



Soil and Groundwater Management Contingency Plan

Old Carson Mill
1535 Waterfront Drive
Eureka, California
RWQCB Case No. 1NHU330

Prepared for:

City of Eureka

 **Consulting Engineers & Geologists, Inc.**

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

August 2013
008212.102



Reference: 008212.102

August 5, 2013

Ms. Kasey Ashley, PG
North Coast Regional Water Quality Control Board
5550 Skylane Boulevard., Suite A
Santa Rosa, CA 95403

**Subject: Soil and Groundwater Management Contingency Plan, Old Carson Mill,
1535 Waterfront Drive, Eureka, California; Case No. 1NHU330**

Dear Ms. Ashley:

SHN Consulting Engineers & Geologists, Inc. has prepared this soil and groundwater management contingency plan (SGMCP) for the Old Carson Mill in Eureka, California, in accordance with your correspondence dated March 29, 2013. This SGMCP has been developed to provide guidance in the event that residual petroleum hydrocarbons and/or metals in soil and/or groundwater are encountered during future subsurface work at the site.

Sincerely,

SHN Consulting Engineers & Geologists, Inc.

Roland Rueber, PG
Project Manager

RMR/BGH:dla

Enclosure: Report
c. w/encl.: Mr. Glenn Kistner, U.S. EPA, Region 9
Ms. Angi Sorensen, City of Eureka
Mr. Steve Werner, California Department of Transportation
Mark Verhey, Humboldt County Division of Environmental Health

Soil and Groundwater Management Contingency Plan

Old Carson Mill
1535 Waterfront Drive
Eureka, California
RWQCB Case No. 1NHU330

Prepared for:

City of Eureka



Prepared by:



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

August 2013

QA/QC:MEL __

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Abbreviations and Acronyms

--	not tested/insufficient amount of sample
<	"less than" the stated method reporting limit
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
ng/L	nanograms per liter
ppb	parts per billion
ppm	parts per million
ug/kg	micrograms per kilogram
ug/L	micrograms per liter
umhos/cm	micromhos per centimeter
APN	Assessor's parcel number
BGS	below ground surface
DCO ₂	dissolved carbon dioxide
DO	dissolved oxygen
E&E	Ecology and Environment, Inc.
EPA	U.S. Environmental Protection Agency
EX#	excavation number
GW-#	groundwater sample-number
MW-#	monitoring well
NA	not applicable
ND	not detected
NM	not measured
NR	no reference
NS	not sampled
ORP	oxidation-reduction potential
PAH	polynuclear aromatic hydrocarbons
P#	test pit number
PVC	polyvinyl chloride
RWQCB	North Coast Regional Water Quality Control Board
SCP	site clean-up plan
SP#-W	soil boring-number
SGMCP	soil and groundwater management contingency plan
SHN	SHN Consulting Engineers & Geologists, Inc.
TCLP	toxicity characteristic leaching procedure
TPHD	total petroleum hydrocarbons as diesel
TPHMO	total petroleum hydrocarbons as motor oil
USGS	U.S. Geological Survey
WP-#	well point-number

1.0 Introduction

This soil and groundwater management contingency plan (SGMCP) has been developed by SHN Consulting Engineers & Geologists, Inc. (SHN) for the Old Carson Mill in Eureka, California, on behalf of the City of Eureka. Following regulatory site closure, areas of residual soil and groundwater contamination will remain in place at the site. As a result, SHN has developed this SGMCP to address worker safety issues associated with future site development. This SGMCP contains information regarding the site history, location and levels of contamination present, and the appropriate actions for working in areas with contaminated soil and/or groundwater. Regulatory correspondence is included in Appendix A.

1.1 Purpose

This SGMCP provides the property owner with a usable document to protect workers and employees, with regard to the documented contamination at the site. This document serves to outline necessary actions to be taken in the event that contaminated soil and/or groundwater is encountered during future site activities. The complete set of documents regarding site investigation and remediation activities is accessible for review at the North Coast Regional Water Quality Control Board's (RWQCB) office. Some documents and an electronic file of this SGMCP are available on the State of California Water Resources Control Board's Geotracker website at the following link: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0602393232

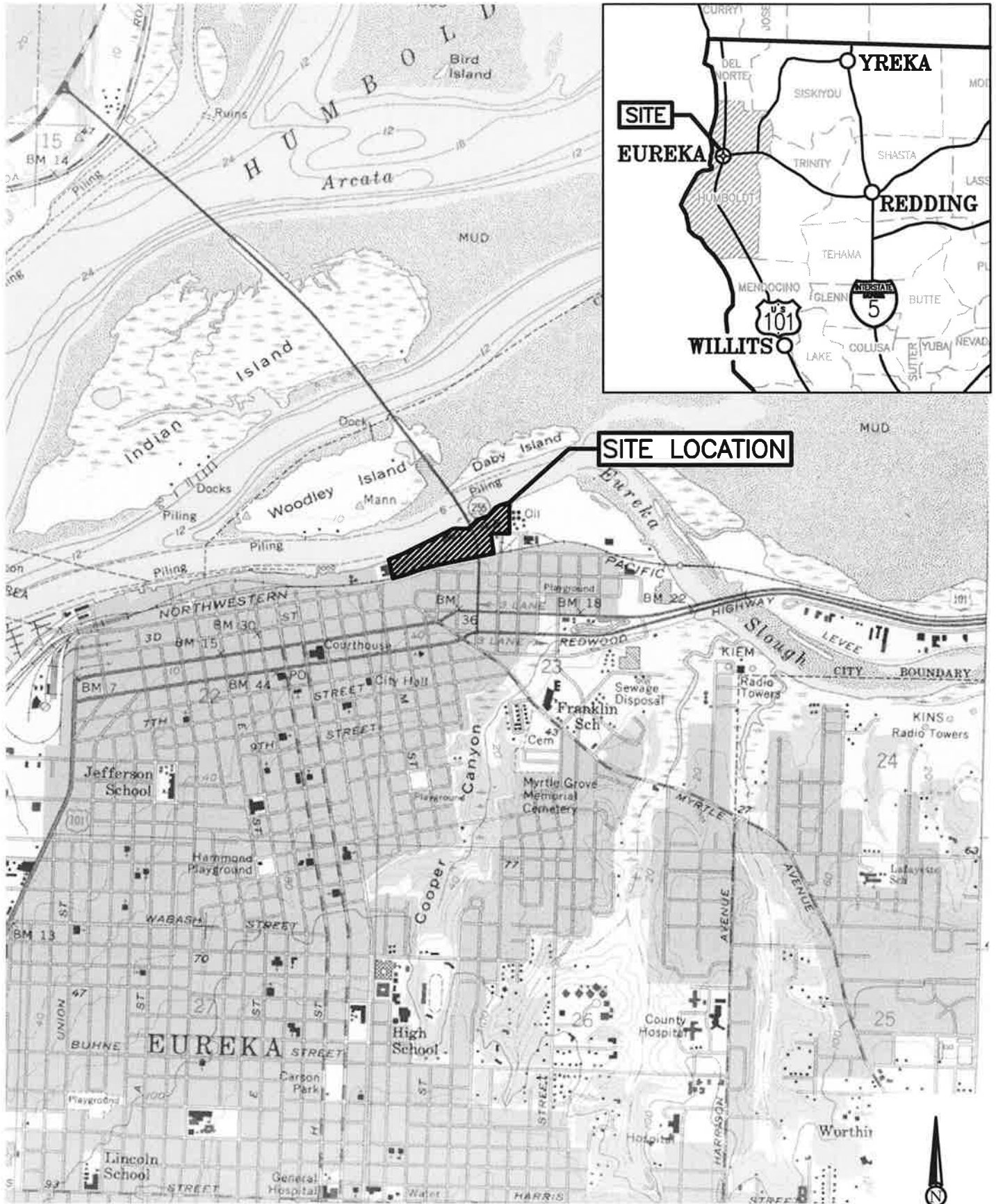
This SGMCP includes appropriate actions to address waste characterization, handling, and proper disposal of contaminated soil and/or groundwater encountered during future site development activities.

Subsurface investigations have been performed at the site and have identified areas with residual soil and groundwater contamination. However, additional remaining contamination may exist in soil and groundwater found elsewhere on the site. SHN recommends a presumption that any shallow soil and groundwater at the site may contain residual levels of contamination. This SGMCP is based on the conditions last encountered at the subject site. Petroleum hydrocarbon contaminants will degrade over time resulting in the variability of such contamination. Adjacent-site or onsite releases may create contamination at this site during future operations. It is the responsibility of the property owner to retain this document and provide it to contractors or employees prior to conducting subsurface work at the subject site.

1.2 Site Description

The site is located within Township 5 North, Range 1 West, Section 23, Humboldt Base and Meridian (Figure 1). The site is adjacent to the Humboldt Bay at 1535 Waterfront Drive in Eureka, California, and consists of the former mill site (Areas 1, 2, and 3), the Samoa Bridge easement (Area 4), and the former foundry area (Area 5) (Figure 2).


The site is located at an elevation of approximately 10 feet above mean sea level, and there is very little topographic variation within the site parcel. South of the property, surface topography increases in elevation up to approximately 15 feet where a marine terrace bluff extends along Waterfront Drive. During intense rainfall, standing water accumulates in isolated locations across the site, and local surface drainage from nearby areas enters into multiple storm drains.



**SOURCE: EUREKA
USGS 7.5 MINUTE
QUADRANGLE**

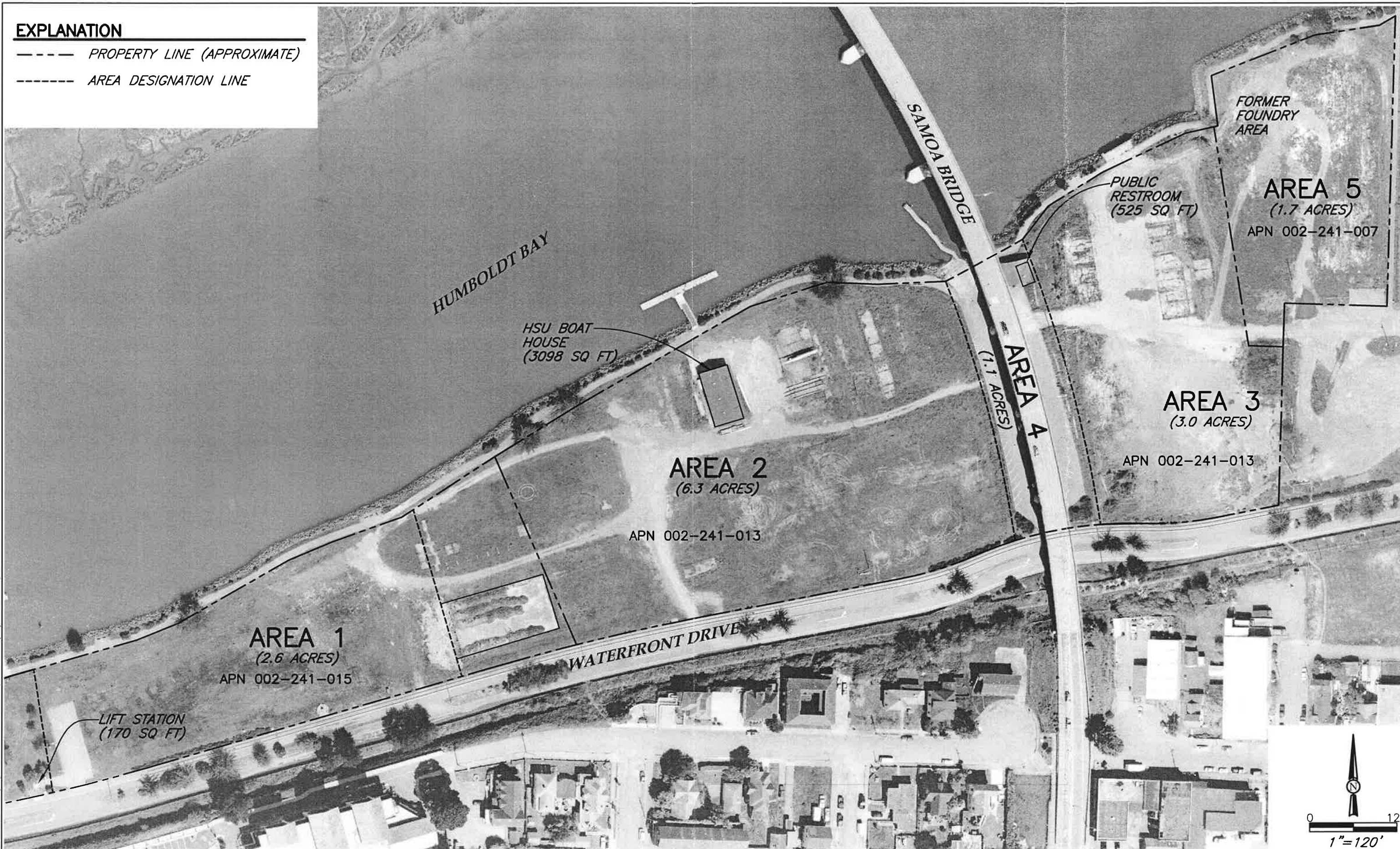
1" = 2000'±

I:\2008\008212\008212-102, SAVED: 7/23/2013 11:32 AM NIDOWNEY, PLOTTED: 7/23/2013 11:32 AM, NATHAN DOWNEY

	<p>Old Carson Mill Site Eureka, California</p>	<p>Site Location Map</p> <p>SHN 008212.102</p>
<p>July 2013</p>	<p>008212-102-SITE-LCTN</p>	<p>Figure 1</p>

EXPLANATION

- PROPERTY LINE (APPROXIMATE)
- AREA DESIGNATION LINE



NOTES:

1. THIS MAPPING IS NOT A PRODUCT OF A SURVEY.
2. ALL LOCATIONS ARE APPROXIMATE.



Consulting Engineers & Geologists, Inc.

Old Carson Mill Site
1535 Waterfront Drive
Eureka, California

Site Features

SHN 008212.102

June 2012

008212-102-SITE-FEATURE-2012

Figure 2

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1.3 Site History

The former mill site was the location of a Wiyot Tribe village, although the exact location of the village on the parcel is not known (SHN, February 1994). The bay margin area was historically filled for construction of the various commercial activities conducted on the site.

Historically, the former mill site was operated as a redwood lumber mill under a number of different owners and operators, including Dolbeer and Carson, the Pacific Lumber Company, Eureka Redwood Lumber Company, and Simpson Redwood Company. The property was also used by Fuji & Company, Long and Richard, Park Loading Company, Mecca Lumber Company, Bliss and Sons Livestock Company, Halvorsen Industries, Eureka Oyster Farms, and an unnamed truck repair and machine shop.

During the early 1980s, construction of a hotel began and demolition of the remaining mill buildings was completed. Fill material was brought onto the site for grading purposes and a foundation for the hotel was constructed before the project was abandoned (E&E, 2001).

The eastern portion of the site (Figure 2, Area 5) was the location of a foundry operated by the ACME Foundry Company during the late 1800s or early 1900s until it was sold in January 1948 to the Eureka Boiler Works. The property was acquired by Coastwise Industrial Company in July 1952, and their use of the property is unknown. The site buildings and foundations were demolished and an underground storage tank was excavated during the 1970s (E&E, 2001).

In 1994, a Phase I environmental site assessment was performed in accordance with the American Society for Testing and Materials-International guidelines for property transactions (SHN, February 1994). The assessment identified 20 conditions of apparent environmental concern associated with the historical mill and foundry operations at the site (SHN, February 1994). In June 1994, a Phase II soil and groundwater investigation characterized soil and groundwater at the former foundry and former mill sites (SHN, June 1994). Laboratory analytical results of soil and groundwater indicated that metals (cadmium, chromium, nickel, lead, and zinc), and total petroleum hydrocarbons as motor oil (TPHMO) and as diesel (TPHD) were present in samples collected at the site. Analytical results were compared to cleanup levels proposed in the report to identify areas-of-concern and "hot spot" areas-of-concern (SHN, June 1994).

In 2001, a Phase II Brownfields targeted site assessment was conducted on the former foundry and former mill sites by Ecology and Environment, Inc., to address the RWQCB's concerns regarding TPHMO, TPHD, lead, and zinc contamination identified in the 1994 Phase II investigation. This investigation focused sampling efforts on areas-of-concern previously identified in the 1994 Phase II investigation to characterize the depth and magnitude of TPHMO, TPHD, lead, and zinc contamination for site cleanup. Laboratory analytical results confirmed the presence of elevated levels of lead, zinc, TPHMO, TPHD, and polynuclear aromatic hydrocarbons (PAH) in the soil (E&E, 2001).

