	
Ethyl tert-butyl ether (ETBE)	0.3151	0.020	0.400	0	78.8%	54	128	0	0	0	
cis-1,2-Dichloroethene	0.3336	0.020	0.400	0	83.4%	34	159	0	0	0	
Chloroform	0.3327	0.020	0.400	0	83.2%	31	160	0	0	0	
Carbon Tetrachloride	0.3472	0.020	0.400	0	86.8%	65	162	0	0	0	
1,1,1-Trichloroethane	0.3379	0.020	0.400	0	84.5%	57	148	0	0	0	
Benzene	0.3878	0.0050	0.400	0	96.9%	45	145	0	0	0	
Tert-amyl methyl ether (TAME)	0.3129	0.020	0.400	0	78.2%	55	126	0	0	0	
1,2-Dichloroethane	0.3499	0.020	0.400	0	87.5%	45	129	0	0	0	
Trichloroethene	0.3362	0.020	0.400	0	84.0%	63	129	0	0	0	
1,2-Dichloropropane	0.3433	0.020	0.400	0	85.8%	62	126	0	0	0	
Bromodichloromethane	0.3642	0.020	0.400	0	91.1%	57	132	0	0	0	
cis-1,3-Dichloropropene	0.3191	0.020	0.400	0	79.8%	48	138	0	0	0	
Toluene	0.4437	0.0050	0.400	0	111%	42	153	0	0	0	
Tetrachloroethene	0.4344	0.020	0.400	0	109%	40	182	0	0	0	
trans-1,3-Dichloropropene	0.3341	0.020	0.400	0	83.5%	59	128	0	0	0	
1,1,2-Trichloroethane	0.3462	0.020	0.400	0	86.6%	67	121	0	0	0	
Dibromochloromethane	0.4798	0.020	0.400	0	120%	63	126	0	0	0	
1,2-Dibromoethane (EDB)	0.3699	0.040	0.400	0	92.5%	63	127	0	0	0	
Chlorobenzene	0.4344	0.020	0.400	0	109%	54	145	0	0	0	
Ethylbenzene	0.4800	0.0050	0.400	0	120%	57	148	0	0	0	
m,p-Xylene	0.9726	0.010	0.800	0	122%	68	126	0	0	0	
o-Xylene	0.4345	0.0050	0.400	0	109%	59	131	0	0	0	

Qualifiers: ND - Not Detected at the Reporting Limit  
 S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits

# QC SUMMARY REPORT

Laboratory Control Spike

CLIENT: SHN Consulting Engineers and Geologists  
 Work Order: 1103351  
 Project: 011019 Former Carrier Shop

	0.5115	0.020	0.400	0	128%	64	127	0	S
Bromoform	0.5115	0.020	0.400	0	128%	64	127	0	S
1,1,2,2-Tetrachloroethane	0.3703	0.020	0.400	0	92.6%	70	124	0	
1,3-Dichlorobenzene	0.4060	0.020	0.400	0	102%	48	152	0	
1,4-Dichlorobenzene	0.3977	0.020	0.400	0	99.4%	49	146	0	
1,2-Dichlorobenzene	0.3751	0.020	0.400	0	93.8%	66	125	0	
Surrogate: 1,2-Dichloroethane-d4	0.961	0.0020	1.00	0	96.1%	45	146	0	
Surrogate: Dibromofluoromethane	0.933	0.0020	1.00	0	93.3%	62	123	0	
Surrogate: Toluene-d8	1.11	0.0020	1.00	0	111%	91	108	0	S

Qualifiers: ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank

# QC SUMMARY REPORT

Laboratory Control Spike Duplicate

CLIENT: SHN Consulting Engineers and Geologists

Work Order: 1103351

Project: 011019 Former Carrier Shop

Sample ID: LCSD-25486 Batch ID: 25486 Test Code: 8260S Units: mg/kg Analysis Date 3/22/2011 16:05:00 Prep Date: 3/19/2011  
 Client ID: Run ID: ORGCMS2\_110322D SeqNo: 952940

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.4783	0.020	0.400	0	120%	45	154	0.484	1.15%	20	20
Methylene chloride	0.2905	0.040	0.400	0	72.6%	26	175	0.303	4.11%	20	20
trans-1,2-Dichloroethene	0.3371	0.020	0.400	0	84.3%	40	156	0.350	3.81%	20	20
Methyl tert-butyl ether (MTBE)	0.3120	0.020	0.400	0	78.0%	42	135	0.340	8.73%	20	20
Tert-butyl alcohol (TBA)	6.175	0.40	8.00	0	77.2%	49	185	6.14	0.559%	20	20
Di-isopropyl ether (DIPE)	0.3238	0.020	0.400	0	81.0%	36	159	0.325	0.344%	20	20
1,1-Dichloroethane	0.2934	0.020	0.400	0	73.3%	35	164	0.291	0.702%	20	20
Ethyl tert-butyl ether (ETBE)	0.3026	0.020	0.400	0	75.7%	54	128	0.315	4.04%	20	20
cis-1,2-Dichloroethene	0.3317	0.020	0.400	0	82.9%	34	159	0.334	0.547%	20	20
Chloroform	0.3196	0.020	0.400	0	79.9%	31	160	0.333	4.03%	20	20
Carbon Tetrachloride	0.3061	0.020	0.400	0	76.5%	65	162	0.347	12.6%	20	20
1,1,1-Trichloroethane	0.3350	0.020	0.400	0	83.7%	57	148	0.338	0.861%	20	20
Benzene	0.3826	0.0050	0.400	0	95.6%	45	145	0.388	1.35%	20	20
Tert-amyl methyl ether (TAME)	0.3041	0.020	0.400	0	76.0%	55	126	0.313	2.84%	20	20
1,2-Dichloroethane	0.3343	0.020	0.400	0	83.6%	45	129	0.350	4.56%	20	20
Trichloroethene	0.3295	0.020	0.400	0	82.4%	63	129	0.336	2.02%	20	20
1,2-Dichloropropane	0.3237	0.020	0.400	0	80.9%	62	126	0.343	5.88%	20	20
Bromodichloromethane	0.3407	0.020	0.400	0	85.2%	57	132	0.364	6.67%	20	20
cis-1,3-Dichloropropene	0.2979	0.020	0.400	0	74.5%	48	138	0.319	6.87%	20	20
Toluene	0.4404	0.0050	0.400	0	110%	42	153	0.444	0.759%	20	20
Tetrachloroethene	0.4277	0.020	0.400	0	107%	40	182	0.434	1.57%	20	20
trans-1,3-Dichloropropene	0.3127	0.020	0.400	0	78.2%	59	128	0.334	6.64%	20	20
1,1,2-Trichloroethane	0.3301	0.020	0.400	0	82.5%	67	121	0.346	4.78%	20	20
Dibromochloromethane	0.4079	0.020	0.400	0	102%	63	126	0.480	16.2%	20	20
1,2-Dibromoethane (EDB)	0.3573	0.040	0.400	0	89.3%	63	127	0.370	3.46%	20	20
Chlorobenzene	0.4052	0.020	0.400	0	101%	54	145	0.434	6.96%	20	20
Ethylbenzene	0.4516	0.0050	0.400	0	113%	57	148	0.480	6.10%	20	20
m,p-Xylene	0.9009	0.010	0.800	0	113%	68	126	0.973	7.65%	20	20
o-Xylene	0.4015	0.0050	0.400	0	100%	59	131	0.434	7.91%	20	20

Qualifiers: ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantization limits      R - RPD outside accepted recovery limits

# QC SUMMARY REPORT

Laboratory Control Spike Duplicate

CLIENT: SHN Consulting Engineers and Geologists

Work Order: 1103351

Project: 011019 Former Carrier Shop

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromoform	0.4296	0.020	0.400	0	107%	64	127	0.511	17.4%	20	S
1,1,2,2-Tetrachloroethane	0.3676	0.020	0.400	0	91.9%	70	124	0.370	0.719%	20	
1,3-Dichlorobenzene	0.4020	0.020	0.400	0	100%	48	152	0.406	0.998%	20	
1,4-Dichlorobenzene	0.3952	0.020	0.400	0	98.8%	49	146	0.398	0.624%	20	
1,2-Dichlorobenzene	0.3786	0.020	0.400	0	94.6%	66	125	0.375	0.932%	20	
Surrogate: 1,2-Dichloroethane-d4	0.922	0.0020	1.00	0	92.2%	45	146	0.961	4.15%	20	
Surrogate: Dibromofluoromethane	0.887	0.0020	1.00	0	88.7%	62	123	0.933	5.11%	20	
Surrogate: Toluene-d8	1.11	0.0020	1.00	0	111%	91	108	1.11	0.0711%	20	S

Sample ID: LCSG-25487 Batch ID: 25487 Test Code: GASS-MS Units: mg/kg Analysis Date 3/22/2011 20:51:00 Prep Date: 3/19/2011

Client ID: Run ID: ORGCMS2\_110322B SeqNo: 952529

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	20.19	1.0	20.0	0	101%	75	129	0			

Sample ID: LCSG-25487 Batch ID: 25487 Test Code: GASS-MS Units: mg/kg Analysis Date 3/22/2011 21:23:00 Prep Date: 3/19/2011

Client ID: Run ID: ORGCMS2\_110322B SeqNo: 952530

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	19.28	1.0	20.0	0	96.4%	75	129	20.2	4.61%	20	

Sample ID: LCSG-25486 Batch ID: 25486 Test Code: GASS-MS Units: mg/kg Analysis Date 3/22/2011 19:16:00 Prep Date: 3/19/2011

Client ID: Run ID: ORGCMS2\_110322C SeqNo: 952548

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	19.53	1.0	20.0	0	97.7%	75	129	0			

Sample ID: LCSG-25486 Batch ID: 25486 Test Code: GASS-MS Units: mg/kg Analysis Date 3/22/2011 19:47:00 Prep Date: 3/19/2011

Client ID: Run ID: ORGCMS2\_110322C SeqNo: 952549

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	19.49	1.0	20.0	0	97.4%	75	129	19.5	0.222%	20	

Qualifiers: ND - Not Detected at the Reporting Limit

J - Analyte detected below quantification limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

# QC SUMMARY REPORT

Laboratory Control Spike

**CLIENT:** SHN Consulting Engineers and Geologists  
**Work Order:** 1103351  
**Project:** 011019 Former Carrier Shop

Sample ID: LCS-25467	Batch ID: 25467	Test Code: TPHDMS	Units: mg/kg	Analysis Date: 3/23/2011 20:00:42	Prep Date: 3/23/2011						
Client ID:	Run ID: ORGC14_110323A	SeqNo: 952375									
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	10.85	1.0	10.0	0	108%	80	119	0			
TPHC Motor Oil	20.91	10	20.0	0	105%	89	116	0			

Sample ID: LCSD-25467	Batch ID: 25467	Test Code: TPHDMS	Units: mg/kg	Analysis Date: 3/23/2011 20:30:52	Prep Date: 3/23/2011						
Client ID:	Run ID: ORGC14_110323A	SeqNo: 952376									
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	10.39	1.0	10.0	0	104%	80	119	10.8	4.25%	30	
TPHC Motor Oil	21.42	10	20.0	0	107%	89	116	20.9	2.39%	30	

Sample ID: LCS-25477	Batch ID: 25477	Test Code: TPHDMS	Units: mg/kg	Analysis Date: 3/25/2011 03:41:56	Prep Date: 3/24/2011						
Client ID:	Run ID: ORGC14_110324B	SeqNo: 952732									
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	9.500	1.0	10.0	0	95.0%	80	119	0			
TPHC Motor Oil	19.60	10	20.0	0	98.0%	89	116	0			

Sample ID: LCSD-25477	Batch ID: 25477	Test Code: TPHDMS	Units: mg/kg	Analysis Date: 3/25/2011 04:11:53	Prep Date: 3/24/2011						
Client ID:	Run ID: ORGC14_110324B	SeqNo: 952733									
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	11.17	1.0	10.0	0	112%	80	119	9.50	16.2%	30	
TPHC Motor Oil	21.76	10	20.0	0	109%	89	116	19.6	10.5%	30	

**Qualifiers:** ND - Not Detected at the Reporting Limit      S - Spike Recovery outside accepted recovery limits      B - Analyte detected in the associated Method Blank  
 J - Analyte detected below quantitation limits      R - RPD outside accepted recovery limits

