

# PORT OF OAKLAND

November 15, 2000

#1222

00 NOV 17 PM 3:49  
ENVIRONMENTAL  
PROTECTION

Mr. Barney Chan  
Alameda County Health Care Services Agency  
Department of Environmental Health  
1131 Harbor Bay Parkway, 2nd Floor  
Alameda, California 94502

**Subject: September 2000 Third Quarterly Groundwater Monitoring Report, Crowley Yard II, 321 Embarcadero, Oakland**

Dear Mr. Chan:

Please find enclosed the third quarterly groundwater monitoring report for Crowley Yard II, Oakland. The quarterly monitoring was based on a work plan included in Baseline's *Soil and Groundwater Investigation/Human and Ecological Risk Evaluation Report dated April 21, 2000*.

At the conclusion of the quarterly sampling events in January 2001, the data will be compared to the ecological screening/action levels to confirm that no ecological impacts from residual groundwater contamination are expected at the site.

As we have discussed previously, the Port is developing plans and specifications for the demolition of the one remaining building on this site, and the removal of three building foundations. This work is scheduled to occur some time in early 2001. As you know, fuel pipelines remain under the foundations of the former buildings G-301 and G-303 and are planned for removal during foundation demolition. A work plan that describes the sampling procedures to be undertaken during pipeline removal activities was submitted to the ACHCSA on October 8, 1999 and was approved on October 18, 1999. A brief description of the sampling protocol is also provided on page 3 of the enclosed report.

If you have any questions concerning the report or the work plan, please do not hesitate to contact me at 510-627-1184.

Sincerely,

Douglas P. Herman  
Associate Port Environmental Scientist

encl: September 2000 Third quarterly Groundwater Monitoring Report, Pacific Dry Dock Yard II, 321 Embarcadero Road, Oakland, CA

Cc w/encl.: Betty Graham, RWQCB

Cc w/o encl.: Yane Nordhav, Baseline

# **BASELINE**

## ENVIRONMENTAL CONSULTING

7 November 2000  
98379-24

Mr. Douglas Herman  
Port of Oakland  
EH and SC Department  
530 Water Street, 2<sup>nd</sup> Floor  
Oakland, CA 94607

Subject: September 2000 Third Quarterly Groundwater Monitoring Report, Pacific Dry Dock Yard II, 321 Embarcadero, Oakland, California

Dear Mr. Herman:

The purpose of this report is to document the third quarterly groundwater monitoring at Pacific Dry Dock Yard II, 321 Embarcadero, Oakland, California (Figures 1 and 2). The work was based on a work plan included in BASELINE's *Soil and Groundwater Quality Investigation/Human Health and Ecological Risk Evaluation*, dated April 2000. This monitoring report describes groundwater sampling procedures and presents the analytical results of groundwater samples collected from the site on 25 September 2000. The details of the monitoring well installations were included in the April 2000 BASELINE report.

### **Field Activities**

On 25 September 2000, groundwater samples were collected from the three on-site monitoring wells (MW-1, MW-2, and MW-3). The depth to groundwater and the presence of free product were checked in each well prior to well purging. Groundwater was slowly purged from each well using a peristaltic pump and clean disposable tubing until the temperature, conductivity, and pH of the purged water had stabilized, or a minimum of three well casing volumes had been removed. Purged water was temporarily stored on-site in 55-gallon drums awaiting off-site disposal by a Port contractor. Water levels were measured again prior to sampling to ensure that levels had recovered sufficiently to allow sample collection.

Groundwater samples were collected using a peristaltic pump and clean disposable tubing. Once filled, sample containers were sealed, labeled, stored in a plastic cooler containing blue ice, and transported under chain-of-custody procedures to Sequoia Analytical in Walnut Creek, California, a California-certified analytical laboratory. Each sample was analyzed for total petroleum hydrocarbons as diesel (TPHd) and motor oil (TPHmo), benzene, toluene, ethylbenzene, and xylenes (BTEX), polynuclear aromatic hydrocarbons (PAHs), and

Mr. Douglas Herman

7 November 2000

Page 2

cadmium, total chromium, lead, nickel, and zinc. The samples analyzed for TPHd and TPHmo were subjected to silica gel cleanup prior to analysis. The groundwater sampling activities were recorded on the Groundwater Sampling Forms included in Attachment A.

At the time of sampling, a three to four foot pile of vegetation was present over the location of monitoring well MW-1. This material was moved to gain access to the well. It is recommended that this vegetation be removed by the Port, if this has not already been completed, to maintain unobstructed access to this well in the future.

### **Groundwater Levels and Flow Direction**

Groundwater levels measured in the on-site wells are summarized in Table 1. Free product was not identified in any of the three wells monitored. The calculated groundwater flow direction, based on measurements collected from the three wells on 25 September 2000, was due north (Figure 2) with a gradient magnitude of 0.016.