Remediation of the former foundry area was performed in 2005, and subsequent groundwater monitoring was conducted from October 2005 to April 2007. The 2005 remediation included removing construction debris and excavation and disposal of contaminated soil (SHN, January 2006), followed by four consecutive quarterly groundwater-monitoring events to assess the presence of dissolved lead in groundwater. Dissolved lead was not detected in any of the groundwater samples above the method detection limit during the four quarters of groundwater monitoring (SHN, June 2007). In June 2007, SHN requested no further action for the former foundry area. In a letter dated September 13, 2007, the RWQCB concurred that no further action for the former foundry area would be necessary, but indicated that the entire site (former foundry area

and former mill) would not be closed until all areas identified in the June 1994 Phase II report had been investigated and discharges abated (Appendix A). The monitoring wells at the foundry area were properly destroyed in 2007.

In 2009, at the request of the RWQCB, SHN collected groundwater samples from select locations on the former mill area to determine impacts to groundwater. The results of the work, submitted to the RWQCB in a report dated April 14, 2009, confirmed the presence of elevated levels of TPHMO, TPHD, chromium, lead, and zinc in groundwater at select locations across the site (SHN, April 2009).

In November 2009, SHN submitted a site cleanup plan to the RWQCB (SHN, November 2009). The cleanup plan was approved by the RWQCB in a letter dated April 5, 2010.

In July 2011, SHN supervised Northcoast Environmental Construction, Inc., in the excavation of impacted soils from four areas of the former mill area (SHN, November 2011). On November 15 and 16, 2011, seven groundwater monitoring wells (MW-5 through MW-11) were installed at the mill area (SHN, February 2012). Quarterly monitoring was conducted for one year following well installation.

In the third quarter 2012 groundwater monitoring report (SHN, November 2012), SHN requested regulatory closure of Case No.1NHU330, which was approved in a letter dated March 29, 2013 (Appendix A).

Historical soil and groundwater analytical data for the former mill and former foundry area are presented in Appendix B.

2.0 Contingency Plan

This SGMCP is required to minimize the potential threat of exposure to workers, with regard to the documented contamination left in place and potential contamination outside of the investigation areas. This SGMCP will also outline the necessary actions to be taken in the event that contaminated soil and/or groundwater is encountered during site development activities.

2.1 Locations of Known Contamination

For the purpose of this SGMCP, it should be presumed that contaminated soil and groundwater may be encountered throughout the site.

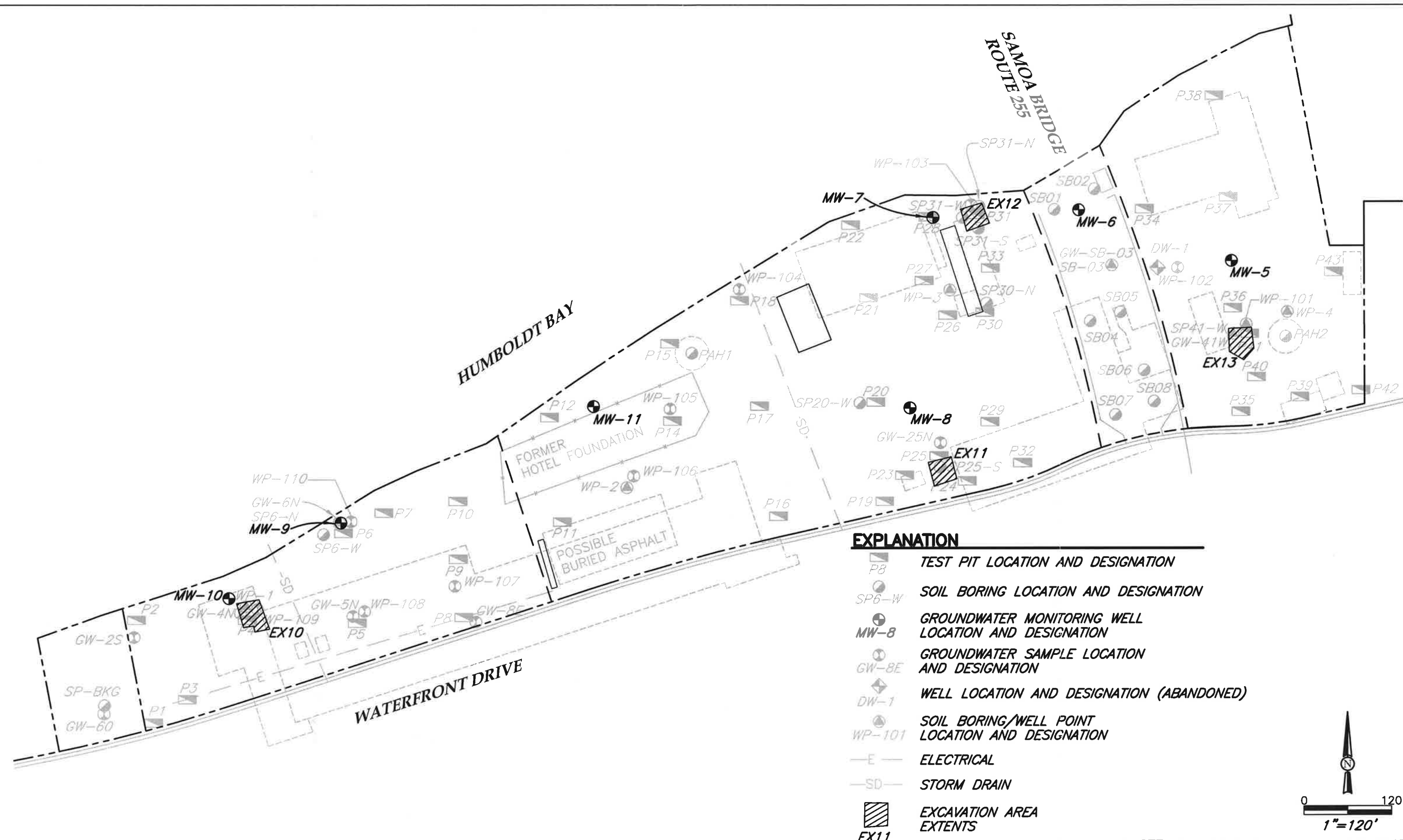
2.2 Type and Magnitude of Known Contamination

Identified contaminants of concern in soil and groundwater at the site consist primarily of TPHMO, TPHD, metals, and PAH.

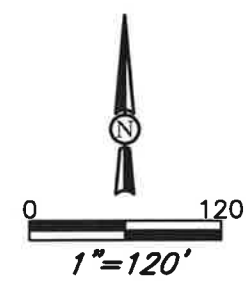
2.2.1 Soil

Soil sampling performed during investigation activities indicates residual soil contamination is present at the site. Historical soil analytical data is included in Appendix B. Soil sampling locations are shown on Figures 3 through 6.

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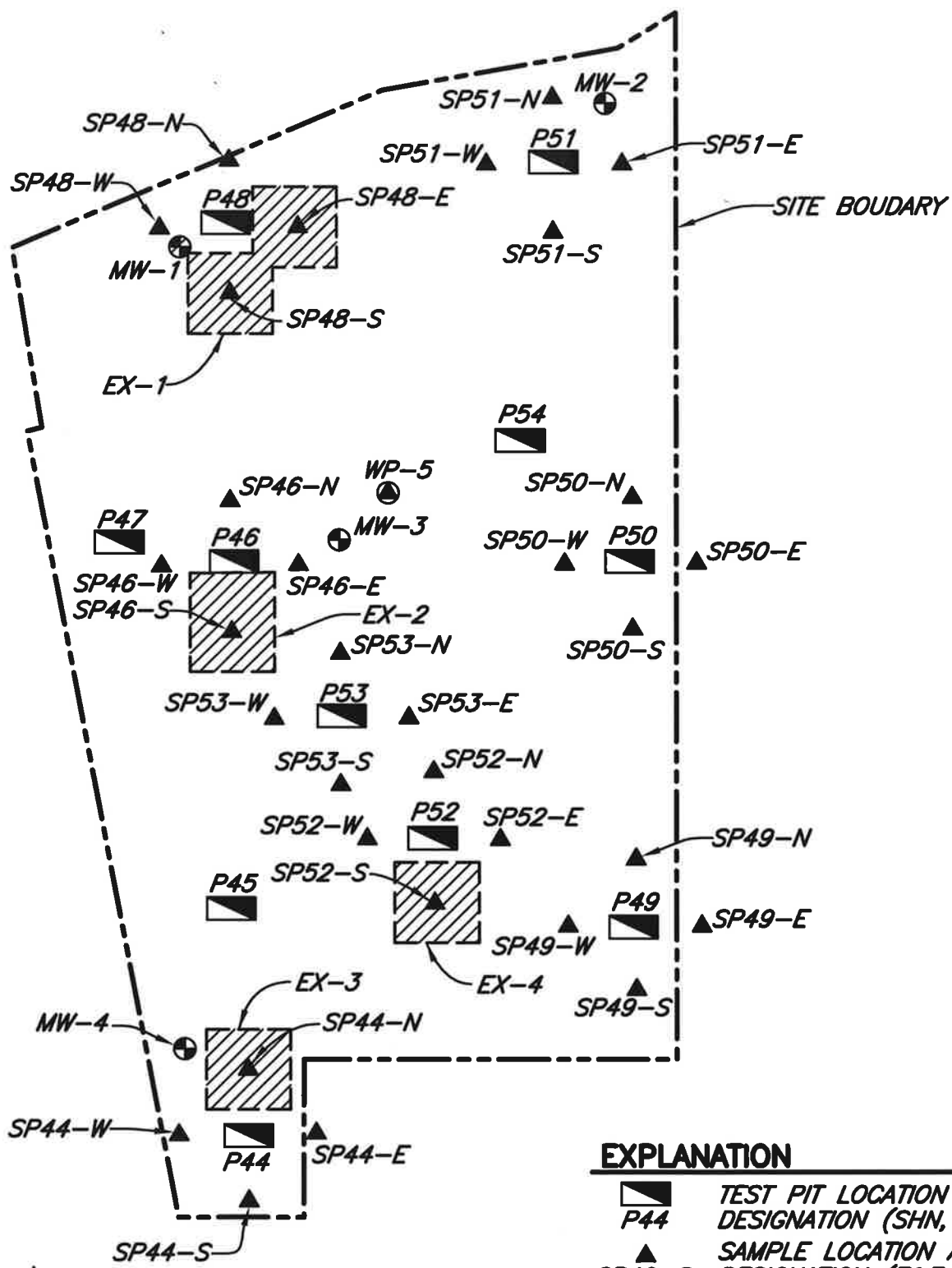
- EXPLANATION**
- P8** TEST PIT LOCATION AND DESIGNATION
 - SP6-W** SOIL BORING LOCATION AND DESIGNATION
 - MW-8** GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
 - GW-8E** GROUNDWATER SAMPLE LOCATION AND DESIGNATION
 - DW-1** WELL LOCATION AND DESIGNATION (ABANDONED)
 - WP-101** SOIL BORING/WELL POINT LOCATION AND DESIGNATION
 - E-** ELECTRICAL
 - SD-** STORM DRAIN
 - EX11** EXCAVATION AREA EXTENTS








BASE MAP FROM SHN, 1994 AND E&E, 2001

NOTE: ALL LOCATIONS ARE APPROXIMATE

 Consulting Engineers & Geologists, Inc.	Old Carson Mill Site Eureka, California	Site Plan- Former Mill Area	
	July 2013	SHN 008212.102	008212-102-SITE-2012
		Figure 3	



EXPLANATION

-  **P44** TEST PIT LOCATION AND DESIGNATION (SHN, 1994)
-  **SP49-S** SAMPLE LOCATION AND DESIGNATION (E&E, 2001)
-  **MW-4** MONITORING WELL LOCATION AND DESIGNATION
-  **MW-4** FORMER TEMPORARY WELLPOINT LOCATION AND DESIGNATION
-  **EX-3** EXCAVATION AREA

NOTE: ALL LOCATIONS ARE APPROXIMATE



Consulting Engineers & Geologists, Inc.

Old Carson Mill Site
Eureka, California

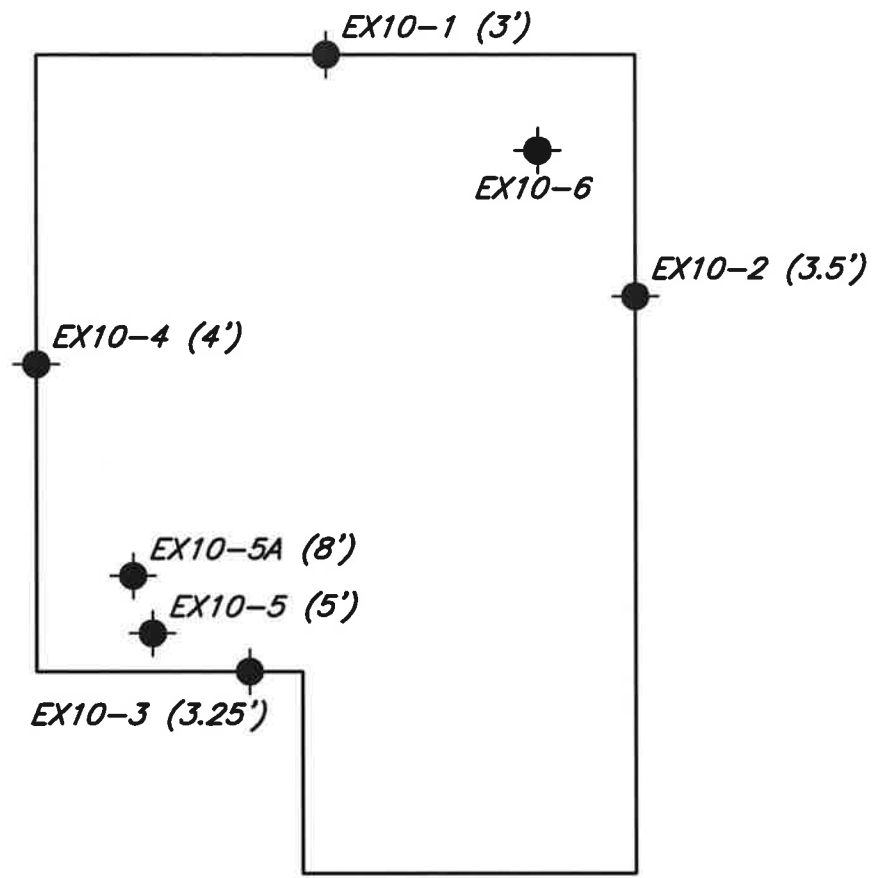
Site Plan-
Former Foundry Area
SHN 008212.102