**CLIENT:** SHN Consulting Engineers and Geologists  
**Work Order:** 1103351  
**Project:** 011019 Former Carrier Shop

**QC SUMMARY REPORT**  
 Sample Matrix Spike

Sample ID:	1103351-24A GAS	Batch ID:	25487	Test Code:	GASS-MS	Units:	mg/kg	Analysis Date:	3/22/2011 9:55:00 PM	Prep Date:	3/19/2011
Client ID:	CS-309@24'	Run ID:	ORGCMS2_110322B	SeqNo:	952531						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	14.82	1.0	20.0	0.307	72.6%	75	129	0			S
Sample ID:	1103351-20A GAS	Batch ID:	25486	Test Code:	GASS-MS	Units:	mg/kg	Analysis Date:	3/22/2011 8:19:00 PM	Prep Date:	3/19/2011
Client ID:	CS-309@8'	Run ID:	ORGCMS2_110322C	SeqNo:	952550						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	31.02	1.0	20.0	2.92	140%	75	129	0			S
Sample ID:	1103351-21AMS	Batch ID:	25477	Test Code:	TPHDMS	Units:	mg/kg	Analysis Date:	3/25/2011 4:41:53 AM	Prep Date:	3/24/2011
Client ID:	CS-309@12'	Run ID:	ORG14_110324B	SeqNo:	952734						
Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	10.02	1.0	10.0	0.466	95.5%	80	119	0			
TPHC Motor Oil	19.28	10	20.0	1.17	90.6%	89	116	0			

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits  
 S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits  
 B - Analyte detected in the associated Method Blank



# Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778  
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

## ANALYTICAL REPORT

Northcoast Laboratories  
5680 West End Road  
Arcata, CA 95521

Attn: Laura Miller  
Phone: (707) 822-4649  
Fax: (707) 822-6831  
Date Received : 03/19/11

Job: 1103351

Metals by ICPMS  
EPA Method SW6020 / SW6020A

Parameter	Concentration	Reporting Limit	Date Extracted	Date Analyzed
Client ID: 1103351-19B/CS-309@4FT				
Lab ID : NOC11032121-03A	Beryllium (Be)	ND	03/22/11	03/23/11
Date Sampled 03/16/11 09:35	Vanadium (V)	47	03/22/11	03/23/11
	Chromium (Cr)	77	03/22/11	03/23/11
	Cobalt (Co)	14	03/22/11	03/23/11
	Nickel (Ni)	87	03/22/11	03/23/11
	Copper (Cu)	29	03/22/11	03/23/11
	Zinc (Zn)	76	03/22/11	03/23/11
	Arsenic (As)	5.2	03/22/11	03/23/11
	Selenium (Se)	ND	03/22/11	03/23/11
	Molybdenum (Mo)	ND	03/22/11	03/23/11
	Silver (Ag)	ND	03/22/11	03/23/11
	Cadmium (Cd)	ND	03/22/11	03/23/11
	Antimony (Sb)	ND	03/22/11	03/23/11
	Barium (Ba)	360	03/22/11	03/23/11
	Mercury (Hg)	ND	0.20 mg/Kg	03/22/11
	Thallium (Tl)	ND	1.0 mg/Kg	03/22/11
	Lead (Pb)	9.5	1.0 mg/Kg	03/22/11
Client ID: 1103351-23B/CS-309@20FT				
Lab ID : NOC11032121-04A	Beryllium (Be)	ND	03/22/11	03/23/11
Date Sampled 03/16/11 09:55	Vanadium (V)	36	03/22/11	03/23/11
	Chromium (Cr)	91	03/22/11	03/23/11
	Cobalt (Co)	13	03/22/11	03/23/11
	Nickel (Ni)	110	03/22/11	03/23/11
	Copper (Cu)	35	03/22/11	03/23/11
	Zinc (Zn)	63	03/22/11	03/23/11
	Arsenic (As)	6.5	03/22/11	03/23/11
	Selenium (Se)	ND	03/22/11	03/23/11
	Molybdenum (Mo)	ND	03/22/11	03/23/11
	Silver (Ag)	ND	03/22/11	03/23/11
	Cadmium (Cd)	ND	03/22/11	03/23/11
	Antimony (Sb)	ND	03/22/11	03/23/11
	Barium (Ba)	130	03/22/11	03/23/11
	Mercury (Hg)	ND	0.20 mg/Kg	03/22/11
	Thallium (Tl)	ND	1.0 mg/Kg	03/22/11
	Lead (Pb)	8.5	1.0 mg/Kg	03/22/11



# Alpha Analytical, Inc.

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Sample results were calculated on a wet weight basis.  
ND = Not Detected

*Roger Scholl*      *Randy Gardner*      *Walter Hinchman*

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

*W*  
3/30/11

**Report Date**



# Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778  
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

## ANALYTICAL REPORT

Northcoast Laboratories  
5680 West End Road  
Arcata, CA 95521  
Job: 1103351

Attn: Laura Miller  
Phone: (707) 822-4649  
Fax: (707) 822-6831

Alpha Analytical Number: NOC11032121-01A  
Client I.D. Number: 1103351-13B/CS-301@4FT

Sampled: 03/15/11 14:45  
Received: 03/19/11  
Extracted: 03/23/11 12:13  
Analyzed: 03/28/11

### Semivolatile Organics by GC/MS (SIM) EPA Method SW8270C

	Compound	Concentration	Reporting Limit
1	Naphthalene	ND	25 µg/Kg
2	Acenaphthylene	ND	25 µg/Kg
3	Acenaphthene	ND	25 µg/Kg
4	Fluorene	41	25 µg/Kg
5	Phenanthrene	29	25 µg/Kg
6	Anthracene	ND	25 µg/Kg
7	Fluoranthene	ND	25 µg/Kg
8	Pyrene	35	25 µg/Kg
9	Benzo(a)anthracene	ND	25 µg/Kg
10	Chrysene	ND	25 µg/Kg
11	Benzo(b&k)fluoranthene, isomeric pair	ND	50 µg/Kg
12	Benzo(a)pyrene	ND	25 µg/Kg
13	Indeno(1,2,3-cd)pyrene	ND	25 µg/Kg
14	Dibenz(a,h)anthracene	ND	25 µg/Kg
15	Benzo(g,h,i)perylene	ND	25 µg/Kg
16	Surr: 2-Fluorobiphenyl	103	(54-130) %REC
17	Surr: 4-Terphenyl-d14	92	(24-145) %REC

Note: EPA Method 8270C CC compounds Acenaphthene, Fluoranthene and Benzo(a)pyrene were evaluated in the CV at the method criteria of 80-120% recovery.

Sample results were calculated on a wet weight basis.  
ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

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3/30/11

Report Date

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## ANALYTICAL REPORT

Northcoast Laboratories  
5680 West End Road  
Arcata, CA 95521  
Job: 1103351

Attn: Laura Miller  
Phone: (707) 822-4649  
Fax: (707) 822-6831

Alpha Analytical Number: NOC11032121-02A  
Client I.D. Number: 1103351-14B/CS-301@8FT

Sampled: 03/15/11 14:50  
Received: 03/19/11  
Extracted: 03/23/11 12:13  
Analyzed: 03/28/11

### Semivolatile Organics by GC/MS (SIM) EPA Method SW8270C

Compound	Concentration	Reporting Limit
1 Naphthalene	ND	25 µg/Kg
2 Acenaphthylene	ND	25 µg/Kg
3 Acenaphthene	ND	25 µg/Kg
4 Fluorene	ND	25 µg/Kg
5 Phenanthrene	ND	25 µg/Kg
6 Anthracene	ND	25 µg/Kg
7 Fluoranthene	ND	25 µg/Kg
8 Pyrene	ND	25 µg/Kg
9 Benzo(a)anthracene	ND	25 µg/Kg
10 Chrysene	ND	25 µg/Kg
11 Benzo(b&k)fluoranthene, isomeric pair	ND	50 µg/Kg
12 Benzo(a)pyrene	ND	25 µg/Kg
13 Indeno(1,2,3-cd)pyrene	ND	25 µg/Kg
14 Dibenz(a,h)anthracene	ND	25 µg/Kg
15 Benzo(g,h,i)perylene	ND	25 µg/Kg
16 Surr: 2-Fluorobiphenyl	115	(54-130) %REC
17 Surr: 4-Terphenyl-d14	124	(24-145) %REC

Note: EPA Method 8270C CC compounds Acenaphthene, Fluoranthene and Benzo(a)pyrene were evaluated in the CV at the method criteria of 80-120% recovery.

Sample results were calculated on a wet weight basis.  
ND = Not Detected

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

3/30/11

Report Date

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

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# Alpha Analytical, Inc.

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## ANALYTICAL REPORT

Northcoast Laboratories  
5680 West End Road  
Arcata, CA 95521  
Job: 1103351

Attn: Laura Miller  
Phone: (707) 822-4649  
Fax: (707) 822-6831

Alpha Analytical Number: NOC11032121-03A  
Client I.D. Number: 1103351-19B/CS-309@4FT

Sampled: 03/16/11 09:35  
Received: 03/19/11  
Extracted: 03/23/11 12:13  
Analyzed: 03/28/11

### Semivolatile Organics by GC/MS (SIM) EPA Method SW8270C

Compound	Concentration	Reporting Limit
1 Naphthalene	56	25 µg/Kg
2 Acenaphthylene	33	25 µg/Kg
3 Acenaphthene	47	25 µg/Kg
4 Fluorene	140	25 µg/Kg
5 Phenanthrene	220	25 µg/Kg
6 Anthracene	27	25 µg/Kg
7 Fluoranthene	47	25 µg/Kg
8 Pyrene	47	25 µg/Kg
9 Benzo(a)anthracene	ND	25 µg/Kg
10 Chrysene	ND	25 µg/Kg
11 Benzo(b&k)fluoranthene, isomeric pair	ND	50 µg/Kg
12 Benzo(a)pyrene	ND	25 µg/Kg
13 Indeno(1,2,3-cd)pyrene	ND	25 µg/Kg
14 Dibenz(a,h)anthracene	ND	25 µg/Kg
15 Benzo(g,h,i)perylene	ND	25 µg/Kg
16 Surr: 2-Fluorobiphenyl	115	(54-130) %REC
17 Surr: 4-Terphenyl-d14	85	(24-145) %REC

Note: EPA Method 8270C CC compounds Acenaphthene, Fluoranthene and Benzo(a)pyrene were evaluated in the CV at the method criteria of 80-120% recovery.

Sample results were calculated on a wet weight basis.  
ND = Not Detected

*Roger Scholl*      *Randy Gardner*      *Walter Hinchman*

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer  
Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 736-7522 / Carson, CA • (714) 386-2901 / info@alpha-analytical.com

Alpha certifies that the test results meet all requirements of NELAC unless footnoted otherwise.

Alpha Analytical, Inc. currently holds appropriate and available California (#2019) and NELAC (01154CA) certifications for the data reported. Test results relate only to reported samples.

3/30/11

**Report Date**



# Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778  
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

## ANALYTICAL REPORT

Northcoast Laboratories  
5680 West End Road  
Arcata, CA 95521  
Job: 1103351

Attn: Laura Miller  
Phone: (707) 822-4649  
Fax: (707) 822-6831

Alpha Analytical Number: NOC11032121-04A  
Client I.D. Number: 1103351-23B/CS-309@20FT

Sampled: 03/16/11 09:55  
Received: 03/19/11  
Extracted: 03/23/11 12:13  
Analyzed: 03/28/11

### Semivolatile Organics by GC/MS (SIM) EPA Method SW8270C

Compound	Concentration	Reporting Limit
1 Naphthalene	ND	25 µg/Kg
2 Acenaphthylene	ND	25 µg/Kg
3 Acenaphthene	ND	25 µg/Kg
4 Fluorene	ND	25 µg/Kg
5 Phenanthrene	ND	25 µg/Kg
6 Anthracene	ND	25 µg/Kg
7 Fluoranthene	ND	25 µg/Kg
8 Pyrene	ND	25 µg/Kg
9 Benzo(a)anthracene	ND	25 µg/Kg
10 Chrysene	ND	25 µg/Kg
11 Benzo(b&k)fluoranthene, isomeric pair	ND	50 µg/Kg
12 Benzo(a)pyrene	ND	25 µg/Kg
13 Indeno(1,2,3-cd)pyrene	ND	25 µg/Kg
14 Dibenzo(a,h)anthracene	ND	25 µg/Kg
15 Benzo(g,h,i)perylene	ND	25 µg/Kg
16 Surr: 2-Fluorobiphenyl	109	(54-130) %REC
17 Surr: 4-Terphenyl-d14	110	(24-145) %REC

Note: EPA Method 8270C CC compounds Acenaphthene, Fluoranthene and Benzo(a)pyrene were evaluated in the CV at the method criteria of 80-120% recovery.