### **Analytical Results**

The analytical results for the groundwater samples are presented in Table 2. TPHd was detected in groundwater samples MW-1, MW-2, and MW-3 at 410, 230, and 300 µg/L, respectively. TPHmo was reported below a laboratory reporting limit of 250 µg/L in all samples analyzed. The laboratory indicated that unidentified hydrocarbons greater than C16 were present in all three groundwater samples.

Ethylbenzene was reported at 0.59 µg/L in MW-1; benzene, toluene and xylenes were reported below a laboratory reporting limit of 0.50 µg/L for this sample. BTEX were reported below a laboratory reporting limit of 0.50 µg/L in groundwater samples MW-2 and MW-3. Naphthalene was reported at a concentration of 14 and 21 µg/L, respectively, in MW-1 and MW-2; all other polynuclear aromatic hydrocarbons were reported below their respective laboratory reporting limits in the three groundwater samples. Metals were not detected at concentrations exceeding the laboratory reporting limits in any of the samples except for zinc in MW-3 (29 µg/L). A copy of the laboratory report is included in Attachment B.

### **Conclusions**

The results of the third quarterly groundwater monitoring event indicate that groundwater flows to the north. Therefore, MW-1 is located upgradient from the former tank locations, while MW-2 and MW-3 are located downgradient of the former tanks GF-11 and GF-12, respectively. Well MW-1 (upgradient) contained TPHd, ethylbenzene, and naphthalene above the laboratory reporting limits during this sampling event. Well MW-2 (downgradient of former Tank GF-11) contained TPHd and naphthalene above the laboratory reporting limits during this sampling event. Well MW-3 (downgradient of former Tank GF-12) contained TPHd and zinc above laboratory reporting limits during this sampling event.

Mr. Douglas Herman

7 November 2000

Page 3

The fourth groundwater monitoring event should occur in late December 2000 or early January 2001. After the fourth groundwater monitoring event, the data should be evaluated to determine whether the site could be submitted for consideration by the County for closure. If the Port were to submit the site for closure consideration, the Port would need to respond to the five comments made by the County in their 3 May 2000 letter, specifically concerning:

1. Future sampling along fuel pipelines located under the current residual foundations, when the foundations are removed. This item is addressed below under Future Sampling under Fuel Pipelines.
2. Evaluation of clean-up levels for PAHs and TPHmo.
3. Evaluation of the potential impacts to ecological receptors from residual soil contaminants.
4. Preparation of a soil and groundwater management plan, including provisions for future maintenance worker health and safety, assuming that the site would become a park.
5. Provision for a deed restriction (limiting future land use of the site and prohibiting the use of groundwater underlying the site) and either the installation of a cap or the covering of the site with clean soil in areas of known contamination.

#### **Future Sampling under Fuel Pipelines**

Future sampling along fuel pipelines located under the current foundations would be conducted when the foundations are removed. These foundations may be removed prior to the end of this year at which point the workplan for these activities, presented in the Port's 8 October 1999 memorandum to Barney Chan of Alameda County, and approved by the County in an 18 October 1999 memorandum, as described below, would be followed. Alameda County will be notified of the date of the foundation removal and the collection of soil samples from beneath the piping under these foundations.

The delay in the removal of the underground piping from beneath the current foundations was approved by the County provided that the pipeline locations were determined and the pipelines were rinsed to remove residual product and capped; a workplan for these activities was requested by the County in their 18 October 1999 memorandum. The addition of analysis for semi-volatile compounds to the proposed suite of analytes for the piping and a requirement to notify the County in advance of this action was also requested at that time. These requirements were implemented during sampling activities completed in February 2000 and documented in the *Soil and Groundwater Investigation/Human Health and Ecological Risk Evaluation* reported dated April 2000 and submitted to the County. A vacuum truck hose was

# BASELINE

Mr. Douglas Herman

7 November 2000

Page 4


applied to the end of the pipelines encountered during the excavation to draw out any fluids, the fluids were transported off-site, and the pipeline ends sealed, an approach that was approved by the County in a 22 November 1999 memorandum to the Port.

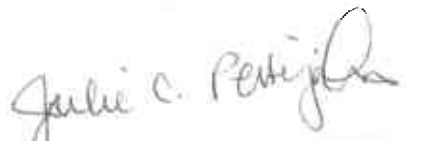
As described in the approved workplan and subsequent correspondence, at the time that the foundations are removed at the site, soil samples would be collected beneath the piping at intervals of 20 linear feet. The samples would be collected using a hand-operated slide hammer in six-inch stainless steel tubes. The samples would be sealed, labeled, and placed in a cooled container prior to submission to a California-certified laboratory under chain-of-custody procedures. Rinsate from the sampling equipment would be placed in DOT-approved containers for future disposal, pending receipt of analytical results, by a Port contractor. The samples would be analyzed for TPHd and TPHmo (with silica gel cleanup), BTEX, PAHs, and copper, total chromium, lead, nickel, and zinc.