July 2013

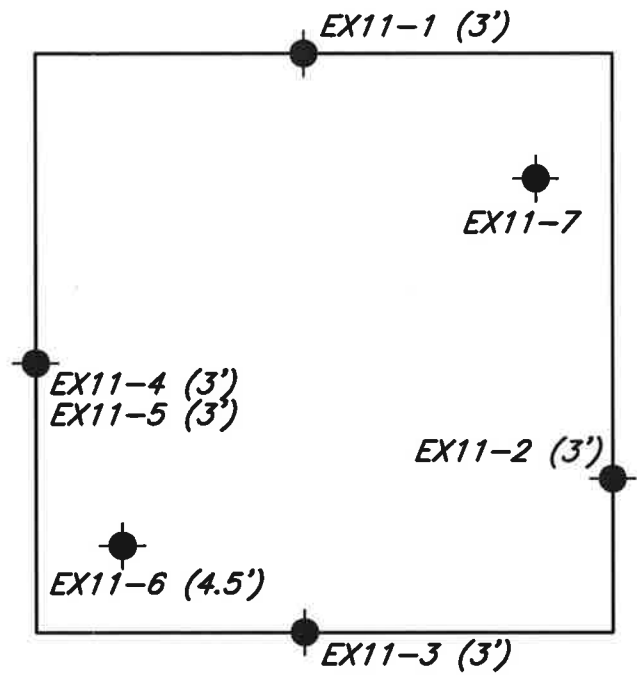
008212-102-SITE-FOUNDRY

Figure 4

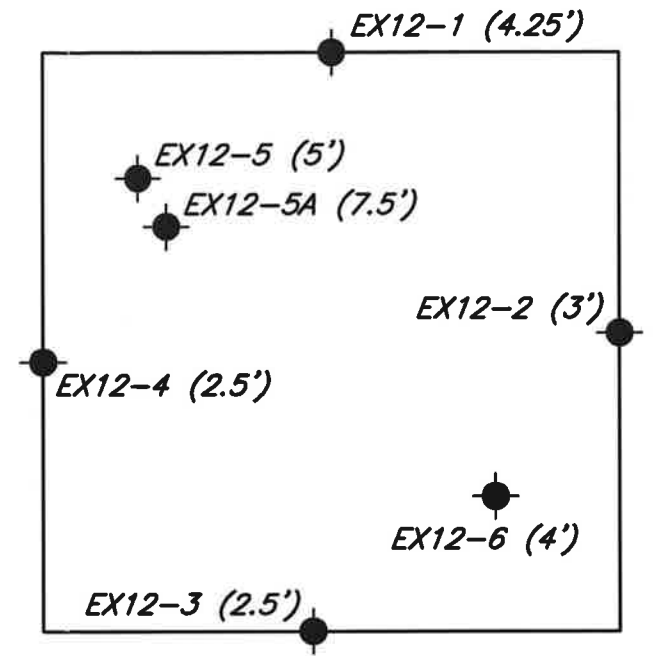
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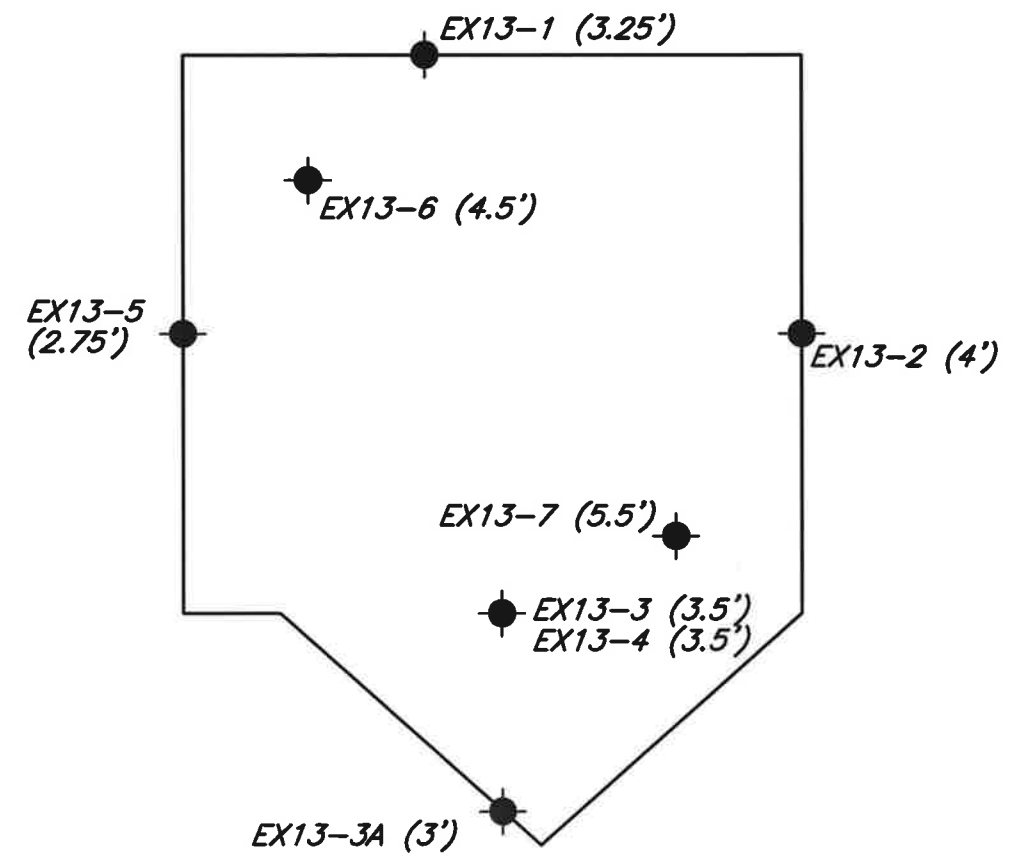
EX10
1"=10'



EX11
1"=10'



EX12
1"=10'



EX13
1"=10'

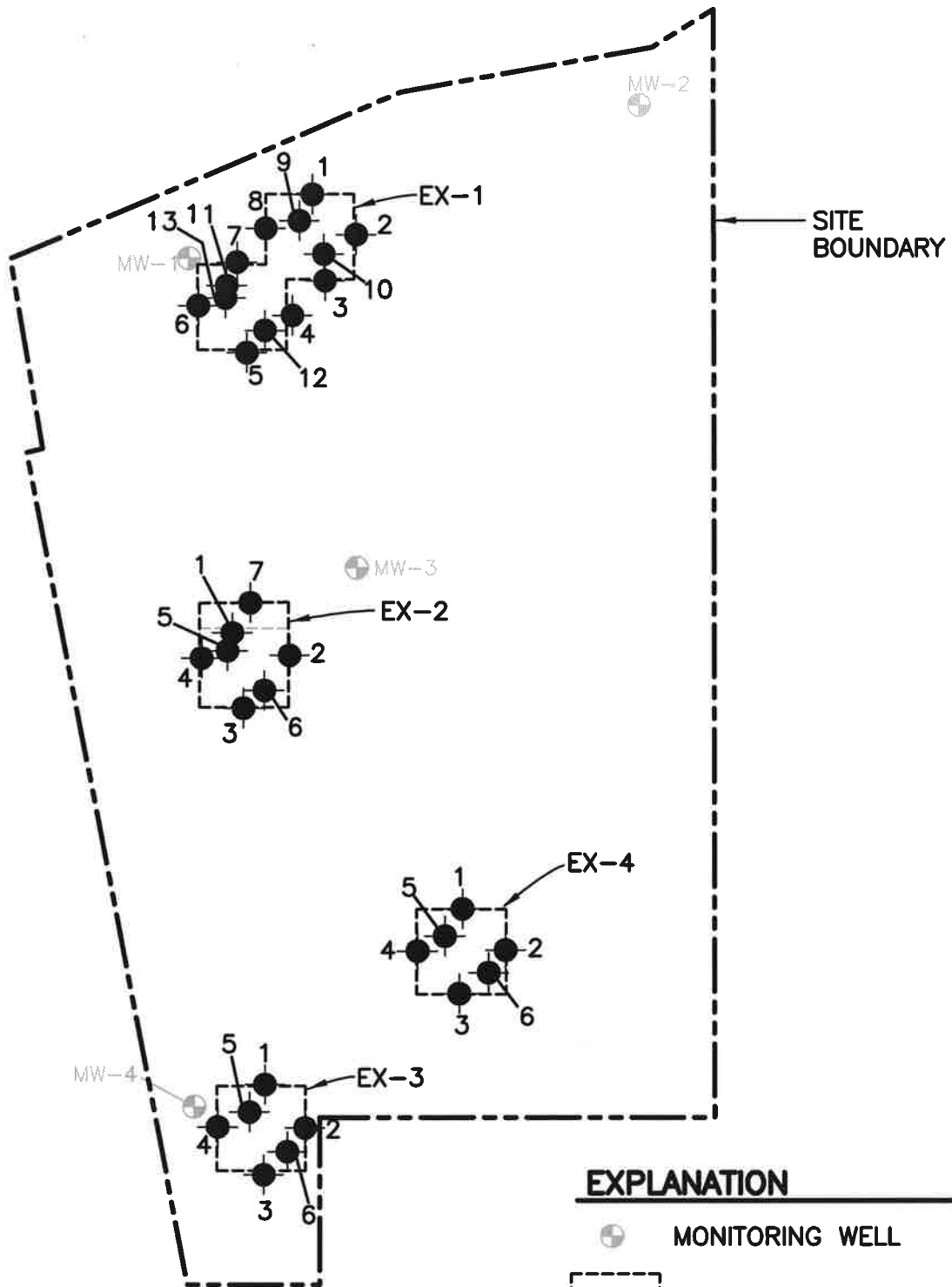
EXPLANATION

 SOIL SAMPLE LOCATION
 AND DESIGNATION AND
 SAMPLE DEPTH (FEET BGS)

NOTE: ALL LOCATIONS ARE APPROXIMATE

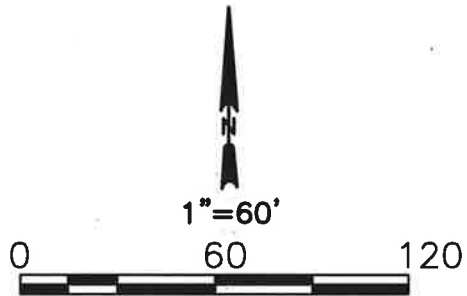
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 Consulting Engineers & Geologists, Inc.	Old Carson Mill Site Eureka, California	Confirmation Soil Sample Locations, July 2011 SHN 008212.100	
	August 2011	008212-100-SOIL-SMPL	Figure 5



EXPLANATION

- MONITORING WELL
- EXCAVATION AREA
- SOIL SAMPLE LOCATION



NOTE: ALL LOCATIONS APPROXIMATE

<p>Consulting Engineers & Geologists, Inc.</p>	<p>Old Carson Mill Former Foundry Eureka, California</p>	<p>Confirmation Soil Sample Locations, September 2005 SHN 008212.102</p>
	<p>July 2012</p>	<p>008212.102-Fndry-Ex.dwg</p>

2.2.2 Groundwater

Contaminants of concern in groundwater include primarily TPHMO, TPHD, chromium, lead, zinc, and PAH. Historical groundwater analytical results are summarized in Appendix B. Groundwater sampling locations are shown on Figures 3 and 4.

2.3 Notifications to be Performed Before Working in Suspected Contaminated Areas

Prior to conducting any subsurface work in the site area, the owner of the property (where work is to be performed) will provide this document to the contractor or employees. The contractor's or employees' site supervisor will read this document and become familiar with the potential hazards associated with working in potentially contaminated areas of the site. The contractor will prepare a site-specific health and safety plan. The site supervisor will conduct a site meeting with all personnel who have the potential of coming in contact with contaminated soil and/or groundwater, at which time he/she will instruct the personnel on the appropriate actions to be taken in the event that subsurface contamination is encountered. Each project worker will receive and read a copy of this document, and will sign a statement as to such before entering the work site. A copy of this document will be kept with the owner and contractor at the site during construction activities that involve excavation and/or trenching.

2.4 Actions to be Taken Before Working in Contaminated Areas

Prior to any subsurface work at the site, workers will review this document and familiarize themselves with the necessary actions to be taken in the event that contamination is encountered. If there is any uncertainty regarding the actions to be taken, the worker will consult the site supervisor prior to project commencement.

2.5 Actions to be Taken Upon Encountering Contaminated Material

If contaminated material is encountered, the site supervisor will be notified as soon as possible. The site supervisor will immediately notify the owner or owner's environmental representative. The owner will notify the appropriate regulatory agency (depending on the environmental issue encountered). The site supervisor will then determine if the workers possess adequate training and proper protective equipment to continue working in the area. Work will not resume until properly trained and equipped workers are present. A hazard analysis must be performed in accordance with a site safety plan to determine the appropriate level of personnel protection.

2.6 Construction Practices to Minimize the Disruption and Potential for Transport of Contaminated Material

Prior to beginning construction in areas where trenching or other earthwork is to be performed, the historical data (Appendix B) and the site maps that detail previous infrastructure and investigation locations (Figure 3 and 4) will be reviewed. If possible, work scheduled for identified contaminated areas will be relocated to minimize the disturbance or removal of contaminated material. If work in identified contaminated zones cannot be avoided, work will be conducted in such a manner that it minimizes the disturbance and removal of contaminated material. If a trench extends into the shallow groundwater, appropriate engineering controls will be placed in the trench backfill to minimize the potential for utility trenches to act as a preferential pathway. All contaminated material will be handled in accordance with the guidelines presented in Section 2.7.

2.7 How to Properly Handle and Dispose of Contaminated Material

Each worker that may come into contact with contaminated material will use the level of protection specified in the health and safety plan and have all the necessary training required. This may include, but is not limited to, chemical resistant gloves, eye protection, a hardhat, and steel-toed chemical resistant boots.

Any suspect or contaminated soil that is encountered and requires removal (such as soil removed during trenching activities) will be moved for temporary stockpiling to a secure area of the site that is away from routine traffic and/or storm drains and is high enough that water will not pond on or around the soil. The soil will be placed and covered with six-millimeter or thicker plastic (Visqueen®), in such a way that the soil pile is protected from water run-on and run-off.

Soil samples will be collected for laboratory analysis from the stockpile using laboratory-supplied containers. The samples will be analyzed for contaminants as required by the appropriate disposal facility. The analytical results of the soil stockpile sample will be used to determine the proper handling and disposal method for the soil. In the event that the soil requires offsite disposal, a contractor licensed to transport such material will be used. The contractor will transport the contaminated soil to a facility that is licensed to accept such soil. All contaminated soil shall be removed from the site according to regulatory requirements for the specific contaminant type and concentrations. Waste manifest documents will be retained as required for the specific contaminant type.

Any suspect or contaminated groundwater that is encountered and requires removal will be pumped into appropriate containers, depending on the volume of water removed. If only a small volume of water is removed, Department of Transportation-approved 55-gallon steel drums may be appropriate. If a large volume of water needs to be removed, a Baker tank or equivalent may be necessary.

The removed water will be sampled for contaminants as required by an appropriate disposal facility to determine the appropriate disposal method. The analytical results of the groundwater sample will be used to determine the proper handling and disposal method for the water. In the event that the water requires treatment and offsite disposal, a contractor licensed to handle such material will transport the material to a facility that is licensed to accept such material for treatment and disposal. Waste manifest documents will be retained as required for the specific contaminant type.

3.0 Limitations

Information regarding environmental contamination in this SGMCP is based on data acquired during subsurface investigations described in Section 1.2. Not all areas of the site have been evaluated for the presence of environmental contamination. This SGMCP does not address issues related to other chemicals or media that may be encountered during subsurface or construction work (such as, but not limited to, unknown contamination from past industrial activity, demolition and construction debris, asbestos-containing materials, or lead-based paint). If such materials are encountered, employees, contractors, and workers are responsible for complying with all applicable laws pertaining to the characterization, handling, and disposal of these materials.

4.0 References Cited

Ecology and Environment, Inc. (January 2001). *Phase II Brownfields Targeted Site Assessment Sampling Results, Old Carson Mill Site, Eureka, California*. San Francisco:E&E.

SHN Consulting Engineers & Geologists, Inc. (February 1994). *Phase I Environmental Site Assessment AP # 02-241-07 and 02-241-11, Waterfront Drive and Front Street, Eureka, California*. Eureka:SHN.

---. (June 1994). *Phase II Soil and Groundwater Investigation, AP # 02-241-07 and 02-241-11, Waterfront Drive and Front Street, Eureka, California*. Eureka: SHN.

---. (January 2006). *Soil Excavation Report of Findings, Old Carson Mill Foundry Site, Foot of S and Front Street, Eureka, California*. SHN:Eureka.

---. (June 2007). *Second Quarter 2007 Groundwater Monitoring Report and Request for No Further Action, Old Carson Mill Foundry Site, Front Street and Waterfront Drive, Eureka, California*. SHN:Eureka.

---. (April 2009). *Site Investigation Report of Findings, Old Carson Mill Site, 1535 Waterfront Drive, Eureka, California*. Eureka: SHN.

---. (November 2009). *Site Cleanup Plan, Old Carson Mill Site, 1535 Waterfront Drive, Eureka, California; Case No. 1NHU330*. Eureka: SHN.

---. (November 2011). *Soil Excavation Report of Findings, Old Carson Mill Site, 1535 Waterfront Drive, Eureka, California; Case No. 1NHU330*. Eureka: SHN.

---. (February 2012). *Monitoring Well Installation and Fourth Quarter 2011 Groundwater Monitoring Report, Old Carson Mill Site, 1535 Waterfront Drive, Eureka, California; Case No. 1NHU330*. Eureka: SHN.

---. (November 2012). *Third Quarter 2011 Groundwater Monitoring Report, Old Carson Mill Site, 1535 Waterfront Drive, Eureka, California; Case No. 1NHU330*. Eureka: SHN.

United States Geological Survey. (NR). Eureka 7.5-Minute Quadrangle. NR:USGS.