Sample results were calculated on a wet weight basis.  
ND = Not Detected

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3/30/11

**Report Date**



# Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:  
28-Mar-11

## QC Summary Report

Work Order:  
11032121

### Method Blank

Type **MBLK** Test Code: **EPA Method SW6020 / SW6020A**

File ID: **032311.B\040\_M.D\**

Batch ID: **26197**

Analysis Date: **03/23/2011 15:24**

Sample ID: **MB-26197**

Units : **mg/Kg**

Run ID: **ICP/MS\_110323C**

Prep Date: **03/22/2011 13:42**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Beryllium (Be)	ND	1								
Vanadium (V)	ND	1								
Chromium (Cr)	ND	1								
Cobalt (Co)	ND	1								
Nickel (Ni)	ND	2								
Copper (Cu)	ND	2								
Zinc (Zn)	ND	20								
Arsenic (As)	ND	1								
Selenium (Se)	ND	1								
Molybdenum (Mo)	ND	1								
Silver (Ag)	ND	1								
Cadmium (Cd)	ND	1								
Antimony (Sb)	ND	1								
Barium (Ba)	ND	1								
Mercury (Hg)	ND	0.2								
Thallium (Tl)	ND	1								
Lead (Pb)	ND	1								

### Laboratory Control Spike

Type **LCS** Test Code: **EPA Method SW6020 / SW6020A**

File ID: **032311.B\041\_M.D\**

Batch ID: **26197**

Analysis Date: **03/23/2011 15:30**

Sample ID: **LCS-26197**

Units : **mg/Kg**

Run ID: **ICP/MS\_110323C**

Prep Date: **03/22/2011 13:42**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Beryllium (Be)	26	1	25		104	80	120			
Vanadium (V)	22.6	2	25		90	80	120			
Chromium (Cr)	24.2	1	25		97	80	120			
Cobalt (Co)	24.7	1	25		99	80	120			
Nickel (Ni)	26	2	25		104	80	120			
Copper (Cu)	26.5	2	25		106	80	120			
Zinc (Zn)	27	20	25		108	80	120			
Arsenic (As)	25.8	1	25		103	80	120			
Selenium (Se)	24.8	1	25		99	80	120			
Molybdenum (Mo)	23.7	1	25		95	80	120			
Silver (Ag)	24	1	25		96	80	120			
Cadmium (Cd)	25.4	1	25		102	80	120			
Antimony (Sb)	23.4	1	25		93	80	120			
Barium (Ba)	259	1	250		104	80	120			
Mercury (Hg)	0.426	0.2	0.5		85	80	120			
Thallium (Tl)	21.7	1	25		87	80	120			
Lead (Pb)	25.1	1	25		100	80	120			

### Sample Matrix Spike

Type **MS** Test Code: **EPA Method SW6020 / SW6020A**

File ID: **032311.B\046\_M.D\**

Batch ID: **26197**

Analysis Date: **03/23/2011 16:10**

Sample ID: **11032121-03AMS**

Units : **mg/Kg**

Run ID: **ICP/MS\_110323C**

Prep Date: **03/22/2011 13:42**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Beryllium (Be)	9.82	1	10	0	98	75	125			
Vanadium (V)	51.8	1	10	47.28	45	75	125			M3
Chromium (Cr)	79.2	1	10	76.68	25	75	125			M3
Cobalt (Co)	23.8	1	10	14.27	95	75	125			
Nickel (Ni)	93.1	2	10	86.8	63	75	125			M3
Copper (Cu)	37.3	2	10	29.32	80	75	125			
Zinc (Zn)	79.8	20	10	75.96	38	75	125			M3
Arsenic (As)	14.6	1	10	5.19	94	75	125			
Selenium (Se)	9.56	1	10	0	96	75	125			
Molybdenum (Mo)	9.65	1	10	0	97	75	125			
Silver (Ag)	10.4	1	10	0	104	75	125			
Cadmium (Cd)	10.4	1	10	0	104	75	125			
Antimony (Sb)	9.84	1	10	0	98	75	125			
Barium (Ba)	429	1	100	355	74	75	125			M2
Mercury (Hg)	0.194	0.2	0.2	0	97	75	125			
Thallium (Tl)	8.85	1	10	0	89	75	125			
Lead (Pb)	19.4	1	10	9.492	99	75	125			



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Date:  
28-Mar-11

## QC Summary Report

Work Order:  
11032121

### Sample Matrix Spike Duplicate

Type **MSD** Test Code: **EPA Method SW6020 / SW6020A**

File ID: **032311.B\047\_M.D\**

Batch ID: **26197**

Analysis Date: **03/23/2011 16:16**

Sample ID: **11032121-03AMSD**

Units : **mg/Kg**

Run ID: **ICP/MS\_110323C**

Prep Date: **03/22/2011 13:42**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Beryllium (Be)	9.42	1	10	0	94	75	125	9.819	4.2(20)	
Vanadium (V)	47.6	1	10	47.28	3.2	75	125	51.79	8.4(20)	M3
Chromium (Cr)	75.1	1	10	76.68	-16	75	125	79.2	5.3(20)	M3
Cobalt (Co)	22.9	1	10	14.27	86	75	125	23.76	3.6(20)	
Nickel (Ni)	88.9	2	10	86.8	21	75	125	93.14	4.6(20)	M3
Copper (Cu)	35.7	2	10	29.32	64	75	125	37.32	4.3(20)	M2
Zinc (Zn)	80.1	20	10	75.96	41	75	125	79.79	0.4(20)	M3
Arsenic (As)	13.9	1	10	5.19	87	75	125	14.6	4.8(20)	
Selenium (Se)	9.57	1	10	0	96	75	125	9.559	0.2(20)	
Molybdenum (Mo)	9.63	1	10	0	96	75	125	9.653	0.3(20)	
Silver (Ag)	10.2	1	10	0	102	75	125	10.39	1.6(20)	
Cadmium (Cd)	10.2	1	10	0	102	75	125	10.44	2.8(20)	
Antimony (Sb)	9.73	1	10	0	97	75	125	9.838	1.1(20)	
Barium (Ba)	383	1	100	355	28	75	125	429.3	11.5(20)	M2
Mercury (Hg)	0.201	0.2	0.2	0	101	75	125	0.1942	3.5(20)	
Thallium (Tl)	8.84	1	10	0	88	75	125	8.852	0.1(20)	
Lead (Pb)	18.3	1	10	9.492	88	75	125	19.38	6.0(20)	

### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

M2 = Matrix spike recovery was low, the method control sample recovery was acceptable.

M3 = The accuracy of the spike recovery value is reduced since the analyte concentration in the sample is disproportionate to the spike level. The method control sample recovery was acceptable.



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Date:  
01-Apr-11

## QC Summary Report

Work Order:  
11032121

### Method Blank

File ID: 11033107.D

Type: MBLK Test Code: EPA Method SW8270C

Batch ID: 26202

Analysis Date: 03/31/2011 19:03

Sample ID: MBLK-26202

Units: µg/Kg

Run ID: MSD\_16\_110323A

Prep Date: 03/23/2011 12:13

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Naphthalene	ND	25								
Acenaphthylene	ND	25								
Acenaphthene	ND	25								
Fluorene	ND	25								
Phenanthrene	ND	25								
Anthracene	ND	25								
Fluoranthene	ND	25								
Pyrene	ND	25								
Benzo(a)anthracene	ND	25								
Chrysene	ND	25								
Benzo(b&k)fluoranthene, isomeric pair	ND	50								
Benzo(a)pyrene	ND	25								
Indeno(1,2,3-cd)pyrene	ND	25								
Dibenz(a,h)anthracene	ND	25								
Benzo(g,h,i)perylene	ND	25								
Surr: 2-Fluorobiphenyl	384		312.5		123	54	130			
Surr: 4-Terphenyl-d14	438		312.5		140	24	145			

### Laboratory Control Spike

File ID: 11033108.D

Type: LCS Test Code: EPA Method SW8270C

Batch ID: 26202

Analysis Date: 03/31/2011 19:28

Sample ID: LCS-26202

Units: µg/Kg

Run ID: MSD\_16\_110323A

Prep Date: 03/23/2011 12:13

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Acenaphthene	290	25	312.5		93	53	130			
Pyrene	334	25	312.5		107	26	137			
Surr: 2-Fluorobiphenyl	341		312.5		109	54	130			
Surr: 4-Terphenyl-d14	387		312.5		124	24	145			

### Sample Matrix Spike

File ID: 11033113.D

Type: MS Test Code: EPA Method SW8270C

Batch ID: 26202

Analysis Date: 03/31/2011 21:32

Sample ID: 11032203-02AMS

Units: µg/Kg

Run ID: MSD\_16\_110323A

Prep Date: 03/23/2011 12:13

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Acenaphthene	0	25	312.5	0	184	26	142			M4
Pyrene	0	25	312.5	0	2420	5	154			M4
Surr: 2-Fluorobiphenyl	0		312.5		216	54	130			S50
Surr: 4-Terphenyl-d14	0		312.5		896	24	145			S50

### Sample Matrix Spike Duplicate

File ID: 11033114.D

Type: MSD Test Code: EPA Method SW8270C

Batch ID: 26202

Analysis Date: 03/31/2011 21:57

Sample ID: 11032203-02AMSD

Units: µg/Kg

Run ID: MSD\_16\_110323A

Prep Date: 03/23/2011 12:13

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LCL(ME)	UCL(ME)	RPDRefVal	%RPD(Limit)	Qual
Acenaphthene	0	25	312.5	0	317	26	142	575	53.2(38)	M4
Pyrene	0	25	312.5	0	2200	5	154	7570	9.4(50)	M4
Surr: 2-Fluorobiphenyl	0		312.5		230	54	130			S50
Surr: 4-Terphenyl-d14	0		312.5		844	24	145			S50

### Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

S50 = The analysis of the sample required a dilution such that the surrogate concentration was diluted below the laboratory acceptance criteria. The laboratory control sample recovery was acceptable.

M4 = The analysis of the spiked sample required a dilution such that the spike concentration was diluted below the reporting limit. The method control sample recovery was acceptable.







Appendix E

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**Historic Data**

**Table E-1**  
**Historic Soil Analytical Results**  
**Former Carrier Shop, Former PALCO Mill B, Scotia, CA**  
**(in ug/g or mg/kg<sup>1</sup>, unless noted)**

Sample Identification	Sample Date	TPHG <sup>2</sup>	TPHG (8260B)	TPHD <sup>3</sup>	TPHD (w/SGC) <sup>4</sup>	TPHMO <sup>5</sup>	TPHMO (w/SGC)	B <sup>6</sup>	T <sup>6</sup>	E <sup>6</sup>	X <sup>6</sup>	MTBE <sup>7</sup>	VOCs <sup>8</sup> (8260)	SVOCs <sup>9</sup> (8270) (ug/kg) <sup>10</sup>
CS - 09 @ 3.0	11/9/05	630	610	820	-- <sup>11</sup>	4,700	--	<0.005 <sup>12</sup>	<0.10	<1.7	<4.30	<0.05	All ND <sup>13</sup> except, m,p-Xylene: 0.019	ND
CS - 09 @ 7.0	11/9/05	5.9	--	5.3	--	39	--	<0.005	<0.005	<0.010	<0.020	<0.05	--	ND
CS - 10 @ 4.0	11/9/05	<1.0	<1.0	5.7	--	73	--	<0.005	<0.005	<0.005	<0.005	<0.05	ND	ND
CS - 10 @ 11.0	11/9/05	<1.0	--	<1.0	--	<10	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
CS - 11 @ 1.0	11/9/05	<1.0	--	<1.0	--	<10	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
CS - 11 @ 11.0	11/9/05	<1.0	--	<1.0	--	<10	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
CS - 12 @ 3.0	11/9/05	<1.0	--	<1.0	--	11	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
CS - 12 @ 7.0	11/9/05	<1.0	--	<1.0	--	<10	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
CS - 13 @ 4.0	11/9/05	<1.0	--	<1.0	--	<10	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
CS - 13 @ 11.0	11/9/05	<1.0	--	<1.0	--	<10	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
CS - 14 @ 7.0	11/10/05	<1.0	--	<1.0	--	<10	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
CS - 14 @ 11.0	11/10/05	<1.0	--	<1.0	--	<10	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
CS - 15 @ 2.0	11/10/05	<1.0	--	6.9	--	17	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
CS - 15 @ 11.0	11/10/05	<1.0	--	<1.0	--	<10	--	<0.005	<0.005	<0.005	<0.005	<0.05	--	--
CS - 101 @ 3.0	8/24/07	<1.0	--	<1.0	--	<10	--	<0.005	0.025	<0.005	0.0069	<0.005	--	--
CS - 101 @ 7.5	8/24/07	<1.0	--	<1.0	--	<10	--	<0.005	<0.005	<0.005	<0.005	<0.005	--	--
CS - 102 @ 5.0	8/24/07	<1.0	--	<1.0	--	<10	--	<0.005	<0.005	<0.005	<0.005	<0.005	--	--
CS - 102 @ 12.0	8/24/07	<1.0	--	<1.0	--	<10	--	<0.005	0.011	<0.005	<0.005	<0.005	--	--
CS - 103 @ 6.0	8/24/07	<1.0	--	<1.0	--	<10	--	<0.005	0.0093	<0.005	<0.005	<0.005	--	--
CS - 103 @ 10.0	8/24/07	<1.0	--	<1.0	--	<10	--	<0.005	0.0075	<0.005	<0.005	<0.005	--	--
CS - 201 @ 3.5	3/23/10	<1.0	--	14	13	400	350	--	--	--	--	--	--	--
CS - 201 @ 6	3/23/10	170	--	430	400	1,900	1,800	--	--	--	--	--	--	--
CS - 201 @ 9	3/23/10	<1.0	--	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 202 @ 3.5	3/23/10	<1.0	--	46	45	140	130	--	--	--	--	--	--	--
CS - 202 @ 11.5	3/23/10	<1.0	--	1.9	1.6	15	10	--	--	--	--	--	--	--
CS - 203 @ 3.5	3/23/10	<1.0	--	1.2	1.2	10	<10	--	--	--	--	--	--	--
CS - 204 @ 3.5	3/23/10	<1.0	--	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 204 @ 7.5	3/23/10	<1.0	--	39	38	140	140	--	--	--	--	--	--	--
CS - 205 @ 3.5	3/23/10	19	--	350	320	1,700	1,600	--	--	--	--	--	--	--
CS - 205 @ 7.5	3/23/10	1.2	--	50	47	140	150	--	--	--	--	--	--	--
CS - 301 @ 4	3/15/11	--	280	290	--	1,700	--	<0.0050	<0.0050	<0.0050	<0.015	<0.020	ND	All ND, except Fluorene = 41 / Phenanthrene = 29 / Pyrene = 35