All future soil sample collection procedures and analytical results would be documented in a report for submission to Alameda County. The data obtained from future soil sample collection beneath the piping would be evaluated to determine compliance with risk-based remediation goals for the site. If the concentration of contaminants of concern indicated a potential health risk to future users, remediation of the soil would be recommended.

If you have any questions, or need any clarification, please call us at your convenience.

Sincerely,

  
Yane Nordhav  
Principal  
Reg. Geologist No. 4009

  
Julie Pettijohn, MPH, IHIT  
Environmental Health Scientist

YN:JP:cr  
Attachments

TABLE 1  
**GROUNDWATER ELEVATIONS AND GRADIENT DETERMINATION**  
**Pacific Dry Dock, Yard II**  
**321 Embarcadero, Oakland, California**

Date	MW-1 <sup>1</sup>		MW-2 <sup>2</sup>		MW-3 <sup>3</sup>		Ground-water <sup>5</sup> Flow Direction	Gradient <sup>5</sup> Magnitude
	Depth to Ground- water (ft)	Ground- water Elevations <sup>4</sup> (ft)	Depth to Ground- water (ft)	Ground- water Elevations <sup>4</sup> (ft)	Depth to Ground- water (ft)	Ground- water Elevations <sup>4</sup> (ft)		
3/6/00	2.15	4.28	3.63	4.10	3.85	2.64	N76W	0.0099
6/8/00	2.06	4.37	3.96	3.77	5.11	1.38	N15W	0.0145
9/25/00	2.17	4.26	4.05	3.68	4.85	1.64	N0W	0.016

<sup>1</sup> Top of well casing elevation = 6.43.

<sup>2</sup> Top of well casing elevation = 7.73.

<sup>3</sup> Top of well casing elevation = 6.49.

<sup>4</sup> Elevations are in feet above mean sea level.

<sup>5</sup> Flow direction and gradient magnitude determined by three-point method.

TABLE 2  
SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER  
Pacific Dry Dock, Yard II  
321 Embarcadero, Oakland, California  
(µg/L)

Date	MW-1			MW-2			MW-3		
	3/6/00	6/8/00	9/25/00	3/6/00	6/8/00	9/25/00	3/6/00	6/8/00	9/25/00
<b>Petroleum Hydrocarbons (DHS LUFT Method with silica gel cleanup)</b>									
TPH as diesel	120 <sup>1,2</sup>	390 <sup>3</sup>	410 <sup>2</sup>	240 <sup>1</sup>	450 <sup>1</sup>	230 <sup>2</sup>	<50	<50	300 <sup>2</sup>
TPH as motor oil	250	<250	<250	<250	260 <sup>1</sup>	<250	<250	<250	<250
<b>Volatile Organic Compounds (DHS LUFT Method)</b>									
Benzene	0.67	1.4	<0.50	<0.5	<0.50	<0.50	<0.5	<0.50	<0.50
Toluene	<0.5	<0.5	<0.50	<0.5	<0.50	<0.50	<0.5	<0.50	<0.50
Ethylbenzene	3.6	0.80	0.59	4.4	1.6	<0.50	<0.5	<0.50	<0.50
Xylenes (total)	<0.5	0.84	<0.50	<0.5	<0.50	<0.50	<0.5	<0.50	<0.50
<b>Polycyclic Aromatic Hydrocarbons (Method 8270B)</b>									
Naphthalene	<5.0	15	14	39	7.5	21	<5.0	<5.0	<5.0
Acenaphthylene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Acenaphthene	<5.0	<5.0	<5.0	15	<5.0	<5.0	<5.0	<5.0	<5.0
Fluorene	<5.0	<5.0	<5.0	5.8	<5.0	<5.0	<5.0	<5.0	<5.0
Phenanthrene	<5.0	<5.0	<5.0	6.5	<5.0	<5.0	<5.0	<5.0	<5.0
Anthracene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Fluoranthene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Pyrene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(a)anthracene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Table 2: SUMMARY OF ANALYTICAL RESULTS, GROUNDWATER- *continued*

Date	MW-1			MW-2			MW-3		
	3/6/00	6/8/00	9/25/00	3/6/00	6/8/00	9/25/00	3/6/00	6/8/00	9/25/00
Chrysene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(b)fluoranthene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(k)fluoranthene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(a)pyrene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dibenzo(a,h)anthracene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(g,h,i)perylene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Indeno(1,2,3-cd)pyrene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-methylnaphthalene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
<b>Metals (ICP Scan Method)</b>									
Cadmium	<10	<10	<10	<10	<10	<10	<10	<10	<10
Chromium	23	<10	<10	24	<10	<10	<10	<10	<10
Lead	<20	<20	<20	<20	<20	<20	<20	28	<20
Nickel	16	<10	<10	29	<10	<10	<10	<10	<10
Zinc	<40	<20	<20	<40	<20	<20	<40	<20	29

Notes:

<xx = Compound not identified above reporting limit of xx.