**California Regional Water Quality Control Board
North Coast Region
John W. Corbett, 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

September 13, 2007

Gary Bird
City of Eureka
531 K Street
Eureka, CA 95501

Dear Mr. Bird:

Subject: Concurrence with Destruction of Monitoring Wells

File: Samoa Bridge Site (Old Carson Mill), Waterfront at Samoa Bridge,
Eureka, California, Case No. 1NHU330

I reviewed Second Quarter 2007 Groundwater Monitoring Report & Request for No further Action submitted by SHN Consulting Engineers & Geologists, Inc. (SHN) for the former Carson Mill site. I concur with the destruction of the monitoring wells installed for the investigation of lead contaminated soils.

As stated previously, complete case closure of the site we identify as the Samoa Bridge (Old Carson Mill) will not occur until all areas identified in the June 1994 *Phase II Soil and Groundwater Investigation AP# 02-241-07 and 02-241-11* report have been investigated and discharges abated.

I look forward to the working with you in the next phase of site investigation. A workplan needs to be submitted for the remaining area of discharges from the 1994 report. The workplan needs to be submitted by June 1, 2008. Section 13267 of the California Water Code contains the authority for this request.

You may contact me at (707) 576-2673 if you have any questions.

Sincerely,

Kasey Ashley R.G.
Engineering Geologist

091307_KA_kasambr07

cc: David Hull, Humboldt Bay Harbor Recreation and Conservation District,
P.O. Box 1030, Eureka, CA 95502
Susan Penn, Northcoast Environmental Center, 575 H Street, Arcata, CA 95521
Lisa Savage, Property Manager, City of Eureka, 531 K Street, Eureka, CA 95501
Mr. Frans Lowman, SHN Consulting Engineers & Geologists,
812 West Wabash Avenue, Eureka, CA 95501



North Coast Regional Water Quality Control Board

March 29, 2013

Ms. Angi Sorensen
City of Eureka
Engineering Department
531 K Street
Eureka, CA 95501
asorensen@ci.eureka.ca.gov

Dear Ms. Sorensen:

Subject: Concurrence with No Further Action

File: Samoa Bridge Site (Old Carson Mill), Waterfront at Samoa Bridge, Eureka, California, Case No 1NHU330

North Coast Regional Water Board staff reviewed the *Third Quarter 2012 Groundwater Monitoring Report* developed by SHN Consulting Engineers & Geologists for the above referenced site. Staff concurs with the recommendation in the report that no further action (NFA) is necessary. Staff also concurs with the destruction of the inactive supply well and the development of a soil and groundwater management plan.

Toward implementation of NFA there are public noticing requirements that need to be completed. Enclosed is a public notice of proposed NFA for the former site. This public notice will be posted on the Regional Water Board's Internet home page: <http://www.waterboards.ca.gov/northcoast/>.

In addition, you are required to post this notice at the Site and deliver a copy to all adjacent landowners and occupants. You must also deliver a copy of the notice to all agencies with authority to issue building permits for the site. Documentation confirming posting the notice at the Site and delivery of this notice to all above required parties will need to be submitted to my attention at the Regional Water Board's office in Santa Rosa, California. A 30-day public comment period will begin the date this notice is posted on our Internet home page. If the Regional Water Board does not receive significant comments by the end

DAVID M. NOBEN, CHAIR | MATTHEW ST. JOHN, EXECUTIVE OFFICER

5550 Skylane Blvd., Suite A, Santa Rosa, CA 95403 | www.waterboards.ca.gov/northcoast



of the public comment period, you will be requested to properly destroy all monitoring wells and the inactive supply well. If the Regional Water Board does receive significant comments, some additional time will be required to resolve these comments prior to well destruction.

You need to submit documentation concerning the public notice requirements to our agency by April 15, 2013. Section 13267 of the California Water Code contains the authority for this request.

If you have questions regarding the content of this letter, please contact me at (707) 576-2673 or by email to Kasey.Ashley@waterboards.ca.gov.

Sincerely,

Original Signed By

Kasey Ashley P. G.
Senior Engineering Geologist

130329_KSA_ef_kasamoabridge

Enclosure: Public Notice

cc: Roland Ruber, SHN Consulting Engineers & Geologists, Inc., rrueber@shn-engr.com
Mark Verhey, Humboldt County Health Department mverhet@co.humboldt.ca.us

Appendix B

Historical Site Data

Table B-1
Summary of Analytical Results from Soil Collected May 1994
Old Carson Mill, Eureka, California

Sample Location: Sample Date:	P-1 5/9/94	P-2 5/9/94	P-3 5/9/94	P-4 5/9/94	P-5 5/9/94	P-6 5/9/94	P-7 5/9/94	P-8 5/9/94	P-9 5/9/94	P-10 5/9/94	P-11 5/9/94	P-12 5/9/94	P-13 5/9/94	P-14 5/9/94
Volatile Organic Compounds:														
Units: ug/g (ppm), unless noted														
TPHC ¹ - Gasoline	<1.0 ²	<1.0	<1.0	<1.0	10 (a)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
TPHC - diesel ³	10 (b)	6.6 (b)	4.1 (b)	25 (b)	2200 (c)	25 (b)	3.1 (b)	110 (b)	9.3 (d)	2.6 (b)	<1.0	5.5 (b)	5.1 (b)	<1.0
TPHC - motor oil	78	130	38	250	<500	250	34	740	42	22	<1.0	42	67	<1.0
Benzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	<0.005	0.0053	<0.005	0.0067	<0.005	<0.005	<0.005	0.0067	0.0060	<0.005	0.0072	<0.005	<0.005	<0.005
Ethylbenzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
m,p Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
o Xylene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EPA 8010 ⁴	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
EPA 8270 ⁵														
4-Chlorophenyl phenyl ether ⁶	7	--	--	<3,300	--	--	--	--	--	--	--	--	--	--
Pyrene	--	--	--	<3,300	--	--	--	--	--	--	--	--	--	--
Metals:														
Units: mg/kg (ppm) ^{8,9}														
Cadmium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	41	30	54	39	35	34	67	27	37	66	42	32	39	95
Nickel	30	28	30	35	46	29	24	31	28	28	45	36	46	47
Zinc	40	77	43	97	69	54	28	80	35	25	41	43	72	41
Lead ¹⁰	32	98	37	210	50	73	6.7	36	4.0	6.5	4.2	15	56	4.5

[Source: SHN Consulting Engineers & Geologists, Inc., June 1994]

- TPHC: total petroleum hydrocarbons
- <: "less than" the stated method reporting limit
- All diesel results reported represent the amount of material in the diesel range of molecular weights only.
- Volatile Organics from EPA 8010 or EPA 8270 that have not been detected are not listed in the table.
- ug/kg: micrograms per kilogram
- ppb: parts per billion
- : not tested
- mg/kg: milligrams per kilogram
- ppm: parts per million
- The samples containing >20 ppm lead were analyzed by EPA 6010.
- Sample does not have the typical pattern of fresh gasoline. The peak elutes toward the end of the gasoline range. In the analytical laboratory's best judgement the material appears to be a product heavier than gasoline. Due to the differences in the purging efficiency of this heavier material the result may be variable. The result reported represents the amount of material in the gasoline range.
- Sample contains material in the diesel range of molecular weights and beyond. This suggests presence of an oil heavier than diesel. The material reported does not exhibit the peak pattern typical of diesel.
- Sample contains material similar to degraded or weathered diesel oil.
- Sample contains material in the diesel range of molecular weights and beyond. It exhibits the peaks typical of diesel. This indicates the presence of diesel plus an oil heavier than diesel.
- Sample contains material in the diesel range of molecular weights, but the material does not exhibit the peak pattern typical of diesel oil. It may be highly degraded diesel.
- Sample contains material in the diesel range of molecular weight, but the material does not exhibit the peak pattern typical of diesel oil. This sample has a similar pattern to others which indicates a hydrocarbon product similar to fuel oil. This begins in the diesel range and continues through the motor oil range of molecular weights.
- Value is estimated.



Table B-1
Summary of Analytical Results form Soil Collected May 1994
Old Carson Mill Site, Eureka, CA

Sample Location: Sample Date:	P-15 5/9/94	P-16 5/9/94	P-17 5/9/94	P-18 5/9/94	P-19 5/10/94	P-20 5/10/94	P-21 5/10/94	P-22 5/10/94	P-23 5/10/94	P-24 5/10/94	P-25 5/10/94	P-26 5/10/94	P-27 5/10/94	P-28 5/10/94
Volatle Organic Compounds:														
Units: ug/g (ppm), unless noted														
TPHC ¹ - Gasoline	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
TPHC - diesel ³	<1.0	34 (e)	<1.0	<1.0	<1.0	34 (f)	<1.0	<1.0	3.1 (f)	13 (f)	29 (f)	13 (f)	1.9 (c)	<1.0
TPHC - motor oil	<1.0	180	<1.0	<1.0	11	220	<1.0	<1.0	28	80	320	150	<1.0	<1.0
Benzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
m,p Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
o-Xylene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EPA 8010 ⁴	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
EPA 8270 ⁴														
4-Chlorophenyl phenyl ether														
Pyrene														
Metals:														
Units: ng/kg (ppm) ^{5,6}														
Cadmium	<1.0	<1.0	<1.0	<1.0	<1.0	2.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	84	66	66	100	67	48	33	82	60	33	30	46	47	79
Nickel	42	26	30	46	32	43	34	39	35	37	19	47	40	77
Zinc	35	22	130	37	27	750	22	35	34	66	170	74	29	61
Lead ⁶	3.4	3.9	5.9	5.4	6.3	38	<2.0	5.1	5.9	8.5	78	55	3.5	7.3

Source: SHN Consulting Engineers & Geologists, Inc., June 1994)

1. TPHC: Total Petroleum Hydrocarbons
 2. <: "less than" the stated method reporting limit
 3. All diesel results reported represent the amount of material in the diesel range of molecular weights only.
 4. Volatile Organics from EPA 8010 or EPA 8270 that have not been detected are not listed in the table.
 5. ug/kg: micrograms per kilogram
 6. ppb: parts per billion
 7. -: not tested
 8. mg/kg: milligrams per kilogram
 9. ppm: parts per million
 10. The samples containing >20 ppm lead were analyzed by EPA 6010.
- (a) Sample does not have the typical pattern of fresh gasoline. The peak elutes toward the end of the gasoline range. In the analytical laboratory's best judgement the material appears to be a product heavier than gasoline. Due to the differences in the purging efficiency of this heavier material the result may be variable. The result reported represents the amount of material in the gasoline range.
- (b) Sample contains material in the diesel range of molecular weights and beyond. This suggests presence of an oil heavier than diesel. The material reported does not exhibit the peak pattern typical of diesel.
- (c) Sample contains material similar to degraded or weathered diesel oil.
- (d) Sample contains material in the diesel range of molecular weights and beyond. It exhibits the peaks typical of diesel. This indicates the presence of diesel plus an oil heavier than diesel.
- (e) Sample contains material in the diesel range of molecular weights, but the material does not exhibit the peak pattern typical of diesel oil. It may be highly degraded diesel.
- (f) Sample contains material in the diesel range of molecular weight, but the material does not exhibit the peak pattern typical of diesel oil. This sample has a similar pattern to others which indicates a hydrocarbon product similar to fuel oil. This begins in the diesel range and continues through the motor oil range of molecular weights.
- (g) Value is estimated.

Table B-1
Summary of Analytical Results from Soil Collected May 1994
Old Carson Mill Site, Eureka, CA

Sample Location: Sample Date:	P-29 5/10/94	P-30 5/10/94	P-31 5/10/94	P-32 5/10/94	P-33 5/10/94	P-34 5/10/94	P-35 5/10/94	P-36 5/10/94	P-37 5/10/94	P-38 5/11/94	P-39 5/11/94	P-40 5/11/94	P-41 5/11/94	P-42 5/11/94
Volatiles Organic Compounds:														
Units: ug/g (ppm), unless noted														
TPHC ¹ - Gasoline	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.1 (a)	<1.0	<1.0	<1.0	<1.0
TPHC - diesel ³	27 (f)	54(f)	51(f)	<1.0	16(f)	<1.0	<1.0	<1.0	<1.0	15 (f)	<1.0	<1.0	22 (f)	3.7 (f)
TPHC - motor oil	76	980	800	<1.0	120	<1.0	<1.0	<1.0	19	200	63	<1.0	160	50
Benzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
m,p Xylene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
o-Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EPA 8010 ⁴	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EPA 8270 ⁴	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
(Units: ug/kg, ppb)														
4-Chlorophenyl phenyl ether	--	--	--	--	--	--	--	--	--	--	--	--	<330	--
Pyrene	--	--	--	--	--	--	--	--	--	--	--	--	<330	--
Metals:														
Units: mg/kg (ppm) ^{8,9}														
Cadmium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	50	45	55	32	49	78	51	69	81	57	47	92	33	60
Nickel	53	37	59	39	51	83	31	45	71	44	40	36	54	62
Zinc	120	33	86	86	71	71	28	52	53	37	30	36	460	180
Lead ¹⁰	22	5.3	41	12	20	10	6.9	33	4.9	25	7.0	28	170	58

(Source: SHN Consulting Engineers & Geologists, Inc., June 1994)

- TPHC: Total Petroleum Hydrocarbons
- < "less than" the stated method reporting limit
- All diesel results reported represent the amount of material in the diesel range of molecular weights only.
- Volatiles Organics from EPA 8010 or EPA 8270 that have not been detected are not listed in the table.
- ug/kg: micrograms per kilogram
- ppb: parts per billion
- : not tested
- mg/kg: milligrams per kilogram
- ppm: parts per million
- The samples containing >20 ppm lead were analyzed by EPA 6010.
- Sample does not have the typical pattern of fresh gasoline. The peak elutes toward the end of the gasoline range. In the analytical laboratory's best judgement the material appears to be a product heavier than gasoline. Due to the differences in the purging efficiency of this heavier material the result may be variable. The result reported represents the amount of material in the gasoline range.
- Sample contains material in the diesel range of molecular weights and beyond. This suggests presence of an oil heavier than diesel. The material reported does not exhibit the peak pattern typical of diesel.
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- Sample contains material in the diesel range of molecular weights and beyond. It exhibits the peaks typical of diesel. This indicates the presence of diesel plus an oil heavier than diesel.
- Sample contains material in the diesel range of molecular weights, but the material does not exhibit the peak pattern typical of diesel oil. It may be highly degraded diesel.
- Sample contains material in the diesel range of molecular weight, but the material does not exhibit the peak pattern typical of diesel oil. This sample has a similar pattern to others which indicates a hydrocarbon product similar to fuel oil. This begins in the diesel range and continues through the motor oil range of molecular weights.
- Value is estimated.

**Table B-1
Summary of Analytical Results form Soil Collected May 1994
Old Carson Mill Site, Eureka, CA**

Sample Location: Sample Date:	P-43 5/11/94	P-44 5/11/94	P-45 5/11/94	P-46 5/11/94	P-47 5/11/94	P-48 5/11/94	P-49 5/11/94	P-50 5/11/94	P-51 5/11/94	P-52 5/11/94	P-53 5/11/94	P-54 5/11/94
Volatle Organic Compounds:												
Units: ug/g (ppm), unless noted												
TPHC ¹ - Gasoline	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
TPHC - diesel ³	<1.0	12	3.7 (f)	20(f)	1.2(f)	68(f)	110(f)	18(f)	16 (f)	<1.0	1.2 (f)	<1.0
TPHC - motor oil	<1.0	84	21	200	27	430	1400	180	180	12	16	<1.0
Benzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
m,p Xylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
o Xylene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
EPA 8010 ⁴	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
EPA 8270 ⁵	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
4-Chlorophenyl phenyl ether												
Pyrene												
Metals:												
Units: mg/kg (ppm) ^{6,9}												
Cadmium	<1.0	<1.0	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	34	17	23	27	5.7	32	57	41	43	31	43	32
Nickel	35	22	11	140	6.7	35	52	46	37	26	23	30
Zinc	24	200	210	890	130	260	170	65	530	220	450	49
Lead ¹⁰	3.5	170	55	260	60	620	220	120	470	180	390	31

Source: SHN Consulting Engineers & Geologists, Inc., June 1994)

- TPHC: total petroleum hydrocarbons
- <: "less than" the stated method reporting limit
- All diesel results reported represent the amount of material in the diesel range of molecular weights only.
- Volatle organics from EPA 8010 or EPA 8270 that have not been detected are not listed in the table.
- ug/kg: micrograms per kilogram
- ppb: parts per billion
- : not tested
- mg/kg: milligrams per kilogram
- ppm: parts per million
- The samples containing >20 ppm lead were analyzed by EPA 6010.
- Sample does not have the typical pattern of fresh gasoline. The peak elutes toward the end of the gasoline range. In the analytical laboratory's best judgement the material appears to be a product heavier than gasoline. Due to the differences in the purging efficiency of this heavier material the result may be variable. The result reported represents the amount of material in the gasoline range.
- Sample contains material in the diesel range of molecular weights and beyond. This suggests presence of an oil heavier than diesel. The material reported does not exhibit the peak pattern typical of diesel.
- Sample contains material similar to degraded or weathered diesel oil.
- Sample contains material in the diesel range of molecular weights and beyond. It exhibits the peaks typical of diesel. This indicates the presence of diesel plus an oil heavier than diesel.
- Sample contains material in the diesel range of molecular weights, but the material does not exhibit the peak pattern typical of diesel oil. It may be highly degraded diesel.
- Sample contains material in the diesel range of molecular weight, but the material does not exhibit the peak pattern typical of diesel oil. This sample has a similar pattern to others which indicates a hydrocarbon product similar to fuel oil. This begins in the diesel range and continues through the motor oil range of molecular weights.
- Value is estimated.