**Table E-1**  
**Historic Soil Analytical Results**  
**Former Carrier Shop, Former PALCO Mill B, Scotia, CA**  
**(in ug/g or mg/kg<sup>1</sup>, unless noted)**

Sample Identification	Sample Date	TPHG <sup>2</sup>	TPHG (8260B)	TPHD <sup>3</sup>	TPHD (w/SGC) <sup>4</sup>	TPHMO <sup>5</sup>	TPHMO (w/SGC)	B <sup>6</sup>	T <sup>6</sup>	E <sup>6</sup>	X <sup>6</sup>	MTBE <sup>7</sup>	VOCs <sup>8</sup> (8260)	SVOCs <sup>9</sup> (8270) (ug/kg) <sup>10</sup>
CS - 301 @ 8	3/15/11	--	<1.0	3.4	--	12	--	<0.0050	<0.0050	<0.0050	<0.015	<0.020	ND	ND
CS - 301 @ 12	3/15/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 302 @ 4	3/15/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 302 @ 8	3/15/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 302 @ 12	3/15/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 303 @ 4	3/15/11	--	<1.0	<1.0	--	19	--	--	--	--	--	--	--	--
CS - 303 @ 8	3/15/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 303 @ 12	3/15/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 304 @ 4	3/15/11	--	<1.0	1.2	--	<10	--	--	--	--	--	--	--	--
CS - 304 @ 8	3/15/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 304 @ 12	3/15/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 305 @ 4	3/15/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 305 @ 8	3/15/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 305 @ 12	3/15/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 306 @ 4	3/16/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 306 @ 8	3/16/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 306 @ 12	3/16/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 308 @ 4	3/15/11	--	<1.0	1.0	--	14	--	--	--	--	--	--	--	--
CS - 308 @ 8	3/15/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 308 @ 12	3/15/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 309 @ 4	3/16/11	--	300	480	--	2,400	--	<0.0050	<0.0050	<0.0050	<0.015	<0.020	ND	All ND, except Naphthalene = 56 / Acenaphthylene = 33 / Acenaphthene = 47 / Fluorene = 140 / Phenanthrene = 220 / Anthracene = 27 / Fluoranthene = 47 / Pyrene = 47
CS - 309 @ 8	3/16/11	--	1.5	39	--	210	--	--	--	--	--	--	--	--
CS - 309 @ 12	3/16/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 309 @ 16	3/16/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--
CS - 309 @ 20	3/16/11	--	<1.0	<1.0	--	<10	--	<0.0050	<0.0050	<0.0050	<0.015	<0.020	ND	ND
CS - 309 @ 24	3/16/11	--	<1.0	<1.0	--	<10	--	--	--	--	--	--	--	--

**Table E-1**  
**Historic Soil Analytical Results**  
**Former Carrier Shop, Former PALCO Mill B, Scotia, CA**  
**(in ug/g or mg/kg<sup>1</sup>, unless noted)**

Sample Identification	Sample Date	TPHG <sup>2</sup>	TPHG (8260B)	TPHD <sup>3</sup>	TPHD (w/SGC) <sup>4</sup>	TPHMO <sup>5</sup>	TPHMO (w/SGC)	B <sup>6</sup>	T <sup>6</sup>	E <sup>6</sup>	X <sup>6</sup>	MTBE <sup>7</sup>	VOCs <sup>8</sup> (8260)	SVOCs <sup>9</sup> (8270) (ug/kg) <sup>10</sup>
<ol style="list-style-type: none"> <li>1. ug/g: micrograms per gram; mg/kg: milligrams per kilogram</li> <li>2. TPHG: Total Petroleum Hydrocarbons as Gasoline, analyzed in general accordance with EPA Method No. 8015B or 8260B</li> <li>3. TPHD: Total Petroleum Hydrocarbons as Diesel, analyzed in general accordance with EPA Method No. 8015B</li> <li>4. SGC: Silica Gel Cleanup</li> <li>5. TPHMO: Total Petroleum Hydrocarbons as Motor Oil, analyzed in general accordance with EPA Method No. 8015B</li> <li>6. B: Benzene, T: Toluene, E: Ethylbenzene, X: Total Xylenes; analyzed in general accordance with EPA Method No. 8021B or 8260B</li> <li>7. MTBE: Methyl Tertiary-Butyl Ether, analyzed in general accordance with EPA Method No. 8021B or 8260B</li> <li>8. VOCs: Volatile Organic Compounds; analyzed in general accordance with EPA Method No. 8260B</li> <li>9. SVOCs: Semi-Volatile Organic Compounds; analyzed in general accordance with EPA Method No. 8270B or EPA Method SW8270C</li> <li>10. ug/kg: micrograms per kilogram</li> <li>11. --: not analyzed</li> <li>12. &lt;: "less than" the stated method reporting limit</li> <li>13. ND: Not Detected</li> </ol>														

**Table E-2**  
**Historic Groundwater Analytical Results**  
**Former Carrier Shop, Former PALCO Mill B, Scotia, CA**  
**(in ug/L<sup>1</sup>)**

Sample ID	Sample Date	TPHG <sup>2</sup>	TPHG (8260B)	TPHD <sup>3</sup>	TPHD (w/SGC) <sup>4</sup>	TPHMO <sup>5</sup>	TPHMO (w/SGC)	B <sup>6</sup>	T <sup>6</sup>	E <sup>6</sup>	X <sup>6</sup>	MTBE <sup>7</sup>	VOCs <sup>8</sup> (8260)	SVOCs <sup>9</sup> (8270)
CS-09	11/9/05	210	520	2,400	-- <sup>10</sup>	11,000	--	<0.50 <sup>11</sup>	<0.50	<0.50	<0.50	<3.0	All ND <sup>12</sup> , except Total Xylenes = 6.5	ND
	8/24/07	310	--	510	--	1,900	--	<0.50	<0.50	<0.50	<0.50	<3.0	--	--
	3/24/10	84	--	3,400	2,700	9,300	9,700	--	--	--	--	--	--	--
	3/16/11	--	75	1,100	--	3,600	--	<0.50	<0.50	<0.50	<1.0	<1.0	ND	All ND, except Pyrene = 0.051
CS-10	11/10/05	<50	--	130	--	490	--	<0.50	<0.50	<0.50	<0.50	<3.0	--	--
	8/24/07	<50	--	80	--	460	--	<0.50	0.52	<0.50	<0.50	<3.0	--	--
	3/24/10	<50	--	53	<50	170	<170	--	--	--	--	--	--	--
	3/17/11	--	<50	<50	--	220	--	<0.50	<0.50	<0.50	<1.0	<1.0	ND	All ND, except Phenanthrene = 0.087 / Fluoranthene = 0.027 / Pyrene = 0.093 / Chrysene = 0.025
CS-15	11/14/05	<50	--	<50	--	<170	--	<0.50	<0.50	<0.50	<0.50	<3.0	--	--
	8/24/07	<50	--	<50	--	<170	--	<0.50	<0.50	<0.50	<0.50	<3.0	--	--
	3/24/10	<50	--	52	<50	<170	<170	--	--	--	--	--	--	--
	3/17/11	--	<50	<50	--	<170	--	<0.50	<0.50	<0.50	<1.0	<1.0	ND	ND
CS-101	8/27/07	<50	--	<50	--	<170	--	<0.50	<0.50	<0.50	<0.50	<3.0	--	--
CS-103	8/27/07	<50	--	<50	--	<170	--	<0.50	<0.50	<0.50	<0.50	<3.0	--	--
CS-201	3/23/10	<50	--	54	<50	<170	<170	--	--	--	--	--	--	--
CS-203	3/23/10	<50	--	<50	--	<170	--	--	--	--	--	--	--	--
CS-204	3/23/10	<50	--	390	350	1,200	1,200	--	--	--	--	--	--	--
CS-205	3/23/10	280	--	13,000	9,900	47,000	42,000	--	--	--	--	--	--	--
CS-301	3/15/11	--	150	8,000	--	51,000	--	<0.50	<0.50	<0.50	<1.0	<1.0	ND	All ND, except Fluorene = 0.35 / Phenanthrene = 0.29 / Pyrene = 0.23
CS-302	3/15/11	--	<50	<50	--	<170	--	--	--	--	--	--	--	--
CS-303	3/15/11	--	<50	<50	--	<170	--	--	--	--	--	--	--	--
CS-304	3/15/11	--	<50	51	--	<170	--	--	--	--	--	--	--	--
CS-305	3/15/11	--	<50	58	--	<170	--	--	--	--	--	--	--	--
CS-306	3/16/11	--	<50	<50	--	<170	--	--	--	--	--	--	--	--

**Table E-2**  
**Historic Groundwater Analytical Results**  
**Former Carrier Shop, Former PALCO Mill B, Scotia, CA**  
**(in ug/L<sup>1</sup>)**

Sample ID	Sample Date	TPHG <sup>2</sup>	TPHG (8260B)	TPHD <sup>3</sup>	TPHD (w/SGC) <sup>4</sup>	TPHMO <sup>5</sup>	TPHMO (w/SGC)	B <sup>6</sup>	T <sup>6</sup>	E <sup>6</sup>	X <sup>6</sup>	MTBE <sup>7</sup>	VOCs <sup>8</sup> (8260)	SVOCs <sup>9</sup> (8270)
CS-307	3/16/11	--	<50	16,000	--	50,000	--	<0.50	<0.50	<0.50	<1.0	<1.0	ND	All ND, except Naphthalene = 0.093 / Fluorene = 0.13 / Phenanthrene = 0.089 / Pyrene = 0.041
CS-308	3/15/11	--	<50	<50	--	<170	--	--	--	--	--	--	--	--
CS-309	3/16/11	--	<50	200	<50	<170	<170	1.2	<0.50	<0.50	<1.0	<1.0	All ND, except 1,3-Dichlorobenzene = 1.0	ND

1. ug/L: micrograms per Liter
2. TPHG: Total Petroleum Hydrocarbons as Gasoline, analyzed in general accordance with EPA Method No. 8015B or 8260B
3. TPHD: Total Petroleum Hydrocarbons as Diesel, analyzed in general accordance with EPA Method No. 8015B
4. SGC: Silica Gel Cleanup
5. TPHMO: Total Petroleum Hydrocarbons as Motor Oil, analyzed in general accordance with EPA Method No. 8015B
6. B: Benzene, T: Toluene, E: Ethylbenzene, X: Total Xylenes; analyzed in general accordance with EPA Method No. 8021B or 8260B
7. MTBE: Methyl Tertiary-Butyl Ether, analyzed in general accordance with EPA Method No. 8021B or 8260B
8. VOCs: Volatile Organic Compounds; analyzed in general accordance with EPA Method No. 8260B
9. SVOCs: Semi-Volatile Organic Compounds analyzed in general accordance with EPA Method No. 8270 or EPA Method No. SW8270C
10. --: not analyzed
11. <: "less than" the stated method reporting limit
12. ND: Not Detected

**Table E-3**  
**Historic Soil Analytical Results-Metals**  
**Former Carrier Shop, Former PALCO Mill B, Scotia, CA**  
**(in ug/g<sup>1</sup>)**

Sample Identification	Sample Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
CS - 09 @ 3.0	11/9/05	-- <sup>2</sup>	--	--	--	<2.0 <sup>3</sup>	52	--	--	11	--	--	57	--	--	--	--	59
CS - 09 @ 7.0	11/9/05	--	--	--	--	<2.0	93	--	--	15	--	--	100	--	--	--	--	75
CS - 10 @ 4.0	11/9/05	--	--	--	--	<2.0	64	--	--	29	--	--	76	--	--	--	--	210
CS - 10 @ 11.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS - 11 @ 1.0	11/9/05	--	--	--	--	<2.0	83	--	--	15	--	--	100	--	--	--	--	97
CS - 11 @ 11.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS - 12 @ 3.0	11/9/05	--	--	--	--	<2.0	74	--	--	10	--	--	61	--	--	--	--	52
CS - 12 @ 7.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS - 13 @ 4.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS - 13 @ 11.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS - 14 @ 7.0	11/10/05	--	--	--	--	<2.0	78	--	--	14	--	--	110	--	--	--	--	85
CS - 14 @ 11.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CS - 15 @ 2.0	11/10/05	--	--	--	--	<2.0	88	--	--	35	--	--	98	--	--	--	--	98
CS - 15 @ 11.0	11/10/05	<1.0	2.9	230	0.50	<2.0	64	15	29	11	<0.10	<3.0	79	<1.0	<2.0	<1.0	42	72
CS - 101@3.0	8/24/07	--	3.6	--	--	<1.0	39	--	--	92	--	--	43	--	--	--	--	60
CS - 101@7.5	8/24/07	--	7.1	--	--	<1.0	100	--	--	11	--	--	130	--	--	--	--	81
CS - 102@5.0	8/24/07	--	7.3	--	--	<1.0	98	--	--	9.7	--	--	110	--	--	--	--	83
CS - 102@12.0	8/24/07	--	7.5	--	--	<1.0	86	--	--	11	--	--	100	--	--	--	--	89
CS - 103@6.0	8/24/07	--	7.1	--	--	<1.0	100	--	--	9.1	--	--	85	--	--	--	--	82
CS - 103@10.0	8/24/07	--	8.0	--	--	<1.0	91	--	--	9.1	--	--	98	--	--	--	--	71
CS - 309 @ 4	3/16/11	<1.0	5.2	360	<1.0	<1.0	77	14	29	9.5	<0.20	<1.0	87	<1.0	<1.0	<1.0	47	76
CS - 309 @ 20	3/16/11	<1.0	6.5	130	<1.0	<1.0	91	13	35	8.5	<0.20	<1.0	110	<1.0	<1.0	<1.0	36	63

1. ug/g: micrograms per gram  
2. --: not analyzed

3. <: "less than" the stated method reporting limit

**Table E-4**  
**Historic Groundwater Analytical Results-Dissolved Metals**  
**Former Carrier Shop, Former PALCO Mill B, Scotia, CA**  
**(in ug/L<sup>1</sup>)**

Sample Identification	Sample Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
CS-09	11/9/05	<50 <sup>2</sup>	<10	230	<1.0	<10	<10	<10	<10	<10	<1.0	<20	<20	<10	<10	<10	<10	<20
	3/16/11	-- <sup>3</sup>	--	--	--	<5.0	<5.0	--	--	<5.0	--	--	<5.0	--	--	--	--	<10
CS-10	3/17/11	--	--	--	--	<5.0	<5.0	--	--	<5.0	--	--	8.4	--	--	--	--	80
CS-15	3/17/11	--	--	--	--	<5.0	<5.0	--	--	<5.0	--	--	<5.0	--	--	--	--	<10
CS-307	3/16/11	<5.0	<5.0	150	<1.0	<5.0	8.7	<5.0	8.2	27	<1.0	<5.0	10	<10	<5.0	<5.0	<5.0	120
CS-309	3/16/11	<5.0	77	94	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	15	20	<10	<5.0	<5.0	<5.0	<10

1. ug/L: micrograms per Liter
2. <: "less than" the stated method reporting limit
3. --: not analyzed

**Appendix F**

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**Excerpts from Historic Reports**

# Excerpts from Historic Reports

**F1: Excerpts from “Sample Results From Initial Investigation at Pacific Lumber Company’s Carrier Shop and Service Station Underground Tank Sites” (SHN, 1990)**

**F2: Excerpts from “Problem Assessment Report, Pacific Lumber Company Carrier Shop, LOP No. 12274,” (SHN 1992).**

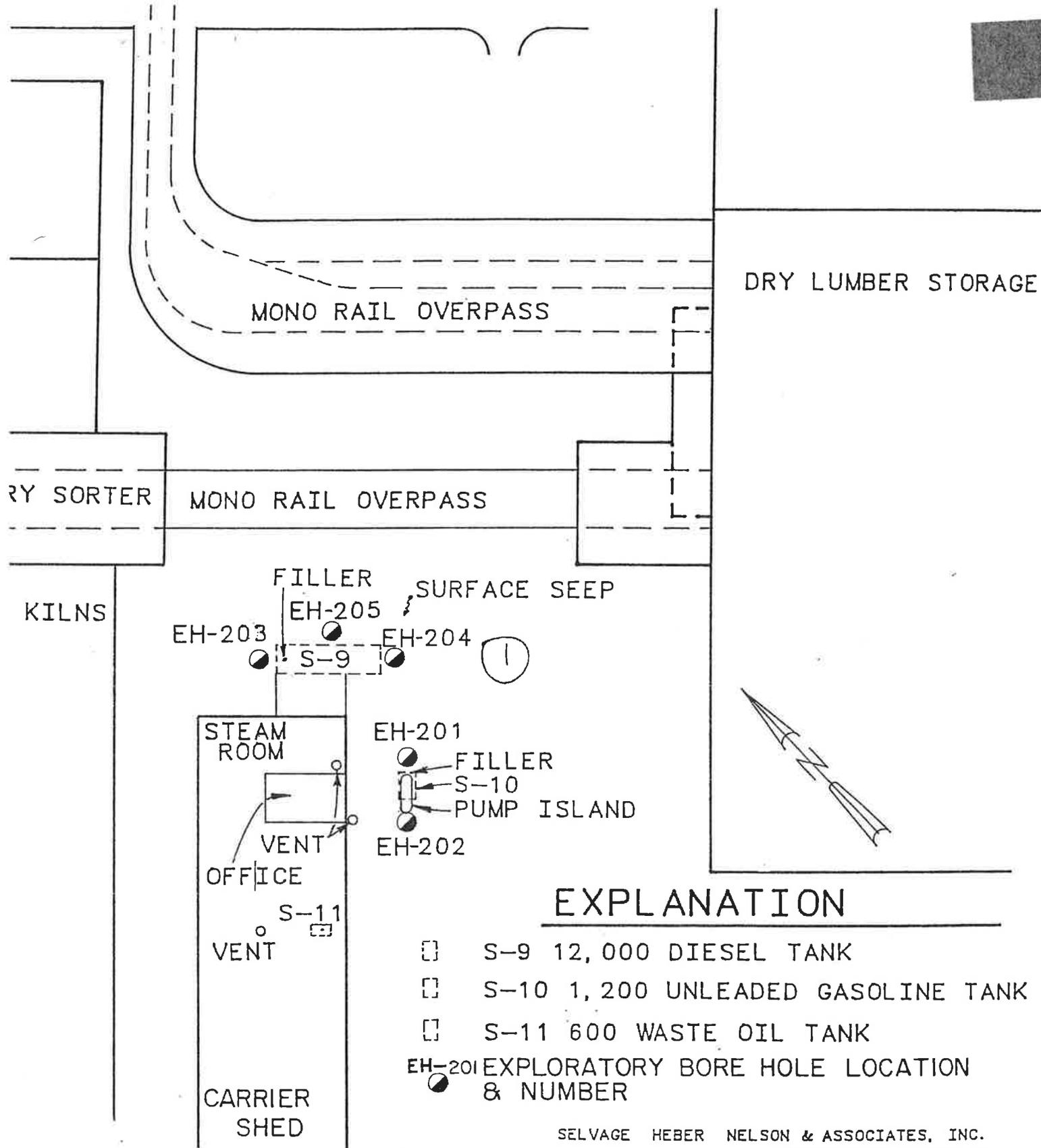
**F3: Excerpts from “Overexcavation and Verification Sampling Report of Findings, Pacific Lumber Company Former Carrier Shop (LOP No. 12274),” (SHN 1998).**

**F4: Excerpts from “PALCO Scotia Carrier Shop (LOP No. 12274) Request for Additional Information,” (SHN 1999).**

Appendix F1

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**Excerpts from “Sample Results From Initial Investigation at Pacific Lumber Company’s Carrier Shop and Service Station Underground Tank Sites” (SHN, 1990)**



## EXPLANATION

- [ ] S-9 12,000 DIESEL TANK
- [ ] S-10 1,200 UNLEADED GASOLINE TANK
- [ ] S-11 600 WASTE OIL TANK
- EH-201 EXPLORATORY BORE HOLE LOCATION & NUMBER

SELVAGE HEBER NELSON & ASSOCIATES, INC.  
CONSULTING ENGINEERS

Pacific Lumber Company  
Scotia, California

### CARRIER SHED SITE PLAN

SHN890097

April, 1990

0 40 80 feet

SCALE 1" = 40'

ALL LOCATIONS ARE APPROXIMATE

**SHN**

NAME: \_\_\_\_\_ PROJECT: \_\_\_\_\_ NUMBER: 890097 HOLE NUMBER: EB - 201  
 HOLE SIZE: 8 Inch Dia. EXCAVATION METHOD: CME 75 DRILLING DATE(S): 4/3/90 LOGGED BY: JPH  
 HOLE ELEV: \_\_\_\_\_ DATUM \_\_\_\_\_ SAMPLER & DRIVE: 2.5 MOD. CA/SPT/HYDROLIC

LABORATORY DATA SOIL CLASSIFICATION

MONITOR WELL CONSTRUCTION  
 GROUNDWATER LEVELS  
 TPH-G  
 TPH-D (ppm)  
 LEAD  
 BTXE (ppm)  
 FID READING (ppm)  
 SAMPLES (Key below)  
 DEPTH (FEET)  
 FIELD CLASSIFICATION BASED ON  
**UNIFIED SOIL CLASSIFICATION SYSTEM**  
 TEXTURE, CONSISTENCY, MOISTURE, COLOR, SYMBOL, REMARKS  
 SURFACE VEGETATION: None

FILL: Gravel, sandy, silty, dense, moist, gray, brown, 3 inch minus river run gravel.

SILT, clay, stiff, moist, yellowish brown and gray. (MI.), mottled.

  
4/4/90

6.4 ND  
TPHG

1,200 Gallon Unleaded  
Tank S-10

Bottom of boring.

KEY  UNSTABILIZED WATER LEVEL  SPLIT SPOON  DISTURBED  
 STABILIZED WATER LEVEL  LAB SAMPLE

2630 HARRISON AVE. EUREKA, CA., 95501

CONTINUED

PROJECT NAME: PALCO Carrier Shed PROJECT NUMBER: 890097 HOLE NUMBER: EB - 202  
 HOLE SIZE: 8 Inch Dia. EXCAVATION METHOD: CME 75 DRILLING DATE(S): 4/3/90 LOGGED BY: JPH  
 HOLE ELEV.: 96.95 DATUM: SHN TBM 100.00 SAMPLER & DRIVE: 2.5 MOD. CA/SPT/HYDROLIC

LABORATORY DATA					SOIL CLASSIFICATION	
MONITOR WELL CONSTRUCTION	GROUNDWATER LEVELS	TPH-G TPH-D (ppm)	LEAD BTX (ppm)	FID READING (ppm)	SAMPLES (Key below)	DEPTH (FEET)
FIELD CLASSIFICATION BASED ON: UNIFIED SOIL CLASSIFICATION SYSTEM TEXTURE, CONSISTENCY, MOISTURE, COLOR, SYMBOL, REMARKS						
SURFACE VEGETATION: None						
FILL: gravel, sandy, silty, dense, moist, gray brown, 3 inch minus river run gravel.						
SILT, clay, stiff, moist, yellowish brown and gray, (ML), mottled, slightly porous.						
1.200 Gallon Tank S-10						
Free water in pores						
Bottom of boring.						