Table B-2
Summary of Analytical Results from Groundwater Collected May 1994
Old Carson Mill, Eureka, California

Sample Location: Sample Date:	WP-1 5/13/94	WP-2 5/13/94	WP-3 5/13/94	WP-4 5/13/94	WP-5 5/13/94	DW-1 5/13/94
Volatile Organic Compounds:						
Units: ug/L¹ (ppb)²						
TPHC ³ - Gasoline	<50 ⁴	<50	<50	<50	<50	<50
TPHC - diesel ⁵	<50	1,600 (a)	<50	<50	<50	80 (a)
TPHC - motor oil	<500	<500	<500	<500	580	<500
Benzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	<0.5	<0.5	0.62	<0.5	<0.5	<0.5
Ethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m,p Xylene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
o Xylene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EPA 8010 ⁶	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
General Quality Parameters:						
Units: as noted						
pH (units) ⁷	6.75	6.78	-- ⁸	8.66	7.31	8.39
Conductivity (umhos/cm) ⁹	3740	2280	--	3050	1874	161
Temperature (°F) ¹⁰	59.3	62.2	--	63.3	59.4	59.1

(Source: SHN Consulting Engineers & Geologists, Inc., June 1994)

1. ug/L: micrograms per liter
 2. ppb: parts per billion
 3. TPHC: total petroleum hydrocarbons
 4. <: "Less than" the stated method reporting limit
 5. All diesel results reported represent the amount of material in the diesel range of molecular weights only.
 6. Volatile Organics from EPA 8010 that have not been detected are not listed in the table.
 7. pH, conductivity, and temperature recorded during sample collection.
 8. --: Insufficient amount of sample
 9. umhos/cm: micromhos per centimeter
 10. °F: degrees Fahrenheit
- (a) Sample contains material in the diesel range, but the material does not exhibit the peak pattern typical of diesel oil.

Table B-3
Groundwater Analytical Results, February 2009
Old Carson Mill, Eureka, California
(in ug/L)¹

Sample Location	Sample Data	TPHMO ²		TPHD ²		Dissolved Chromium ³	Dissolved Lead ³	Dissolved Zinc ³
		pre	post	pre	post			
WP-101	2/11/2009	-- ⁴	--	--	--	1,000	270	970
WP-102	2/11/2009	430 ⁵	290 ⁵	100 ⁶	81 ⁶	--	--	--
WP-103	2/11/2009	180 ⁵	<170 ⁷	<50	<50	--	--	--
WP-104	2/12/2009	--	--	--	--	52	--	51
WP-105	2/12/2009	--	--	--	--	63	--	--
WP-106	2/12/2009	1,300 ⁵	780 ⁵	84 ⁶	93 ⁶	--	--	--
WP-107	2/12/2009	430	290	110 ⁶	110	--	--	--
WP-108	2/12/2009	<170	<170	60 ⁸	65 ⁹	--	49	--
WP-109	2/12/2009	23,000 ⁵	19,000 ¹⁰	7,800 ⁶	8,500 ⁶	--	<5.0	<10
WP-110	2/12/2009	320 ⁵	250 ⁵	52 ⁶	58 ⁶	--	--	--

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 (Pre & post silica gel results are shown)
3. Dissolved chromium, lead, and zinc in general accordance with EPA Method No. 200.8 Rev. 5.4
4. --: not analyzed
5. Sample does not have the typical pattern of fresh motor oil. Some of this material appears to be heavier than motor oil; however, the results reported represent the amount of material in the motor oil range.
6. Sample contains material in the diesel range of molecular weights and beyond. This suggests the presence of oil heavier than diesel.
7. <: "less than" the stated method reporting limit
8. Contains material similar to degraded or weathered diesel oil.
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. Sample does not have the typical pattern of fresh motor oil; however, the results reported represent the amount of material in the motor oil range.

Table B-4
 Polynuclear Aromatic Hydrocarbons¹-Soil Analytical Results, July 2011
 Old Carson Mill, Eureka, California
 (in ug/kg)²

Sample ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b,k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
Soil screening levels ³		16,000	13,000	2,800	1,300	130	1,300	27,000	23,000	210	40,000	8,900	2,100	2,800	11,000	85,000
EX10-1	7/6/2011	<25 ⁴	<25	30	67	65	71	26	59	<25	190	<25	32	<25	130	150
EX10-2	7/6/2011	<25	<25	<25	80	99	130	55	78	<25	120	<25	49	<25	65	160
EX10-3	7/6/2011	<25	<25	<25	76	79	140	45	67	<25	160	<25	47	<25	87	140
EX10-4	7/6/2011	<25	<25	<25	45	44	61	<25	42	<25	68	<25	<25	<25	62	84
EX10-5	7/12/2011	<25	36	51	420	400	520	130	520	29	800	66	110	56	370	930
EX10-6	7/6/2011	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
EX11-1	7/7/2011	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
EX11-2	7/7/2011	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
EX11-3	7/7/2011	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
EX11-4	7/7/2011	<25	<25	<25	43	37	<50	25	37	<25	75	<25	<25	<25	<25	59
EX11-5 (duplicate of EX11-4)	7/7/2011	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
EX11-6	7/7/2011	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
EX11-7	7/7/2011	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
EX12-1	7/7/2011	<25	<25	<25	53	85	78	110	54	<25	160	28	67	110	110	160
EX12-2	7/7/2011	<25	<25	<25	40	46	79	65	40	<25	54	<25	50	<25	<25	49
EX12-3	7/7/2011	<25	<25	<25	64	39	77	51	110	<25	66	<25	36	<25	47	42
EX12-4	7/7/2011	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	30	<25
EX12-5	7/7/2011	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
EX12-5A	7/19/2011	<25	<25	<25	<25	<25	<50	<25	31	<25	97	<25	<25	86	49	100
EX12-6	7/7/2011	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
EX13-1	7/7/2011	<25	34	<25	71	65	100	87	85	<25	260	<25	40	190	180	230
EX13-2	7/7/2011	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
EX13-3	7/7/2011	<100	<100	650	5,400	4,000	5,900	2,500	3,700	1,300	8,600	<100	2,400	<100	1,800	6,700
EX13-3A	7/19/2011	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
EX13-4 (Duplicate of EX13-3)	7/7/2011	<25	<25	<25	150	170	170	120	130	<25	290	<25	110	<25	85	230
EX13-5	7/7/2011	<25	<25	<25	<25	<25	<50	27	<25	<25	33	<25	<25	35	34	29
EX13-6	7/7/2011	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
EX13-7	7/7/2011	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25

1. Polynuclear aromatic hydrocarbons analyzed in general accordance with EPA Method No. SW8270C
 2. ug/kg: micrograms per kilogram
 3. Soil screening levels were published in the SCP (SHIN, November 2009).
 4. <: "less than" the stated method reporting limit

Table B-5
Tar Paper/Shingle TCLP¹ Analytical Results, July 7, 2011
Old Carson Mill, Eureka, California
(in ug/L², unless otherwise noted)

Constituent	EX-10 Tar Paper
Total Petroleum Hydrocarbons	
TPHMO-E ³ (mg/L) ⁴	0.97
TPHD-E ³ (mg/L)	0.41
Semi-Volatile Organic Compounds⁵	
Acenaphthene	<0.16 ⁶
Acenaphthylene	0.41
Anthracene	0.23
Benzo(a)anthracene	1.4
Benzo(a)pyrene	3.4
Benzo(b&k)fluoranthene	2.6
Benzo(g,h,i)perylene	2.2
Chrysene	2.1
Dibenz(a,h)anthracene	<0.16
Fluoranthene	4
Fluorene	0.19
Indeno(1,2,3-cd)pyrene	1.8
Naphthalene	0.22
Phenanthrene	1.9
Pyrene	6.6

1. TCLP: toxicity characteristic leaching procedure. Performed using de-ionized water as the leachate.
2. ug/L: micrograms per liter
3. Total petroleum hydrocarbons as motor oil (TPHMO)-extractable and as diesel (TPHD)-extractable analyzed in general accordance with EPA Method No. SW8015B.
4. mg/L: milligrams per liter
5. Semi-volatile organic compounds analyzed in general accordance with EPA Method No. SW8270C.
6. <: "less than" the stated method reporting limit

Table B-6
Petroleum Hydrocarbons & Metals-Soil Analytical Results, July 2011
Old Carson Mill, Eureka, California
(in mg/kg)¹

Sample ID	Sample Date	Petroleum Hydrocarbons		Metals ²		
		TPHMO ³	TPHD ³	Lead	Zinc	Chromium
Soil screening levels⁴		2,500	83	320	100,000	450⁵
EX10-1	7/6/2011	150 ⁶	16 ⁷	56	55	38
EX10-2	7/6/2011	86 ⁸	2.9 ⁷	48	90	64
EX10-3	7/6/2011	470 ⁶	36 ⁷	95	86	36
EX10-4	7/6/2011	70 ⁶	12 ⁷	68	80	40
EX10-5	7/6/2011	720 ⁶	63 ⁷	66	71	39
EX10-6	7/6/2011	28 ⁸	1.1 ⁹	19	49	45
EX11-1	7/7/2011	20 ⁶	1.2 ⁷	<10 ¹⁰	21	37
EX11-2	7/7/2011	14 ⁶	1.1 ⁷	30	210	39
EX11-3	7/7/2011	<10	1.2 ⁹	<10	21	40
EX11-4	7/7/2011	<10	<1.0	<10	20	34
EX11-5 (Duplicate of EX11-4)	7/7/2011	<10	<1.0	<10	20	36
EX11-6	7/7/2011	140 ⁶	24 ⁷	27	68	60
EX11-7	7/7/2011	<10	<1.0	<10	40	53
EX12-1	7/7/2011	<10	1.6 ⁹	15	60	75
EX12-2	7/7/2011	46 ⁶	4.8 ⁷	19	60	73
EX12-3	7/7/2011	64 ⁶	9.0 ⁷	21	64	38
EX12-4	7/7/2011	40 ⁸	3.6 ⁷	18	65	74
EX12-5	7/7/2011	28	260 ⁹	13	57	72
EX12-5A	7/19/2011	41 ¹¹	13 ^{9,11}	16	60	67
EX12-6	7/7/2011	<10	2.2 ⁹	13	48	64
EX13-1	7/7/2011	320 ⁶	29 ⁷	81	200	38
EX13-2	7/7/2011	39 ⁶	4.3 ⁷	110	850	38
EX13-3	7/7/2011	200 ⁶	15 ⁷	59	200	67
EX13-3A	7/19/2011	<10	<1.0	<10	31	49
EX13-4 (Duplicate of EX13-3)	7/7/2011	56 ⁶	5.2 ⁷	69	310	66
EX13-5	7/7/2011	<10	<1.0	44	120	47
EX13-6	7/7/2011	<10	1.1 ⁹	<10	31	47
EX13-7	7/7/2011	<10	1.4 ⁹	<10	26	54

1. mg/kg: milligrams per kilogram
2. Metals analyzed in general accordance with EPA Method No. 6010B
3. Total petroleum hydrocarbons as motor oil (TPHMO) and as diesel (TPHD) analyzed in general accordance with EPA Method No. 8015B
4. Soil screening levels were published in the SCP (SHN, November 2009), unless noted.
5. Screening level from EPA preliminary remediation goals, October 2004
6. 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.
7. The sample does not have the typical pattern of fresh diesel. The material is the lighter portion of the motor oil range.
8. 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.
9. The sample contains material in the diesel range of molecular weights, but the material does not exhibit the peak pattern typical of diesel oil.
10. <: "less than" the stated method reporting limit
11. Samples were passed through a silica gel column.

Table B-7
Petroleum Hydrocarbons & Metals-Soil Analytical Results, November 15 & 16, 2011
Old Carson Mill, Eureka, California
(in mg/kg)¹

Sample ID & Depth (feet BGS) ²	Petroleum Hydrocarbons		Metals ³		
	TPHMO ⁴	TPHD ⁴	Chromium	Lead	Zinc
Soil screening levels⁵	2,500	83	450⁶	320	100,000
MW-5@4.0	39	2.3 ⁷	28	38	49
MW-5@10.0	<10 ⁸	1.3 ⁹	61	12	54
MW-6@4.0	13	1.7	16	800	240
MW-6@10.0	<10	<1.0	63	11	56
MW-7@4.0	<10	1.5 ⁹	65	11	55
MW-7@10.0	<10	<1.0	59	<10	47
MW-8@4.0	<10	4.0 ¹⁰	26	11	47
MW-8@10.0	<10	1.3 ⁸	62	11	51
MW-9@4.0	<10	<1.0	32	<10	17
MW-9@10.0	38	6.1 ⁷	63	15	53
MW-10@4.0	30	1.3 ⁷	33	17	26
MW-10@12.0	<10	1.6 ⁹	55	<10	45
MW-11@4.0	<10	<1.0	43	17	66
MW-11@10.0	12	2.8 ⁹	66	14	56
MW-A@4.0 ¹¹	27	2.9 ⁷	30	17	28

1. mg/kg: milligrams per kilogram
2. BGS: below ground surface
3. Metals analyzed in general accordance with EPA Method No. 6010B
4. Total petroleum hydrocarbons as motor oil (TPHMO) and as diesel (TPHD) analyzed in general accordance with EPA Method No. 8015B. Samples containing material were passed through a silica gel column.
5. Soil screening levels were published in the SCP (SHN, November 2009), unless noted.
6. screening level from EPA Preliminary Remediation Goals, October 2004
7. The sample does not have the typical pattern of fresh diesel. The material is the lighter portion of the motor oil range.
8. <: "less than" the stated method reporting limit
9. The sample contains material in the diesel range of molecular weights, but the material does not exhibit the peak pattern typical of diesel oil.
10. The sample contains material similar to degraded or weathered diesel oil.
11. Duplicate sample of MW-10 @ 4.0

Table B-8

Polynuclear Aromatic Hydrocarbons¹-Soil Analytical Results, November 15 & 16, 2011

Old Carson Mill, Eureka, California

(in ug/kg)²

Sample ID & Depth (feet BGS ³)	Acenaph- thene	Acenaph- thylene	Anthra- cene	Benzo(a)- anthracene	Benzo(a)- pyrene	Benzo (b&k)-fluor- anthene	Benzo (g,h,i)- perylene	Chry- sene	Dibenz (a,h)- anthra-cene	Fluoran- thene	Fluor- ene	Indeno (1,2,3-cd)- pyrene	Naph- tha- lene	Phenan- threne	Pyrene
Soil screening levels ⁴	16,000	13,000	2,800	1,300	130	1,300	27,000	23,000	210	40,000	8,900	2,100	2,800	11,000	85,000
MW-5@4.0	<25 ⁵	<25	<25	<25	<25	<50	<25	<25	<25	27	<25	<25	46	<25	25
MW-5@10.0	<25	<25	34	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	31	<25
MW-6@4.0	<25	<25	<25	<25	<25	<50	29	<25	<25	31	<25	34	33	28	<25
MW-6@10.0	<25	<25	47	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	42	<25
MW-7@4.0	<25	<25	<25	<25	<25	<50	<25	<25	<25	27	<25	<25	<25	46	33
MW-7@10.0	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	29	<25
MW-8@4.0	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
MW-8@10.0	<25	<25	55	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	52	<25
MW-9@4.0	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
MW-9@10.0	<25	<25	<25	<25	<25	<50	<25	<25	<25	49	<25	<25	89	56	55
MW-10@4.0	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
MW-10@12.0	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25
MW-11@4.0	<25	<25	43	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	40	<25
MW-11@10.0	<25	<25	<25	<25	<25	<50	<25	32	<25	49	<25	<25	<25	65	55
MW-A@4.0 ⁶	<25	<25	<25	<25	<25	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25