2.5  
TPHG  
  
 4/10/90

KEY  
 UNSTABILIZED WATER LEVEL  
 STABILIZED WATER LEVEL  
 SPLIT SPOON  
 LAB SAMPLE  
 DISTURBED

81018

# SUBSURFACE EXPLORATION LOG

PROJECT NAME: PALCO Carrier Shed PROJECT NUMBER: 890097 HOLE NUMBER: EB - 203  
 HOLE SIZE: 8 Inch Dia. EXCAVATION METHOD: CME 75 DRILLING DATE(S): 4/4/90 LOGGED BY: JPH  
 HOLE ELEV: 98.12 DATUM: SHN TBM 100.00 SAMPLER & DRIVE: 2.5 MOD. CA/SPT/HYDROLIC

LABORATORY DATA					SOIL CLASSIFICATION	
MONITOR WELL CONSTRUCTION	GROUNDWATER LEVELS	TPH-G TPH-D (ppm)	LEAD BIXE (ppm)	FID READING (ppm)	SAMPLES (Key below)	DEPTH (FEET)
FIELD CLASSIFICATION BASED ON: <b>UNIFIED SOIL CLASSIFICATION SYSTEM</b> TEXTURE, CONSISTENCY, MOISTURE, COLOR, SYMBOL, REMARKS SURFACE VEGETATION: None						
	 4/10/90 4/4/90					1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
FILL, gravel, sandy, silty, dense, moist, gray brown, 3 inch minus river run gravel.						
SILT, clay, soft, moist, yellowish brown and brown, (ML), mottled.						
SILT, clayey, sandy, minor gravel, medium stiff, very moist, yellowish brown and brown, (ML), very fine grained sand, rounded gravel clasts to 3/4 inch maximum dimension.						
Interbedded clays and clayey silts. Mottled, some laminations, minor organics.						
Overbank deposits.						
Bottom of boring.						

12,000 Gallon Diesel Tank S-9

KEY: UNSTABILIZED WATER LEVEL    STABILIZED WATER LEVEL    SPLIT SPOON    LAB SAMPLE    DISTURBED

PROJECT NAME: PALCO Carrier Shed

PROJECT NUMBER: 890097

HOLE NUMBER: EB - 204

HOLE SIZE: 8 Inch Dia.

EXCAVATION METHOD: CME 75

DRILLING DATE(S): 4/4/90

LOGGED BY: JPH

HOLE ELEV: 97.35 DATUM SHN TBM 100.00

SAMPLER & DRIVE: 2.5 MOD. CA/SPT/HYDROLIC

LABORATORY DATA

SOIL CLASSIFICATION

MONITOR WELL CONSTRUCTION	GROUNDWATER LEVELS	TPH-G TPH-D (ppm)	LEAD BTXE (ppm)	FID READING (ppm)	SAMPLES (Key below)	DEPTH (FEET)
	 4/10/90  4/5/90				 	1-21
		ND	ND			14-15

FIELD CLASSIFICATION BASED ON:  
 UNIFIED SOIL CLASSIFICATION SYSTEM  
 TEXTURE, CONSISTENCY, MOISTURE, COLOR, SYMBOL, REMARKS  
 SURFACE VEGETATION: None

FILL: gravel, sandy, silty, dense, moist, gray brown, 3 inch minus river run gravel.

SILT, clayey, stiff, moist, yellowish brown and gray, (ML), mottled, slightly porous, minor organics.

Laminated overbank deposits

Interbedded silty clay and clay

Bottom of boring.

12,000 Gallon Diesel Tank S-9

KEY	 UNSTABILIZED WATER LEVEL	 SPLIT SPOON	 DISTURBED
	 STABILIZED WATER LEVEL	 LAB SAMPLE	

010110

# SUBSURFACE EXPLORATION LOG

PROJECT NAME: PALCO Carrier Shed PROJECT NUMBER: 890097 HOLE NUMBER: EB - 205  
 HOLE SIZE: 8 Inch Dia. EXCAVATION METHOD: CME 75 DRILLING DATE(S): 4/4/90 LOGGED BY: JPH  
 HOLE ELEV: \_\_\_\_\_ DATUM \_\_\_\_\_ SAMPLER & DRIVE: 2.5 MOD. CA/SPT/HYDROLIC

LABORATORY DATA							SOIL CLASSIFICATION	
MONITOR WELL CONSTRUCTION	GROUNDWATER LEVELS	TPH-G TPH-D (ppm)	LEAD BTXE (ppm)	FID READING (ppm)	SAMPLES (Key below)	DEPTH (FEET)	FIELD CLASSIFICATION BASED ON: UNIFIED SOIL CLASSIFICATION SYSTEM TEXTURE, CONSISTENCY, MOISTURE, COLOR, SYMBOL, REMARKS SURFACE VEGETATION: None	
	 4/4/90					1	FILL: gravel, sandy, silty, dense, moist, gray brown, 3 inch minus river run gravel.	
						2		
						3	SILT, clay, stiff, moist, yellowish brown and gray, (ML), mottled, slightly porous, minor organics.	
						4	Laminated overbank deposits	
						5	<div style="border: 1px solid black; padding: 2px; display: inline-block;">                         12,000 Gallon Tank                          Tank S-9                     </div>	
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
		ND	ND			15	Bottom of boring.	
						16		
						17		
						18		
						19		
						20		
						21		

KEY  UNSTABILIZED WATER LEVEL      SPLIT SPOON      DISTURBED

# GROUND WATER ELEVATIONS

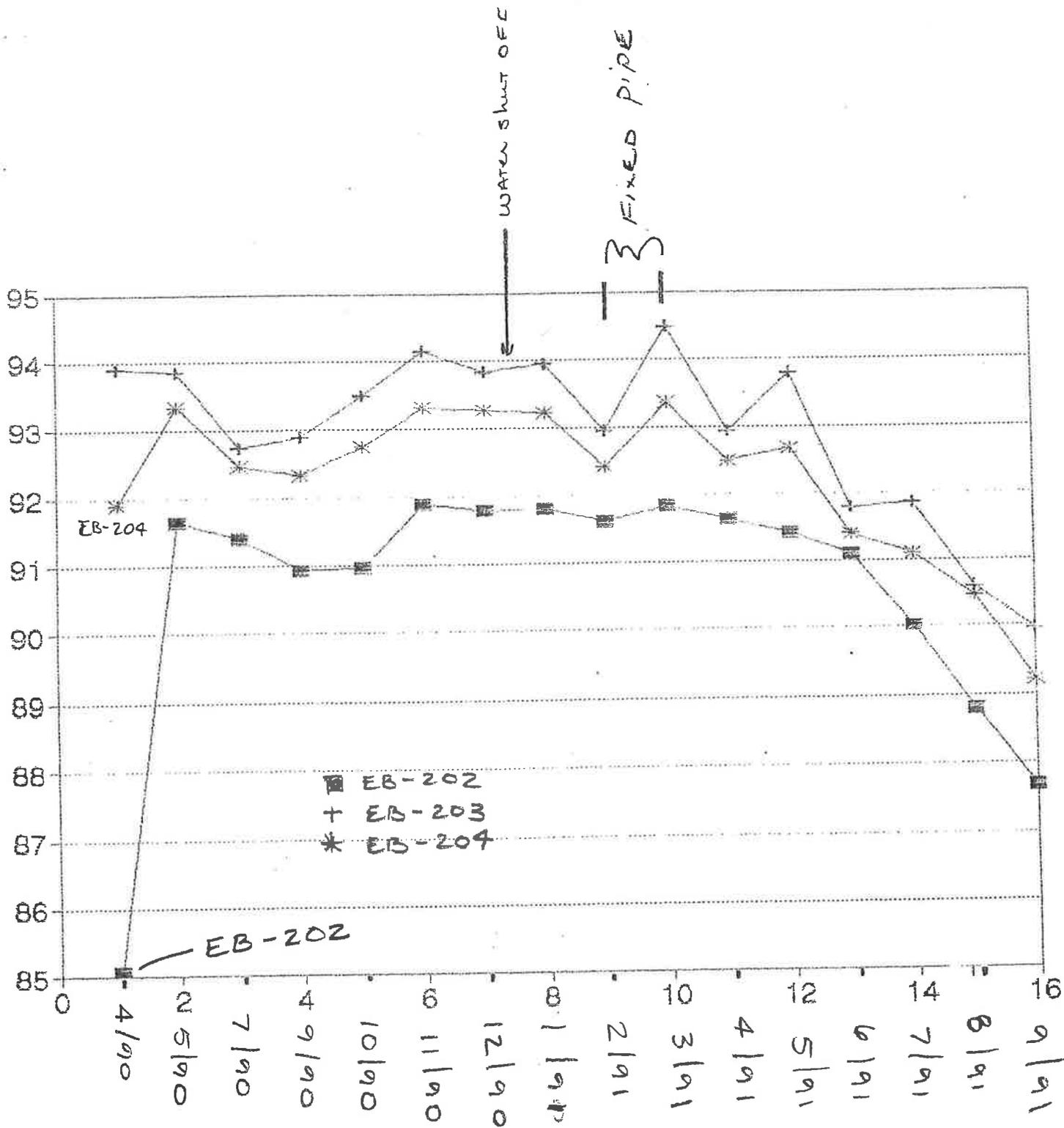
JOB NO. : 890097.110

CLIENT: PALLO

LOCATION: CARRIER SHOP

WELL NO.	DATE OF READING	MEAS. PT. ELEVATION	DEPTH TO WATER IN FT.	WATER SUR. ELEVATION
EB-202	10/24/90	96.95	5.99	L 90.96
203	↓	98.12	4.63	h 93.49
204	↓	97.35	4.62	m 92.73
202	11/27/90		5.07	L 91.88
203			3.98	h 94.14
204			4.04	m 93.31
202	12/27/90		5.17	L 91.78
203			4.30	h 93.82
204			4.10	m 93.25
202	1/24/91		5.16	L 91.79
203			4.18	h 93.94
204			4.13	m 93.22
202	2/22/91		5.35	L 91.60
203			5.17	h 92.95
204			4.95	m 92.40
202	3/25/91		5.13	L 91.82
203			3.64	h 94.48
204			4.00	m 93.35
202	4/24/91		5.34	L 91.61
203			5.20	h 92.92
204			4.87	m 92.48
202	5/22/91		5.53	L 91.42
203			4.34	h 93.78
204			4.68	m 92.67





Appendix F2

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**Excerpts from “Problem Assessment Report, Pacific  
Lumber Company Carrier Shop, LOP No. 12274,”  
(SHN 1992)**

**TABLE 1**  
**SUMMARY OF RESULTS FROM INITIAL SAMPLES COLLECTED APRIL 3 & 4, 1990**

Sample	Depth ft	TPHD ug/g	TPHG ug/g	Benzene ug/g	Toluene ug/g	Ethylbenzene ug/g	m,p Xylene ug/g	o, Xylene ug/g
EB 201	9-9.5	--	6.4	<0.050	<0.050	<0.10	<0.10	<0.10
EB 202	9.5-10	--	2.5	<0.050	<0.050	<0.050	0.065	<0.050
EB 203	13.5-14	<1.0	--	<0.050	<0.050	<0.050	<0.025	<0.025
EB 204	14-14.5	<1.0	--	<0.050	<0.050	<0.050	<0.025	<0.025
EB 205	14-14.5	<1.0	--	<0.050	<0.050	<0.050	<0.025	<0.025

①

**TABLE 2**  
**SUMMARY OF RESULTS FROM SAMPLES COLLECTED DURING TANK PULL AND OVEREXCAVATION**  
**OCTOBER 16 & 21, 1991**