1. Polynuclear aromatic hydrocarbons analyzed in general accordance with EPA Method No. SW8270C

2. ug/kg; micrograms per kilogram

3. BGS: below ground surface

4. Soil screening levels were published in the SCP (SHN, November 2009).

5. <: "less than" the stated method reporting limit

6. Duplicate sample of MW-10@4.0

Table B-9 Well Construction Details Old Carson Mill, Eureka, California							
Sample Location	Date Installed	Total Depth of Well (feet BTOC) ¹	Casing Material	Screen Slot Size (inches)	Screened Interval (feet BGS) ²	Sand Interval (feet BGS)	Sanitary Seal (feet BGS)
MW-5	11/15/2011	15.44	1.5-inch Schedule 40 PVC ³	0.010	6-16	5-16	1-5
MW-6	11/15/2011	15.57		0.010	6-16	5-16	1-5
MW-7	11/15/2011	16.08		0.010	6-16	5-16	1-5
MW-8	11/15/2011	15.70		0.010	6-16	5-16	1-5
MW-9	11/16/2011	15.80		0.010	6-16	5-16	1-5
MW-10	11/16/2011	15.80		0.010	6-16	5-16	1-5
MW-11	11/15/2011	15.70		0.010	6-16	5-16	1-5

1. BTOC: below top of casing

2. BGS: below ground surface, depths are approximate

3. PVC: polyvinyl chloride



Table B-10
Historical Groundwater Elevations
Old Carson Mill, Eureka, California

Sample Location	Sample Date	Top of Casing Elevation¹ (feet)	Depth-to-Water² (feet)	Groundwater Elevation¹ (feet)
MW-5	11/21/2011	10.82	4.45	6.37
	2/9/2012		4.43	6.39
	5/8/2012		4.41	6.41
	8/27/2012		4.68	6.14
MW-6	11/21/2011	10.36	4.95	5.41
	2/9/2012		4.79	5.57
	5/8/2012		4.83	5.53
	8/27/2012		5.09	5.27
MW-7	11/21/2011	9.78	5.35	4.43
	2/9/2012		4.93	4.85
	5/8/2012		3.43	6.35
	8/27/2012		6.14	3.64
MW-8	11/21/2011	9.72	3.53	6.19
	2/9/2012		2.68	7.04
	5/8/2012		3.90	5.82
	8/27/2012		4.41	5.31
MW-9	11/21/2011	9.79	2.90	6.89
	2/9/2012		4.25	5.54
	5/8/2012		4.29	5.50
	8/27/2012		4.23	5.56
MW-10	11/21/2011	10.56	4.55	6.01
	2/9/2012		4.39	6.17
	5/8/2012		4.31	6.25
	8/27/2012		4.59	5.97
MW-11	11/21/2011	9.87	3.78	6.09
	2/9/2012		3.78	6.09
	5/8/2012		3.76	6.11
	8/27/2012		4.00	5.87

1. Referenced to North American Vertical Datum, 1988
2. Below top of casing

Table B-11
Historical Tide Conditions
Old Carson Mill, Eureka, California¹

Sample Date	Tide (time)²	Recorded Tide (feet)³	Tide (High or Low)
11/21/2011	7:48 a.m. ⁴	7.23	High
2/9/2012 ⁵	6:24 a.m.	1.57	Low
	12:36 p.m. ⁶	7.11	High
5/8/2012 ⁵	8:12 a.m.	-2.36	Low
	3:12 p.m.	5.51	High
8/27/2012 ⁵	11:42 a.m.	5.75	High
	5:06 p.m.	1.99	Low

1. Tide reference location from Humboldt Bay, North Spit, California
2. Pacific Daylight Time
3. Tide reference elevation to North American Vertical Datum
4. a.m.: ante meridian
5. Groundwater elevations were collected during an incoming tide.
6. p.m.: post meridian

Table B-12
Historical Petroleum Hydrocarbons & Metals-Groundwater Analytical Results
Old Carson Mill, Eureka, California
(in ug/L)¹

Sample Location	Sample Date	Petroleum Hydrocarbons		Metals ²		
		TPHMO ³	TPHD ³	Chromium	Lead	Zinc
MW-5	11/22/2011	<170 ⁴	<50	12	<5.0	<10
	2/9/2012	<170	<50	9.0	<5.0	<10
	5/8/2012	<170	<50	15	<5.0	<10
	8/27/2012	<170	<50	<1.00	<1.00	17.8
MW-6	11/22/2011	<170	<50	7.3	<5.0	19
	2/9/2012	<170	<50	<5.0	<5.0	<10
	5/8/2012	<170	<50	6.9	<5.0	<10
	8/27/2012	<170	<50	<5.00	<5.00	<25.0
DUP (MW-6)	2/9/2012	<170	<50	<5.0	<5.0	<10
	5/8/2012	<170	<50	12	<5.0	<10
	8/27/2012	<170	<50	<5.00	<5.00	<25.0
MW-7	11/22/2011	<170	<50	32	<5.0	12
	2/9/2012	<170	<50	18	<5.0	<10
	5/9/2012	<170	<50	29	<5.0	<10
	8/28/2012	<170	<50	5.27	1.13	6.55
MW-8	11/22/2011	<170	<50	18	<5.0	<10
	2/9/2012	<170	<50	<5.0	<5.0	<10
	5/8/2012	<170	<50	9.3	<5.0	<10
	8/28/2012	<170	<50	2.92	<1.00	17.0
MW-9	11/21/2011	<170	<50	14	<5.0	<10
	2/9/2012	<170	<50	7.8	<5.0	<10
	5/8/2012	<170	<50	14	<5.0	<10
	8/27/2012	<170	<50	2.04	1.19	8.35
DUP (MW-9)	11/21/2011	<170	<50	12	<5.0	<10
MW-10	11/21/2011	<170	<50	22	<5.0	<10
	2/9/2012	<170	<50	11	<5.0	<10
	5/8/2012	<170	<50	14	<5.0	<10
	8/27/2012	<170	<50	13.0	<5.00	35.3
MW-11	11/22/2011	<170	<50	17	<5.0	<10
	2/9/2012	<170	<50	9.0	<5.0	<10
	5/8/2012	<170	<50	13	<5.0	<10
	8/27/2012	<170	<50	<5.00	<5.00	59.9

1. ug/L: micrograms per liter
2. Dissolved metals analyzed in general accordance with EPA Method No. 6010B or 200.8
3. Total petroleum hydrocarbons as motor oil (TPHMO) and as diesel (TPHD) analyzed in general accordance with EPA Method No. 3511/8015B. Samples containing material were passed through a silica gel column.
4. <: "less than" the stated method reporting limit

Table B-13
 Historical Polynuclear Aromatic Hydrocarbons¹-Groundwater Analytical Results
 Old Carson Mill, Eureka, California
 (in ug/L)²

Sample Location	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b&k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
MW-5	11/22/2011	<0.020 ³	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.025	<0.020	<0.020
	2/9/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	5/8/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	8/27/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
MW-6	11/22/2011	0.57	0.20	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	0.15	<0.020	0.15	0.031	<0.020
	2/9/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	5/8/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	8/27/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
DUP (MW-6)	2/9/2012	0.021	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	5/8/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	8/27/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	11/22/2011	0.041	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.024	<0.020	<0.020
MW-7	2/9/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	5/9/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	8/28/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	11/22/2011	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.022	<0.020	<0.020
MW-8	2/9/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	5/8/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	8/28/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	11/21/2011	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.021	<0.020	<0.020
MW-9	2/9/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	5/8/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	8/27/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	11/21/2011	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
DUP (MW-9)	11/21/2011	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	11/21/2011	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.022	<0.020	<0.020
	2/9/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	5/8/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
MW-10	8/27/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	11/22/2011	0.027	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	0.031	<0.020	<0.020	<0.020
	2/9/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.029	<0.020	<0.020
	5/8/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
MW-11	8/27/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	11/22/2011	0.027	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	2/9/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	5/8/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
DUP (MW-11)	8/27/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	11/21/2011	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
	11/21/2011	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.022	<0.020	<0.020
	2/9/2012	<0.020	<0.020	<0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020

1. Polynuclear aromatic hydrocarbons analyzed in general accordance with EPA Method No. SW8270C-SIM
 2. ug/L; micrograms per liter
 3. <: "less than" the stated method reporting limit

Table B-14
Historical DO, DCO₂, and ORP Measurement Results
Old Carson Mill, Eureka, California

Sample Location	Sample Date	DO¹ (mg/L)²	DCO₂³ (mg/L)	ORP⁴ (millivolts)
MW-5	2/9/2012	0.25	350	-154
	5/8/2012	0.16	550	-263
	8/27/2012	0.11	475	-658
MW-6	2/9/2012	0.29	350	-176
	5/8/2012	0.25	350	-252
	8/27/2012	0.24	225	-306
MW-7	2/9/2012	0.12	250	-254
	5/8/2012	0.06	500	-302
	8/27/2012	0.02	375	-135
MW-8	2/9/2012	0.28	100	-138
	5/8/2012	0.23	250	-162
	8/27/2012	0.25	375	190
MW-9	2/9/2012	1.52	250	-283
	5/8/2012	0.39	475	-163
	8/27/2012	0.93	750	1,025
MW-10	2/9/2012	1.11	100	-192
	5/8/2012	0.3	175	-121
	8/27/2012	0.98	325	-33
MW-11	2/9/2012	1.29	300	-139
	5/8/2012	0.37	650	-191
	8/27/2012	0.44	950	1,197

1. DO: dissolved oxygen, measured with field instrumentation
2. mg/L: milligrams per liter
3. DCO₂: dissolved carbon dioxide, measured with a field test kit.
4. ORP: oxidation-reduction potential, measured with field instrumentation

4.1 Subsurface Lithology

Fill material was excavated for the entire depth of each excavation area, including gravel, foundry byproducts, silt, and shell fragments. Groundwater was not encountered in any of the excavations.

4.2 Soil Analytical Results

Confirmation sampling soil analytical results are summarized in Table 1 and shown on Figure 4.

Table 1 Soil Analytical Results, September 2005 Former Carson Mill, Eureka, California (in ug/g) ¹	
Sample Location and Sample Depth (in feet below grade)	Total Lead
EX1-1 @ 2'	190
EX1-2 @ 2'	180
EX1-3 @ 2'	48
EX1-4 @ 2.5'	320
EX1-5 @ 2'	170
EX1-6 @ 2'	140
EX1-7 @ 2.5'	97
DUP-2 (duplicate of EX1-7 @ 2.5')	190
EX1-8 @ 2'	290
EX1-9 @ 4'	240
EX1-10 @ 4'	380
EX1-11 @ 4'	1,300
EX1-12 @ 4'	22
EX1-13 @ 5'	500
EX2-1 @ 2'	2,100
EX2-2 @ 2'	31
EX2-3 @ 2'	<10 ²
EX2-4 @ 2'	15
EX2-5 @ 4'	22
EX2-6 @ 4'	16
EX2-7 @ 2'	410
EX3-1 @ 2.5'	230
EX3-2 @ 2'	110
DUP-1 (duplicate of EX3-2 @ 2')	99
EX3-3 @ 2'	190
EX3-4 @ 2.5'	420
EX3-5 @ 4'	77
EX3-6 @ 4'	11
EX4-1 @ 3'	75
EX4-2 @ 2.5'	<10
EX4-3 @ 3'	77
EX4-4 @ 2.5'	87
EX4-5 @ 4'	<10
EX4-6 @ 4'	67

Table 1 Soil Analytical Results, September 2005 Former Carson Mill, Eureka, California (in ug/g)¹	
Sample Location and Sample Depth (in feet below grade)	Total Lead
Lead results from backfill material, Collected October 14, 2005	
Fill 1	<10
Fill 2	<10
1. ug/g: micrograms per gram 2. <: Denotes a value that is "less than" the method detection limit	

Total lead concentrations found in samples collected from excavations EX-3 and EX-4 ranged from less than the detection limit (<10 mg/Kg) to 230 mg/Kg. Total lead concentrations found in samples collected from excavations EX-1 and EX-2 ranged from less than the detection limit to 2,100 mg/Kg. Two soil samples (EX1-11 and EX2-1) had concentrations higher than the EPA preliminary remediation goal of 800 mg/Kg. Based on these results, additional excavation was conducted in excavations EX-1 and EX-2. The floor of excavation EX-1 was extended an additional foot deeper (to 5 feet below grade) and re-sampled. The results of the additional sample (sample EX1-013) indicated that the additional excavation was successful in the removal of lead-impacted soil with concentrations greater than 800 mg/Kg. An additional 3 feet of sidewall was excavated from the north face of excavation EX-2. The analytical results of the soil sample collected from the newly exposed sidewall (Sample EX2-7) indicated that sufficient additional excavation had been conducted.

Prior to backfilling the excavations, two samples of the fill material (Fill-1 and Fill-2) were collected and analyzed for lead. Results are included in Table 1. Total lead was not detected in either fill material sample. Laboratory analytical reports are included in Appendix C. As part of the backfill process, the backfill material was compacted to meet the minimum 90% compaction required for this project. The results of compaction testing indicated that the backfill material was compacted to values ranging from 92.3% compaction to 96.6% compaction. The field notes and compaction testing results are presented in Appendix A.

5.0 Air Monitoring

Air sampling for lead and silica was performed by SHN during soil excavation and stockpiling activities conducted by Mercer-Fraser Company at the former Carson Mill Site. As part of the air-monitoring program, the SHN site geologist was fitted with two personal air-sampling pumps. The first air sampling pump was used to sample for air-borne lead, and the other air sampling pump was used to sample for air-borne silica. Both personal sampling pumps were set to sample the breathing zone of the site geologist. The site geologist was chosen to wear the personal sampling pumps because he was working closely with the excavation contractor, directing the excavation work. The lead personal sampling pump was operated for approximately 7.3 hours. The silica personal sampling pump was operated for approximately 6.5 hours. Lead air sampling was conducted because some soil samples that had been collected from the site contained lead concentrations above the Cal/OSHA (California Occupational Safety and Health Agency) level (600 parts per million) for air sampling specified in the lead in construction regulation (8 CCR, Section 1532.1, (d) (5) (B)). Lead air sampling was performed according to the National Institute for Occupational Safety and Health (NIOSH) Method 7082 for Lead and analyzed by DataChem Laboratories, which is accredited by the American Industrial Hygiene Association (AIHA) for

at 812 West Wabash Avenue in Eureka, California. Approximately 15 gallons of decontamination and purge water from this monitoring event was tested and disposed, under permit, to the City of Eureka municipal sewer system. A copy of the discharge receipt is included in Appendix A.

3.0 Groundwater Monitoring Results

3.1 Hydrogeology

SHN measured depth-to-groundwater in the existing monitoring wells during this monitoring event (Table 1).

Table 1 Groundwater Elevations, April 24, 2007 Former Carson Mill, Eureka, California			
Sample Location	Top of Casing Elevation (feet) ¹	Depth-to-Water ² (feet)	Groundwater Elevation (feet) ¹
MW-1	11.66	10.23	1.43
MW-2	11.49	9.23	2.26
MW-3	11.15	8.24	2.91
MW-4	10.76	6.41	4.35

1. Elevations from LACO (2003), referenced to North American Vertical Datum 1988.
 2. Below top of casing

On April 24, 2007, the direction of groundwater flow beneath the site was to the north-northwest, with an approximate gradient of 0.01 feet per foot. A groundwater contour map for the April 2007 monitoring event is presented as Figure 3. A groundwater hydrograph of site wells is presented in Appendix B. A review of the water level data over time indicates that groundwater elevations are affected by seasonal precipitation; however, the overall direction of groundwater flow is toward Humboldt Bay. Groundwater elevation data collected by SHN is included in Appendix B, Table B-1.