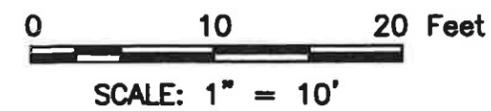
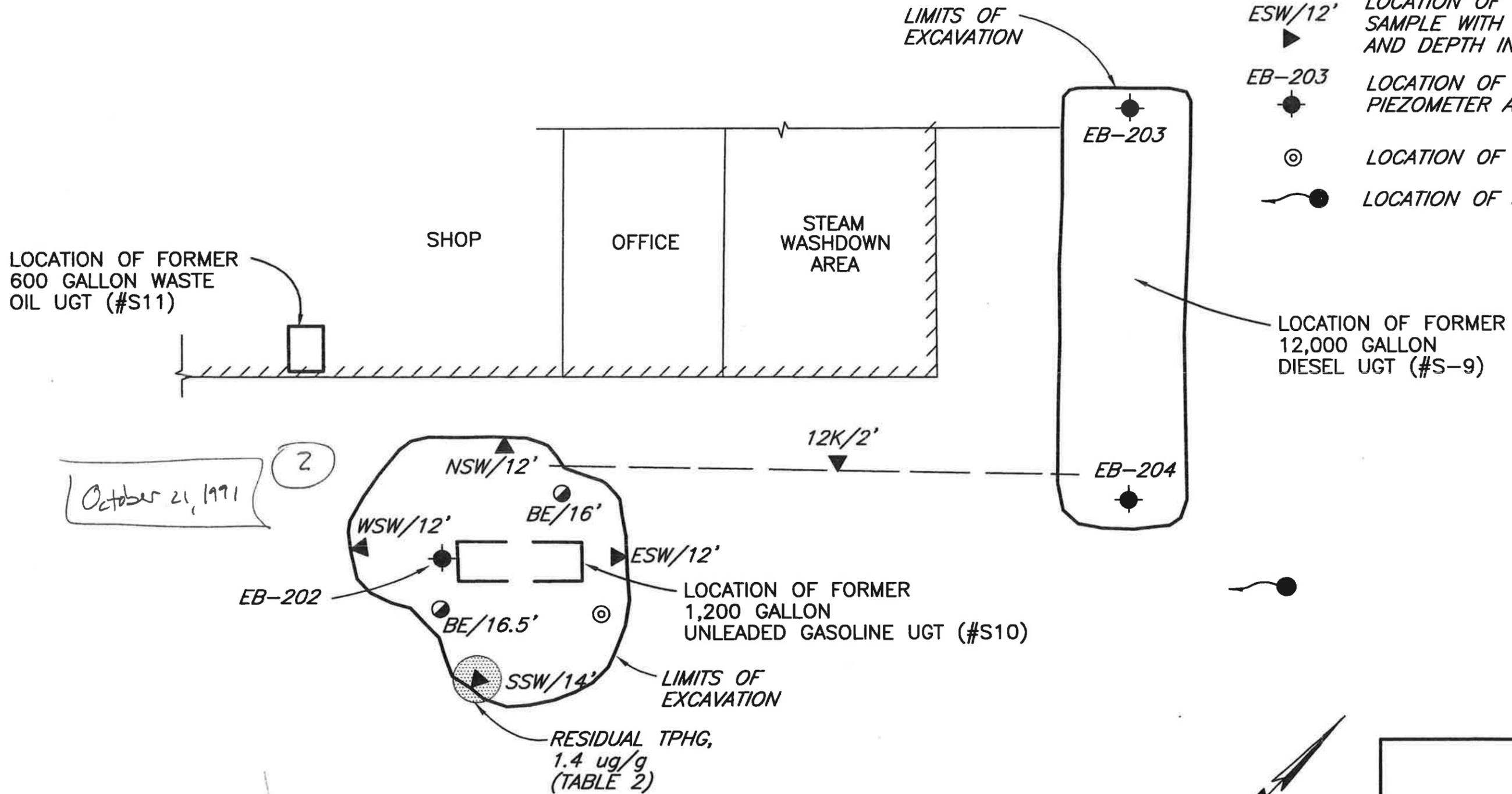
Sample	Depth ft	TPHD ug/g	TPHG ug/g	Benzene ug/g	Toluene ug/g	m,p Xylene ug/g	o, Xylene ug/g	Ethyl- benzene ug/g	Grease & Oil ug/g	Cadmium ug/g	Chromium ug/g	Lead ug/g	Nickel ug/g	Zinc ug/g
NSW	12	--	<1.0	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	--	--	--	--	--	--
ESW	12	--	<1.0	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	--	--	--	--	--	--
SSW	14	--	1.4	0.013	<0.010	<0.010	<0.010	<0.010	--	--	--	--	--	--
WSW	12	--	<1.0	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	--	--	--	--	--	--
BW	16.5	--	<1.0	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	--	--	--	--	--	--
BE	16	--	<1.0	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	--	--	--	--	--	--
Carrier	5.2 <sup>a</sup>	49	<1.0	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	10,000	<1.0	61	310	65	89
0.6K														
Carrier	2	4.3	--	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	--	--	--	--	--	--
12K <sup>b</sup>														

<sup>b</sup> Pipe union location

<sup>a</sup> EPA Method 8010 - All Constituents < 0.050

**EXPLANATION**

- BE/16' ● LOCATION OF SIDEWALL SOIL SAMPLE WITH SAMPLE DESIGNATION AND DEPTH IN FEET
- ESW/12' ▲ LOCATION OF BOTTOM SOIL SAMPLE WITH SAMPLE DESIGNATION AND DEPTH IN FEET
- EB-203 ● LOCATION OF FORMER PIEZOMETER AND NUMBER
- ⊙ LOCATION OF PERMEABILITY TEST
- ◐● LOCATION OF SURFACE SEEP



**ALL LOCATIONS ARE APPROXIMATE**



PACIFIC LUMBER COMPANY  
CARRIER SHOP

**SITE MAP**

SHN 890097.110  
APRIL, 2000  
FIGURE 3

**Appendix F3**

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**Excerpts from “Overexcavation and Verification  
Sampling Report of Findings, Pacific Lumber  
Company Former Carrier Shop (LOP No. 12274),”  
(SHN 1998)**

3

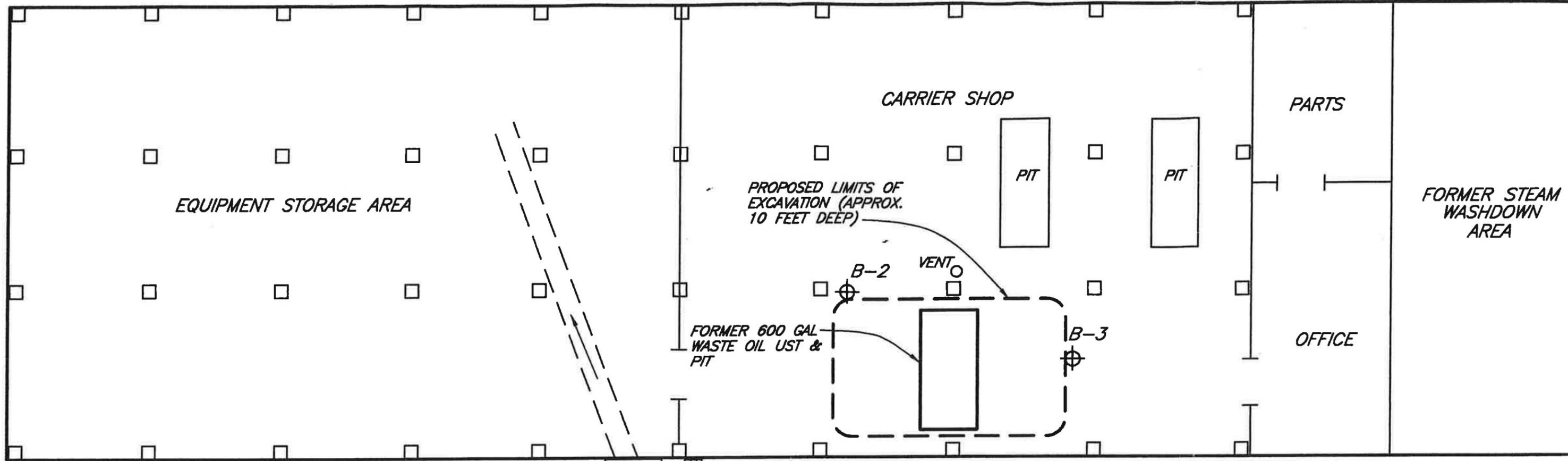
**TABLE 3**  
**SUMMARY OF RESULTS FROM SUBSURFACE SOIL INVESTIGATION**  
**PALCO CARRIER SHOP (OCTOBER 8, 1997)**

SAMPLE ID/ DEPTH (FT)	BTEX (ug/g)	TPHG (ug/g)	TPHD (ug/g)	TPHMO (ug/g)	EPA8021 EPA8270	EPA METALS (mg/kg)
B-1/6'	<0.005	<1.0	<1.0	<10	NT	NT
B-1/10'	<0.005	<1.0	<1.0	<10	NT	NT
B-1/16'	<0.005	<1.0	<1.0	<10	NT	NT
B-2/6'	(1)	1.7	<1.0	<10	(1)	Cadmium = <2.0 Chromium = 41 Nickel = 41 Zinc = 42 Lead = 6.0
B-2/12'	(1)	<1.0	1.5	<10	(1)	Cadmium = <2.0 Chromium = 53 Nickel = 84 Zinc = 62 Lead = 6.4
B-3/6'	<0.005	<1.0	<1.0	<10	NT	NT
B-3/11'	<0.005	<1.0	3.6	46	NT	NT

- (1) All EPA 8021 and EPA 8270 constituents tested were below the method reporting limits  
 (2) For the laboratory reporting limits of the EPA metal analysis, See Subsurface Soil Investigation Report of Findings, (SHN, December 8, 1997).

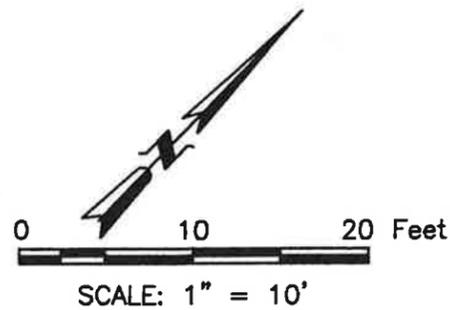
NT sample was not tested by the analytical laboratory

Note: MTBE analysis was below the method detection limit in all samples analyzed.

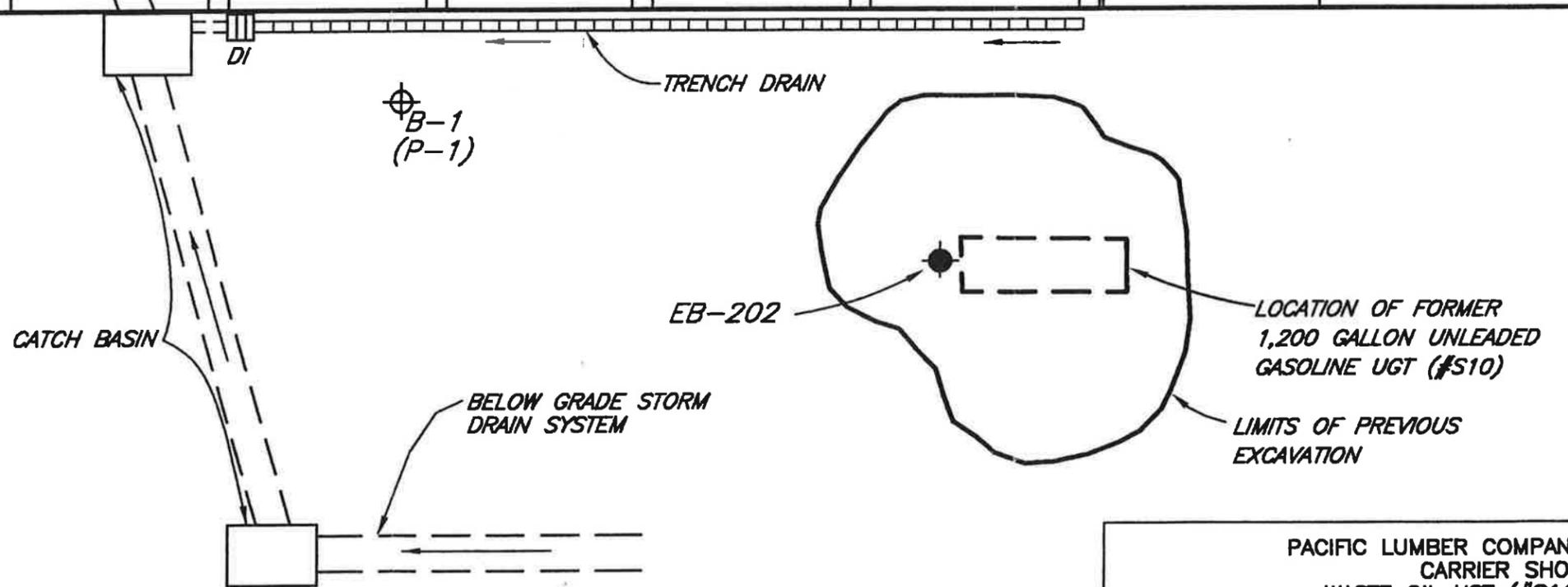


**EXPLANATION**

- EB-202 LOCATION OF FORMER PIEZOMETER AND NUMBER
- ⊕ SOIL BORING LOCATION AND NUMBER
- B-1
- (P-1) INDICATES 2" PIEZOMETER INSTALLED INSIDE B-1



**ALL LOCATIONS ARE APPROXIMATE**



PACIFIC LUMBER COMPANY  
CARRIER SHOP  
WASTE OIL UST (#S11)

**SITE MAP**

SHN 890097.110  
NOVEMBER 1997



FIGURE 2

CAD: 890097-1b

**Appendix F4**

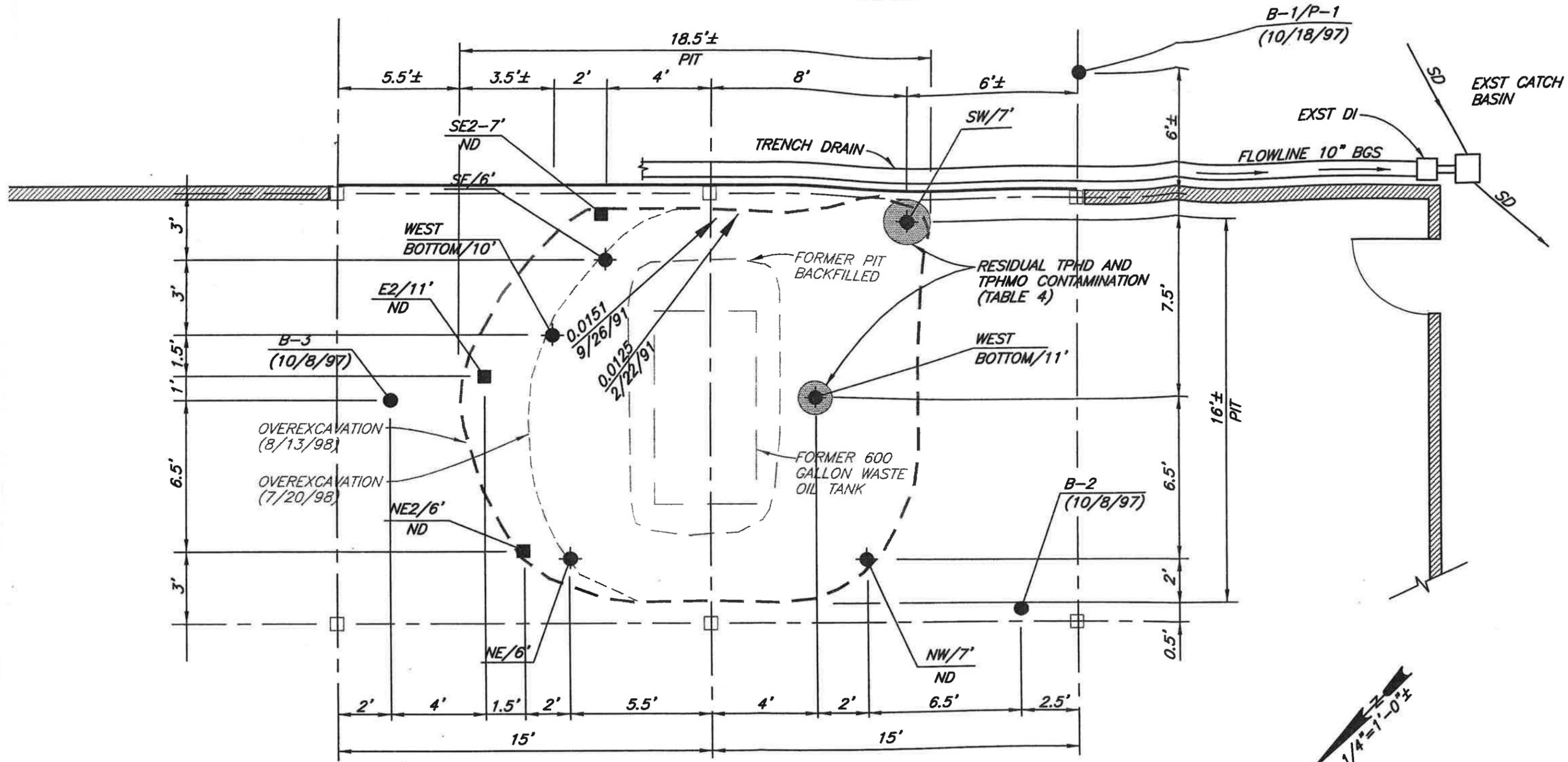
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**Excerpts from “PALCO Scotia Carrier Shop (LOP No.  
12274) Request for Additional Information,”  
(SHN 1999)**

④

**TABLE 4  
SUMMARY OF RESULTS FROM SAMPLES COLLECTED FOLLOWING  
OVEREXCAVATION ACTIVITIES (JULY 20 & AUGUST 13, 1998)**

SAMPLE ID/ Depth (ft)	MTBE (ug/g)	BTEX (ug/g)	TPHG (ug/g)	TPHD (ug/g)	TPHMO (ug/g)	EPA8021 EPA8270	EPA METALS (mg/kg)
*NE/6'	<0.05	<0.005	<1.0	11	68	NT	NT
*SE/6'	<0.05	<0.005	<1.0	36	580	NT	NT
*East Bottom/10'	<0.05	<0.005	<1.0	34	350	NT	NT
NW/7'	<0.05	<0.005	<1.0	<10	<10	NT	NT
West Bottom/11'	<0.05	<0.005	<1.0	7.3	52	NT	NT
SW/7'	<0.05	<0.005	<1.0	11	81	ND (note 1)	Cd < 2.0 Cr 73 Ni 100 Zn 77 Pb < 20 (note 2)
<b>* Indicates further overexcavation and resampling. (See Figure 6)</b>							
NE2/6'	<0.05	<0.005	<1.0	<1.0	<10	NT	NT
E2/11'	<0.05	<0.005	<1.0	<1.0	<10	ND (note 1)	Cd < 2.0 Cr 69 Ni 100 Zn 61 Pb 10 (note 2)
SE2/7'	<0.05	<0.005	<1.0	<1.0	<10	NT	NT
(note 1) All EPA 8021 and EPA 8270 constituents tested were below the method reporting limits. (note 2) For the laboratory results of the EPA metal analysis, See Overexcavation and Verification Sampling Report of Findings (SHN, October 20, 1998). ND Sample results were below the method reporting limits. NT Sample not tested by the analytical laboratory.							



**EXPLANATION**

- SOIL SAMPLE LOCATION AND DEPTH BGS
- SAMPLE COLLECTED FOLLOWING OVEREXCAVATION
- SOIL BORING WITH 2" PVC WELL (PIEZOMETER)
- GROUNDWATER FLOW DIRECTION AND GRADIENT

BGS = BELOW GROUND SURFACE  
 SD = STORM DRAIN  
 ND = NON-DETECTABLE, FINAL VERIFICATION, AT METHOD REPORTING LIMIT - SEE TABLE 4

ALL LOCATIONS ARE APPROXIMATE

THE PACIFIC LUMBER COMPANY  
 CARRIER SHOP  
 WASTE OIL UST (S11)

**OVEREXCAVATION PLAN**

SHN 089097.110  
 APRIL, 2000  
 FIGURE 6





Dale Dell'Osso  
October 20, 1998  
Page -5-

Selected samples were also analyzed for EPA 8021, 8270, and the 5 EPA metals (Cd, Cr, Ni, Zi, Pb). Laboratory results showed that unacceptable concentrations of contamination remained in the eastern side wall. Therefore, on August 13, 1998, SHN directed Hake Construction in the removal of an additional 25 cubic yards of contaminated soil from the east side of the pit. Again verification soil samples were collected for analysis. Samples were labeled, handled, and analyzed as previously described. The analytical results are shown in Table 2 (below).

TABLE 2 SUMMARY OF RESULTS FROM SAMPLES COLLECTED FOLLOWING OVEREXCAVATION ACTIVITIES (JULY 20 & AUGUST 13, 1998)							
SAMPLE ID/ Depth (ft)	MTBE (ug/g)	BTEX (ug/g)	TPHG (ug/g)	TPHD (ug/g)	TPHMO (ug/g)	EPA8021 EPA8270	EPA METALS
*NE/6'	<0.05	<0.005	<1.0	11	68	NT	NT
*SE/6'	<0.05	<0.005	<1.0	36	580	NT	NT
*East Botton/10'	<0.05	<0.005	<1.0	34	350	NT	NT
NW/7'	<0.05	<0.005	<1.0	<10	<10	NT	NT
West Bottom/11'	<0.05	<0.005	<1.0	7.3	52	NT	NT
SW/7'	<0.05	<0.005	<1.0	11	81	ND (note1)	(note 2)
* Indicates further overexcavation and resampling (See Figure 3)							
NE2/6'	<0.05	<0.005	<1.0	<1.0	<10	NT	NT
E2/11'	<0.05	<0.005	<1.0	<1.0	<10	ND (note1)	(note 2)
SE2/7'	<0.05	<0.005	<1.0	<1.0	<10	NT	NT

- (note 1) All EPA 8021 and EPA 8270 constituents tested were below the method reporting limits.
- (note 2) For the laboratory results of the EPA metal analysis, See Laboratory Report, Attachment 1.
- ND Sample results were below the method reporting limits.
- NT Sample not tested by the analytical laboratory.

On July 20, 1998, a Toxicity Characteristic Leaching Procedure (TCLP) using the test method extraction, was completed on soil sample SW/7' (160 ug/L TPHD, 1800 ug/L TPHMO); and on October 1, 1998, a TCLP extraction using a mild extraction method (distilled water) was completed on soil sample SW/7' (66 ug/L TPHD, 670 ug/L TPHMO). A comparison of results indicate that the leaching capability of the contaminants from the silty clay soil will be very low, with site groundwater as the leaching medium (Attachment 1).

Additionally, a verification water sample was collected from P-1 to determine the impact to groundwater. Well P-1 is within 10 feet of SW/7' and in an assumed downgradient direction. On October 2, 1998, SHN purged P-1, and collected a water sample for TPHD/TPHMO analysis. The results of the water sample collected was below the method reporting limits (Attachment 1).

Date: 10/07/98  
 Work Order: 98-10-036  
 Invoice #: 60069524

REPORT

SAMPLE ID: P-1 FRAC.: 01A COLLECTED: 10/01/98 RECEIVED: 10/01/98

PARAMETER	RESULT	LIMIT	UNITS	DIL. FACTOR	EXTRACTED	RUN	METHOD
BTX and E/water							EPA 602
MTBE	ND	5.0	ug/L	1.0		10/01/98	EPA 602
Benzene	ND	0.50	ug/L	1.0		10/01/98	EPA 602
Toluene	ND	0.50	ug/L	1.0		10/01/98	EPA 602
Ethylbenzene	ND	0.50	ug/L	1.0		10/01/98	EPA 602
m,p Xylene	ND	0.50	ug/L	1.0		10/01/98	EPA 602
o Xylene	ND	0.50	ug/L	1.0		10/01/98	EPA 602
Surrogate:							
cis-1,2-dichloroethene	109	N/A	% Rec	1.0		10/01/98	EPA 602
TPHC Gasoline/water	ND	50	ug/L	1.0		10/01/98	EPA5030GCFID

SAMPLE ID: P-1 FRAC.: 01B COLLECTED: 10/01/98 RECEIVED: 10/01/98

PARAMETER	RESULT	LIMIT	UNITS	DIL. FACTOR	EXTRACTED	RUN	METHOD
TPHD & Motor Oil/water							EPA3510GCFID
TPHC - Diesel	ND	50	ug/L	1.0	10/05/98	10/06/98	EPA3510GCFID
TPHC - Motor Oil	ND	500	ug/L	1.0	10/05/98	10/06/98	EPA3510GCFID

SAMPLE ID: Method Blank FRAC.: 02A COLLECTED: N/A RECEIVED: 10/01/98

PARAMETER	RESULT	LIMIT	UNITS	DIL. FACTOR	EXTRACTED	RUN	METHOD
BTX and E/water							EPA 602
MTBE	ND	5.0	ug/L	1.0		09/30/98	EPA 602
Benzene	ND	0.50	ug/L	1.0		09/30/98	EPA 602
Toluene	ND	0.50	ug/L	1.0		09/30/98	EPA 602
Ethylbenzene	ND	0.50	ug/L	1.0		09/30/98	EPA 602
m,p Xylene	ND	0.50	ug/L	1.0		09/30/98	EPA 602
o Xylene	ND	0.50	ug/L	1.0		09/30/98	EPA 602
Surrogate:							
cis-1,2-dichloroethene	101	N/A	% Rec	1.0		09/30/98	EPA 602
TPHC Gasoline/water	ND	50	ug/L	1.0		09/30/98	EPA5030GCFID
TPHD & Motor Oil/water							EPA3510GCFID
TPHC - Diesel	ND	50	ug/L	1.0	10/05/98	10/06/98	EPA3510GCFID
TPHC - Motor Oil	ND	500	ug/L	1.0	10/05/98	10/06/98	EPA3510GCFID