3.2 Groundwater Analytical Results

The laboratory analytical results for the groundwater samples collected during the second quarter 2007 monitoring event are summarized in Table 2.

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Table 2
Groundwater Analytical Results, April 24, 2007
Former Carson Mill, Eureka, California
(in ug/L)¹

Sample Location	TPHMO ²	TPHD ²	B ³	T ³	E ³	X ³	MTBE ³
MW-1	<170 ⁴	<50	<0.50	<0.50	<0.50	<0.50	<3.0
MW-2	<170	<50	<0.50	<0.50	<0.50	<0.50	<3.0
MW-3	<170	<50	<0.50	<0.50	<0.50	<0.50	<3.0
MW-4	<170	<50	<0.50	<0.50	<0.50	<0.50	<3.0
Duplicate	<170	<50	<0.50	<0.50	<0.50	<0.50	<3.0

1. ug/L: micrograms per Liter
2. Total Petroleum Hydrocarbons as Motor Oil (TPHMO) and as Diesel (TPHD), in general accordance with EPA Method Nos. 3510/8015B.
3. Benzene (B), Toluene (T), Ethylbenzene (E), Total Xylenes (X), and Methyl Tertiary-Butyl Ether (MTBE) in general accordance with EPA Method No. 5030/8021B.
4. <: "less than" the stated method reporting limit

Table 3
Metals Results, April 24, 2007
Former Carson Mill, Eureka, California
(in ug/L)¹

Sample Location	Chromium ²	Nickel ²	Zinc ²
MW-1	<5.0 ³	7.2	<10
MW-2	8.7	6.0	<10
MW-3	<5.0	11	11
MW-4	<5.0	<5.0	53
Duplicate	<5.0	12	<10

1. ug/L: micrograms per Liter
2. Chromium, Nickel, and Zinc, in general accordance with EPA Method Nos. 200.8 Rev 5.4 (1998).
3. <: "less than" the stated method reporting limit

Table 4
Polynuclear Aromatic Hydrocarbon¹ Analytical Results in Groundwater, April 24, 2007
Former Carson Mill, Eureka, California
(in ng/L)²

Sample Location	Acena-phthene	Acena-phthylene	Anthracene	Benzo(a)-anthracene	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(g,h,i)-perylene	Benzo(k)-fluoranthene	Chrysene	Dibenzo(a,h)-anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
MW-1	<46	<46	<46	<46	<46	<46	<46	<46	<46	<46	<46	<46	<46	<46	<46	<46
MW-2	290	<48	<48	<48	<48	<48	<48	<48	<48	<48	98	160	<48	56	150	130
MW-3	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48
MW-4	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48
Duplicate	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48	<48

1. Analyzed in general accordance with EPA Method No. SW846, 8270 C SIM
2. ng/L: nanograms per Liter
3. <: "less than" the stated method reporting limit

**Table B- 1
Historic Groundwater Elevations
Former Carson Mill, Eureka, California**

Sample Location	Sample Date	Top of Casing Elevation (feet)¹	Depth-to-Water² (feet)	Groundwater Elevation (feet)¹
MW-1	10/27/2005	11.66	10.15	1.51
	1/11/2006		8.90	2.76
	4/24/2006		10.06	1.60
	7/14/2006		9.90	1.76
	4/24/2007		10.23	1.43
MW-2	10/27/2005	11.49	10.31	1.18
	1/11/2006		10.65	0.84
	4/24/2006		10.85	0.64
	7/14/2006		9.59	1.90
	4/24/2007		9.23	2.26
MW-3	10/27/2005	11.15	9.64	1.51
	1/11/2006		7.61	3.54
	4/24/2006		8.01	3.14
	7/14/2006		8.95	2.20
	4/24/2007		8.24	2.91
MW-4	10/27/2005	10.76	6.80	3.96
	1/11/2006		4.49	6.27
	4/24/2006		6.19	4.57
	7/14/2006		7.80	2.96
	4/24/2007		6.41	4.35

1. Elevations from LACO (2003), referenced to North American Vertical Datum 1988.
2. Below top of casing

SHN 2007

Table B-2
Historic Groundwater Analytical Results
Former Carson Mill, Eureka, California
(in ug/L)¹

Sample Location	Date	Dissolved Lead²
MW-1	10/27/2005	<10 ³
	1/11/2006	<10
	4/24/2006	<10
	7/14/2006	<10
MW-2	10/27/2005	<10
	1/11/2006	<10
	4/24/2006	<10
	7/14/2006	<10
MW-3	10/27/2005	<10
	1/11/2006	<10
	4/24/2006	<10
	7/14/2006	<10
MW-4	10/27/2005	<10
	1/11/2006	<10
	4/24/2006	<10
	7/14/2006	<10
Field Blank	10/27/2005	<10
	1/11/2006	<10
	7/14/2006	NA ⁴
Duplicate	10/27/2005	<10
	1/11/2006	<10
	4/24/2006	<10

1. ug/L: micrograms per Liter
2. Dissolved lead by EPA Method No. 200.7/200.9
3. <: "less than" the method reporting limit
4. NA: Not Applicable

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TABLE 4-4 Summary of Soil Sample Results (units milligrams/kilograms dry weight; Values rounded off)
Old Carson Mill, Eureka, CA

Analyte	Reporting Limit	Action Level	Reporting Level										SB05-J (dup-05)	SB06
			SPBKG	PAH-1	PAH-2	SB01	SB02	SB03	SB04	SB05	SB06	SB07		
Percent Moisture	0.1	na	8.60	16.3	14.7	7.95	14.2	20.7	4.02	17.5	5.47	4.48		
Total Metals														
Lead	0.5	1,000* 400**	29.5	-	-	68.9	27.5	74.9	8.1 U	5.7 U	-	-	35.1	
Zinc	1	5,000* 23,000**	41.6	-	-	162	130	67.3	48.5	40.8	-	-	145 N	
Total Petroleum Hydrocarbons (TPH)														
Diesel Fuel	4	500	171 J	-	-	227	147	161	161	148	-	-	189	
Waste Oil	4	500	417	-	-	940	509	429	707	487	-	-	676	
Polychlorinated Biphenyls (PCBs)														
Aroclor 1016	0.028	-	ND	-	-	-	-	-	-	ND	ND	ND	ND	
Aroclor 1221	0.028	-	ND	-	-	-	-	-	-	ND	ND	ND	ND	
Aroclor 1232	0.028	-	ND	-	-	-	-	-	-	ND	ND	ND	ND	
Aroclor 1242	0.028	-	ND	-	-	-	-	-	-	ND	ND	ND	ND	
Aroclor 1248	0.028	-	ND	-	-	-	-	-	-	ND	ND	ND	ND	
Aroclor 1254	0.028	-	ND	-	-	-	-	-	-	ND	ND	ND	ND	
Aroclor 1260	0.028	-	ND	-	-	-	-	-	-	ND	ND	ND	ND	
Total PCBs	0.033	0.22	ND	-	-	-	-	-	-	ND	ND	ND	ND	
Polynuclear Aromatic Hydrocarbons (PAHs)														
Acenaphthene	0.08	3,700 **	ND	ND	ND	ND	31.9	ND	ND	ND	ND	ND	ND	
Acenaphthylene	0.08	na	ND	ND	0.092	ND	17.8	ND	ND	ND	ND	ND	ND	
Anthracene	0.008	23,000 **	0.002 J	ND	0.003 J	0.017 J	9.29	ND	ND	ND	ND	ND	ND	
Benzo(a)anthracene	0.008	0.62 **	0.121 J	ND	0.031 J	ND	19.7	ND	ND	ND	ND	ND	ND	
Benzo(a)pyrene	0.008	0.062 **	ND	ND	0.033	ND	11.7 J	ND	ND J	ND	ND	ND	ND	
Benzo(b)fluoranthene	0.008	0.62 **	0.299 J	0.006 J	0.107	0.316	15.2	0.319	0.272	0.116	-	-	ND	
Benzo(g,h,i)perylene	0.02	na	ND	ND	0.016 J	ND	2.5	ND	ND	ND	ND	ND	ND	
Benzo(k)fluoranthene	0.008	0.61 **	ND	ND	0.083 J	ND	10.7	ND	ND	ND	ND	ND	ND	
Chrysene	0.008	6.1 **	0.125 J	ND	0.06	0.102	23.8	0.076 J	0.095	0.031 J	-	-	0.863	
Dibenz(a,h)anthracene	0.02	0.062 **	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Fluoranthene	0.02	2,300 **	0.12 J	ND	0.151	0.394	77.9	ND	ND	ND	ND	ND	ND	
Fluorene	0.008	2,600 **	0.01 J	ND	ND	0.046 J	3.28	ND	ND	ND	ND	ND	ND	
Indeno(1,2,3-cd)pyrene	0.008	0.62 **	ND	ND	0.019 J	ND	2.46	0.128	ND	ND	ND	ND	ND	
Naphthalene	0.08	56 **	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Phenanthrene	0.008	na	0.044	ND	0.027	0.175	31.5	0.053 J	0.039 J	0.030 J	-	-	0.180 UJ	
Pyrene	0.02	2,300 **	0.137 J	ND	0.081	ND	36	ND	ND	ND	ND	ND	ND	

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KEY:
 * - Total threshold limit concentration
 ** - Preliminary remediation goals, USEPA R-09, 10/99
 BOLD = result greater than action level
 ND = not detected; U = not detected above the value stated; J = detection limits estimated
 J = estimated below reporting limit or estimated due to laboratory QC criteria not met (see Appendix A); "-" = not analyzed

**TABLE 4-4 Summary of Soil Sample Results (units milligrams/kilograms dry weight; Values rounded off)
Old Carson Mill, Eureka, CA**

Analyte	Reporting Limit	Action Level	SB07	SB03	SP6-W	SP6N	SP20-W	SP25-S	SP30-N	SP31-N	SP31-N-J (dup-31N)
Percent Moisture	0.1	na	4.59	4.38	14.7	12.5	3.01	5.99	18.2	4.83	9.68
Total Metals											
Lead	0.5	1,000* 400**	9.4	7.1	-	-	-	-	-	-	-
Zinc	1	5,000* 23,000**	67.1 N	42.9 N	-	-	-	-	-	-	-
Total Petroleum Hydrocarbons (TPH)											
Diesel Fuel	4	500	105	115	138	1,000	18.9	4,410	95.6	769	715
Waste Oil	4	500	327	463	243 J	1,780 J	12.2 J	8,900 J	ND J	1,640 J	1,470 J
Polychlorinated Biphenyls (PCBs)											
Aroclor 1016		-	-	-	-	-	-	-	-	-	-
Aroclor 1221		0.028	-	-	-	-	-	-	-	-	-
Aroclor 1232		0.028	-	-	-	-	-	-	-	-	-
Aroclor 1242		0.028	-	-	-	-	-	-	-	-	-
Aroclor 1248		0.028	-	-	-	-	-	-	-	-	-
Aroclor 1254		0.028	-	-	-	-	-	-	-	-	-
Aroclor 1260		0.028	-	-	-	-	-	-	-	-	-
Total PCBs		0.033	-	-	-	-	-	-	-	-	-
Polynuclear Aromatic Hydrocarbons (PAHs)											
Acenaphthene	0.08	3,700 **	ND	ND	ND	-	ND	ND	ND	ND	ND
Acenaphthylene	0.08	na	ND	ND	ND	-	ND	ND	ND	ND	ND
Anthracene	0.008	22,000 **	ND	ND	ND	-	0.001 J	ND	ND	ND	ND
Benzo(a)anthracene	0.008	0.62 **	ND	ND	ND	-	0.056 J	ND	ND	ND	ND
Benzo(a)pyrene	0.008	0.62 **	ND	ND	ND	-	ND	ND	0.479	ND	ND
Benzo(b)fluoranthene	0.008	0.62 **	0.065	0.187	0.331	-	0.319 J	0.016 UJ	3.29	1.03	1.14
Benzo(g,h,i)perylene	0.02	na	ND	ND	ND	-	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	0.008	0.61 **	ND	ND	ND	-	ND	ND	ND	ND	ND
Chrysene	0.008	6.1 **	0.022 J	0.031 J	ND	-	0.122 J	0.007 UJ	0.739	0.431	0.310 J
Dibenz(a,h)anthracene	0.02	0.062 **	ND	ND	ND	-	ND	0.025 UJ	ND	ND	ND
Fluoranthene	0.008	2,300 **	ND	ND	ND	-	0.048 J	ND	ND	ND	ND
Fluorene	0.008	2,600 **	ND	ND	ND	-	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.008	0.62 **	ND	ND	ND	-	ND	ND	ND	ND	ND
Naphthalene	0.08	56 **	ND	ND	ND	-	0.076 J	ND	ND	ND	ND
Phenanthrene	0.008	na	0.029 UJ	0.032 UJ	ND	-	0.028 J	0.009	ND	ND	ND
Pyrene	0.02	2,300 **	ND	ND	ND	-	0.051 J	ND	ND	ND	ND

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KEY:
 * - Total threshold limit concentration
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 BOLD = result greater than action level
 ND = not detected; U = detection limits estimated
 value stated; J = estimated below reporting limit or estimated due to laboratory QC criteria not met (see Appendix A); - = not analyzed

TABLE 4-4 Summary of Soil Sample Results (units milligrams/kg/grams dry weight; Values rounded off)
Old Carcon Mill, Eureka, CA

Analyte	Reporting Limit	Action Level	SP31-W	SP31-S	SP41W	SP43-N	SP46-E	SP46-N	SP46-S	SP46-W	SP46-WJ	SP48-E
Percent Moisture	0.1	na	21.1	5.29	19.5	9.80	4.85	3.65	11.6	13.1	11.7	9.13
Total Metals												
Lead	0.5	1,000* 400**	-	-	124	2,650	259	671	1,400	219	230	1,570
Zinc	1	5,000* 23,000**	-	-	-	-	168 N	-	844	-	-	-
Total Petroleum Hydrocarbons (TPH)												
Diesel Fuel	4	500	20.9	161	-	-	509	503	-	-	-	-
Waste Oil	4	500	13.0 J	171 J	-	-	786 J	755 J	-	-	-	-
Polychlorinated Biphenyls (PCBs)												
Aroclor 1016	0.028	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1221	0.028	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1232	0.028	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1242	0.028	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1248	0.028	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1254	0.028	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1260	0.028	-	-	-	-	-	-	-	-	-	-	-
Total PCBs	0.033	0.22	-	-	-	-	-	-	-	-	-	-
Polynuclear Aromatic Hydrocarbons (PAHs)												
Acenaphthene	0.08	3,700 **	-	-	0.321 J	-	ND	ND	-	-	-	-
Acenaphthylene	0.08	na	-	-	0.284 J	-	ND	ND	-	-	-	-
Anthracene	0.008	21,000 **	-	-	0.026 J	-	ND	ND	-	-	-	-
Benz(a)anthracene	0.008	0.62 **	-	-	0.119 J	-	0.349	0.444	-	-	-	-
Benzo(e)pyrene	0.008	0.062 **	-	-	0.315 J	-	ND	ND	-	-	-	-
Benzo(b)fluoranthene	0.008	0.62 **	-	-	0.159 J	-	0.888	1.67	-	-	-	-
Benzo(g,h,i)perylene	0.02	na	-	-	0.112 J	-	ND	ND	-	-	-	-
Benzo(k)fluoranthene	0.008	0.61 **	-	-	0.201 J	-	ND	ND	-	-	-	-
Chrysene	0.008	6.1 **	-	-	0.226 J	-	0.677	0.861	-	-	-	-
Dibenz(a,h)anthracene	0.02	0.062 **	-	-	ND J	-	ND	ND	-	-	-	-
Fluoranthene	0.008	2,300 **	-	-	0.794 J	-	1.23	1.36	-	-	-	-
Fluorene	0.008	2,600 **	-	-	0.007 J	-	ND	ND	-	-	-	-
Indeno(1,2,3-cd)pyrene	0.008	0.62 **	-	-	0.099 J	-	0.096 J	0.131 J	-	-	-	-
Naphthalene	0.008	56 **	-	-	0.087 J	-	ND	ND	-	-	-	-
Phenanthrene	0.008	na	-	-	0.176 J	-	0.309 J	0.411 J	-	-	-	-
Pyrene	0.02	2,300 **	-	-	0.311 J	-	0.777 J	ND	-	-	-	-

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KEY:
 * - Total threshold limit concentration
 ** - Preliminary remediation goals, USEPA R-09, 10/99
 BOLD = result greater than action level
 ND = not detected; U = not detected above the value stated; UJ = detection limits estimated
 J = estimated below reporting limit or estimated due to laboratory QC criteria not met (see Appendix A); "-" = not analyzed

**TABLE 4-4 Summary of Soil Sample Results (units milligrams/kilograms dry weight; Values rounded off)
Old Carson Mill, Burreke, CA**

Analyte	Reporting Limit	Action Level	SP48-S	SP48W	SP49-E	SP49N	SP50-E	SP50-N	SP51-S	SP51-W (dup-51W)	SP51-WJ	SP52-S
Percent Moisture	0.1	na	5.99	7.71	22.4	14.4	9.87	15.3	5.98	3.59	5.32	6.09
Total Metals												
Lead	0.5	1,000* 400**	1,316	-	-	-	362	345	275	470	674	2,298
Zinc	1	5,000* 23,000**	-	-	-	-	-	-	758	320	521	-
Total Petroleum Hydrocarbons (TPH)												
Diesel Fuel	4	500	700	568	557	288	-	-	-	-	-	-
Waste Oil	4	500	961 J	1,360 J	1,220 J	370 J	-	-	-	-	-	-
Polychlorinated Biphenyls (PCBs)												
Aroclor 1016	0.028	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1221	0.028	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1232	0.028	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1242	0.028	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1248	0.028	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1254	0.028	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1260	0.028	-	-	-	-	-	-	-	-	-	-	-
Total PCBs	0.033	0.22	-	-	-	-	-	-	-	-	-	-
Polynuclear Aromatic Hydrocarbons (PAHs)												
Acenaphthene	0.08	3,700 **	4,030 J	-	-	-	-	-	-	-	-	-
Acenaphthylene	0.08	na	ND	-	-	-	-	-	-	-	-	-
Anthracene	0.008	22,000 **	0.141 J	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	0.008	0.62 **	3.53	-	-	-	-	-	0.226 J	-	-	-
Benzo(b)pyrene	0.008	0.062 **	7.87	-	-	-	-	-	0.73	-	-	-
Benzo(k)fluoranthene	0.008	0.62 **	7.7	-	-	-	-	-	0.629	-	-	-
Benzo(g,h,i)perylene	0.02	na	3.48	-	-	-	-	-	ND	-	-	-
Benzo(e)fluoranthene	0.008	0.61 **	4.66	-	-	-	-	-	ND	-	-	-
Chrysene	0.008	6.1 **	5.31	-	-	-	-	-	0.355 J	-	-	-
Dibenz(a,h)anthracene	0.02	0.062 **	2.69	-	-	-	-	-	ND	-	-	-
Fluoranthene	0.02	2,300 **	5.34	-	-	-	-	-	0.735 J	-	-	-
Fluorene	0.008	2,600 **	ND	-	-	-	-	-	ND	-	-	-
Indeno(1,2,3-cd)pyrene	0.008	0.62 **	3.16	-	-	-	-	-	ND	-	-	-
Naphthalene	0.08	56 **	ND	-	-	-	-	-	ND	-	-	-
Pteridine	0.008	na	0.872	-	-	-	-	-	ND	-	-	-
Pyrene	0.02	2,300 **	3.45	-	-	-	-	-	ND	-	-	-

KEY: * - Total threshold limit concentration
 ** - Preliminary remediation goals, USEPA R-09, 10999
 BOLD = result greater than action level
 ND = not detected; U = not detected above the value stated; UJ = detection limits estimated
 J = estimated below reporting limit or estimated due to laboratory QC criteria not met (see Appendix A); "-" = not analyzed

IDD No. 09-09-05-0011
 PAN No. 09-04350C5T00

**TABLE 4-5 Summary of Soil Leaching Tests (units milligrams per liter)
Old Carson Mill, Eureka, CA**

Sample Numbers	TPH-D (WET MOD)	TPH-MO (WET MOD)	Lead (WET MOD)	Lead (Std. WET)	Zinc (WET MOD)	Zinc (Std. WET)
Reporting Limit *	0.1	0.1	0.15 to 1.5	0.15 to 1.5	0.03	0.3 to 1.5
Action Limit	0.056	0.05	0.015	5	0.066	250
SP6-N	0.157	ND	-	-	-	-
SP25-S	ND	ND	-	-	-	-
SP31-N	0.115	ND	-	-	-	-
SP31-NJ (dup-31-N)	0.195	ND	-	-	-	-
SP46-E	0.113	ND	ND	22.9		
SP46-EJ (dup-46E)	0.107	ND	-	-	-	-
SP46-N	-	-	0.58	15.5	-	-
SP46-S	-	-	-	-	0.055	24.1
SP46-W	-	-	0.006 B	8.1	-	-
SP48-S	ND	ND	-	-	-	-
SP48-W	ND	ND	-	-	-	-
SP49-E	ND	ND	-	-	-	-
SP50-E	-	-	0.31	11	-	-
SP50-N	-	-	0.070 B	6.3	-	-
SP51-S	-	-	0.022 B	1.2 B	0.049	21.4
SP51-W	-	-	0.022 B	13.2	-	-
SP51-WJ (dup-51W)	-	-	0.032 B	15.5	1.4	21.9
SB01	ND	ND	-	-	-	-
SB02	ND	ND	-	-	-	-
SB04	ND	ND	-	-	-	-
SB06	0.146	ND	-	-	-	-

KEY:

* = depends on dilution factor

ND = not detected

B = analyte detected in method blanks

Std. WET = waste extraction test, California Code of Regulation, Title 22

WET MOD = modified with deionized water, RWQCB water quality objectives action limit

BOLD = exceeds action limit

" - " = not analyzed

TDD No. 09-99-05-0011

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TABLE 4-6 Summary of Groundwater Sample Results (units micrograms/liter)
Old Carson Mill, Eureka, CA

Analyte	Reporting Limit	Action Level	GW-60 (bkg. 9/20/00)	GW-SB-03 (9/22/00)	GW2-5 (9/19/00)	GW-2S (9/20/00)	GW4-N (9/19/00)	GW-4N (9/20/00)	GW5-N (9/19/00)	GW-5N (9/20/00)
Dissolved Metals by ICP Method 6010B										
Lead	5	15	18	-	2.1 U	-	21	-	6.6	-
Zinc	10	66	64	-	42	-	98	-	19	-
Total Metals by ICP Method 6010B										
Lead	5	8.1	286	-	139	171	33	33	138	1,280
Zinc	10	66	1,410	-	855	1,180	168	319	495	539
TPH-Diesel Range Organics by Method 8015B										
Diesel Fuel	100	56	227	322	263	-	501	-	4,420	-
Waste Oil	100	50	ND	ND	359	-	1,020	-	14,300	-
VOCs + MTBE by GCMS Method 8260B										
Benzene	1	1	ND	ND	-	ND	-	ND	-	ND
Toluene	1	42	ND	ND	-	ND	-	ND	-	ND
Ethylbenzene	1	29	ND	ND	-	ND	-	ND	-	ND
m,p-Xylene	1	na	ND	ND	-	ND	-	ND	-	ND
o-Xylene	1	na	ND	ND	-	ND	-	ND	-	ND
Xylenes, Total	1	17	ND	ND	-	ND	-	ND	-	ND
Methyl tert-butyl ether	1	20	ND	ND	-	ND	-	ND	-	ND
PAH by HPLC Method 8310										
Acenaphthene	2	na	ND	-	-	0.647 J	-	-	-	ND
Acenaphthylene**	2	na	ND	-	-	ND	-	-	-	ND
Anthracene**	0.2	na	ND	-	-	0.733	-	-	-	0.0673 J
Benz(a)anthracene**	0.2	na	0.106 J	-	-	ND	-	-	-	0.368
Benz(a)pyrene**	0.2	na	ND	-	-	ND	-	-	-	0.402
Benz(b)fluoranthene**	0.2	na	0.163 J	-	-	0.189 J	-	-	-	ND
Benz(g,h,i)perylene**	0.5	na	ND	-	-	ND	-	-	-	ND
Benz(k)fluoranthene**	0.2	na	0.204	-	-	ND	-	-	-	0.216
Chrysene**	0.2	na	0.123 J	-	-	0.485	-	-	-	0.39
Dibenz(a,h)anthracene**	0.5	na	ND	-	-	ND	-	-	-	ND
Fluoranthene	0.5	na	ND	-	-	0.855	-	-	-	ND
Fluorene**	0.2	na	ND	-	-	0.48	-	-	-	0.364
Indeno(1,2,3-cd)pyrene**	0.2	na	ND	-	-	ND	-	-	-	ND
Naphthalene	2	na	ND	-	-	ND	-	-	-	1.24 J
Phenanthrene**	0.2	na	0.0622 J	-	-	0.864	-	-	-	0.175 J
Pyrene**	0.5	na	ND	-	-	ND	-	-	-	0.362 J
Total PAHs**	-	0.031	0.658	-	-	2.751	-	-	-	2.344

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KEY:
** = RWQCB WQOs; ** = RWQCB selected 13 PAHs
Bold = action level; ND = not detected; U = ND at stated value; J = estimated below reporting limit; B = found in method bank

TABLE 4-6 Summary of Groundwater Sample Results (units micrograms/liter)
Old Carson Mill, Eureka, CA

Analyte	Reporting Limit	Action Level	GW6-N (9/19/00)	GW-6N (9/20/00)	GW-6N-J (dup- 6N) 9/20/00	GW-8E (9/21/00)	GW-8E-J (dup- 8E) 9/21/00	GW-25N (9/21/00)	GW-41W (9/21/00)	GW48-E-J (dup- 48E) 9/21/00	GW-48E (9/21/00)
Disolved Metals by ICP Method 6010B											
Lead	5	15	3.1 B	-	2.1 U	2.1 U	8.1	2.1 U	86	2.3 B	14
Zinc	10	66	8.4 B	-	3.0 U	26	76	7.9 B	490	3.0 U	3.0 U
Total Metals by ICP Method 6010B											
Lead	5	8.1	113	237	134	60	73	37	206	154	6,368
Zinc	10	66	267	461	262	460	596	180	1,200	201	7,929
TPH-Diesel Range Organics by Method 8015B											
Diesel Fuel	100	56	ND	-	148	120	-	144	-	-	725
Waste Oil	100	50	ND	-	ND	ND	-	ND	-	-	ND
VOCs + MTBE by GCMS Method 8260B											
Benzene	1	1	-	ND	ND	ND	-	ND	ND	-	ND
Toluene	1	42	-	ND	ND	ND	-	ND	ND	-	ND
Ethylbenzene	1	29	-	ND	ND	ND	-	ND	ND	-	ND
m,p-Xylene	1	na	-	ND	ND	ND	-	ND	ND	-	ND
o-Xylene	1	na	-	ND	ND	ND	-	ND	ND	-	ND
Xylenes, Total	1	17	-	ND	ND	ND	-	ND	ND	-	ND
Methyl tert-butyl ether	1	20	-	ND	ND	ND	-	ND	ND	-	ND
PAH by HPLC Method 8310											
Acenaphthene	2	na	-	ND	ND	ND	-	ND	-	-	ND
Acenaphthylene **	2	na	-	ND	ND	ND	-	ND	-	-	ND
Anthracene **	0.2	na	-	ND	ND	ND	-	ND	-	-	0.0696 J
Benz(a)anthracene **	0.2	na	-	ND	ND	ND	-	ND	-	-	0.26
Benz(a)pyrene **	0.2	na	-	ND	ND	ND	-	ND	-	-	0.258
Benz(a)fluoranthene **	0.2	na	-	ND	ND	ND	-	ND	-	-	0.313
Benz(a,h)perylene **	0.5	na	-	ND	ND	ND	-	ND	-	-	ND
Benz(k)fluoranthene **	0.2	na	-	ND	ND	ND	-	ND	-	-	0.165 J
Chrysene **	0.2	na	-	0.189 J	0.111 J	ND	-	0.44	-	-	0.234
Dibenz(a,h)anthracene **	0.5	na	-	ND	ND	ND	-	ND	-	-	ND
Fluoranthene	0.5	na	-	ND	ND	ND	-	ND	-	-	0.409 J
Fluorene **	0.2	na	-	ND	0.104 J	ND	-	ND	-	-	0.0969 J
Indeno(1,2,3-cd)pyrene **	0.2	na	-	ND	ND	ND	-	ND	-	-	ND
Naphthalene	2	na	-	ND	ND	ND	-	ND	-	-	ND
Phenanthrene **	0.2	na	-	0.0611 J	0.0588 J	ND	-	0.0567 J	-	-	0.205
Pyrene **	0.5	na	-	ND	ND	ND	-	ND	-	-	0.457 J
Total PAHs **	-	0.031	-	0.25 J	0.274	-	-	0.497	-	-	2.058

KEY:
* = RWQCB WQO; ** = RWQCB selected 13 PAHs
Bold = action level; ND = not detected; U = ND at stated value; J = estimated below reporting limit; B = found in method bank

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TABLE 4-6 Summary of Groundwater Sample Results (units micrograms/liter)
Old Carson Mill, Eureka, CA

Analyte	Reporting Limit	Action Level *	GW-50N (9/21/00)	GW-51W (9/21/00)	GW-51V-J (dup 51W) 9/21/00	GW-52N (9/21/00)	GW-52N-J (dup 52N) 9/21/00	GW-EB (equip blank 9/20/00)	GW-EB-R (equip blank 9/21/00)	GW-EB-F (equip blank 9/22/00)
Dissolved Metals by ICP Method 6010B										
Lead	5	15	2.1 U	2.1 U	-	3.8 B	4.5 B	2.1 U	9.7	13.3
Zinc	10	66	16	30	-	34	69	556	484	573
Total Metals by ICP Method 6010B										
Lead	5	8.1	7.9	12	-	36	16	2.1 U	24	29
Zinc	10	66	22	66	-	301	121	633	632	681
TPH-Diesel Range Organics by Method 8015B										
Diesel Fuel	100	56	469	ND	-	176	-	227	ND	207
Waste Oil	100	50	ND	ND	-	ND	-	202	ND	ND
VOCs + MTBE by GC/MS Method 8260B										
Benzene	1	1	ND	ND	-	ND	ND	ND	ND	ND
Toluene	1	42	ND	ND	-	ND	ND	ND	ND	ND
Ethylbenzene	1	29	ND	ND	-	ND	ND	ND	ND	ND
m,p-Xylene	1	na	ND	ND	-	ND	ND	ND	ND	ND
o-Xylene	1	na	ND	ND	-	ND	ND	ND	ND	ND
Xylenes, Total	1	17	ND	ND	-	ND	ND	ND	ND	ND
Methyl tert-butyl ether	1	20	ND	ND	-	ND	ND	ND	ND	ND
PAHs by HPLC Method 8310										
Acenaphthene	2	na	ND	ND	ND	ND	-	ND	ND	ND
Acenaphthylene **	2	na	ND	ND	ND	ND	-	ND	ND	ND
Anthracene **	0.2	na	ND	ND	ND	ND	-	ND	ND	ND
Benzo(a)anthracene **	0.2	na	ND	ND	ND	ND	-	ND	ND	ND
Benzo(a)pyrene **	0.2	na	ND	ND	ND	ND	-	ND	ND	ND
Benzo(b)fluoranthene **	0.2	na	ND	ND	ND	ND	-	ND	ND	ND
Benzo(g,h,i)perylene **	0.5	na	0.397 J	ND	ND	ND	-	ND	ND	ND
Benzo(k)fluoranthene **	0.2	na	0.188 J	ND	ND	ND	-	ND	ND	ND
Chrysene **	0.2	na	ND	ND	ND	ND	-	ND	ND	ND
Dibenz(a,h)anthracene **	0.5	na	0.579 J	ND	ND	ND	-	ND	ND	ND
Fluoranthene	0.2	na	0.198 J	ND	ND	0.273	-	ND	ND	ND
Fluorene **	0.2	na	ND	ND	ND	ND	-	ND	ND	ND
Indeno(1,2,3-cd)pyrene **	2	na	ND	ND	ND	ND	-	ND	ND	ND
Naphthalene	0.2	na	0.263 J	0.0587 J	0.0580 J	0.0596 J	-	ND	0.0687 J	0.0830 J
Phenanthrene **	0.2	na	ND	ND	ND	ND	-	ND	ND	ND
Pyrene **	0.5	na	ND	ND	ND	ND	-	ND	ND	ND
Total PAHs **	-	0.031	1.046	0.659	0.658	0.333	-	-	0.069	0.083

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