-- = Not analyzed.

µg/L = micrograms per liter.

TPH = Total petroleum hydrocarbons.

<sup>1</sup> Identified as discrete peaks in the laboratory report.

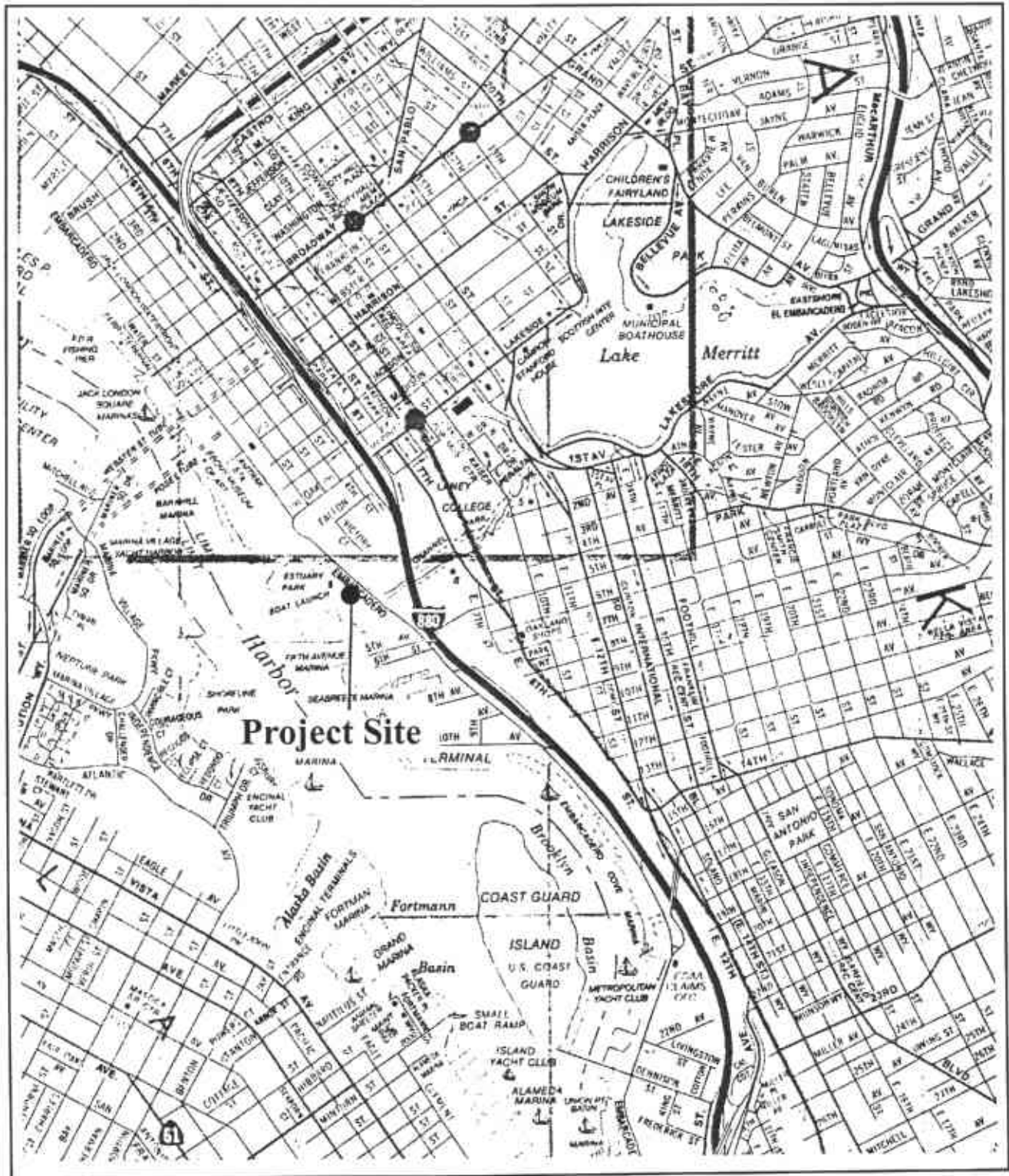
<sup>2</sup> Chromatogram pattern: Unidentified Hydrocarbons > C16.

<sup>3</sup> Chromatogram pattern: Unidentified Hydrocarbons > C9-C24.



# REGIONAL LOCATION

# Figure 1

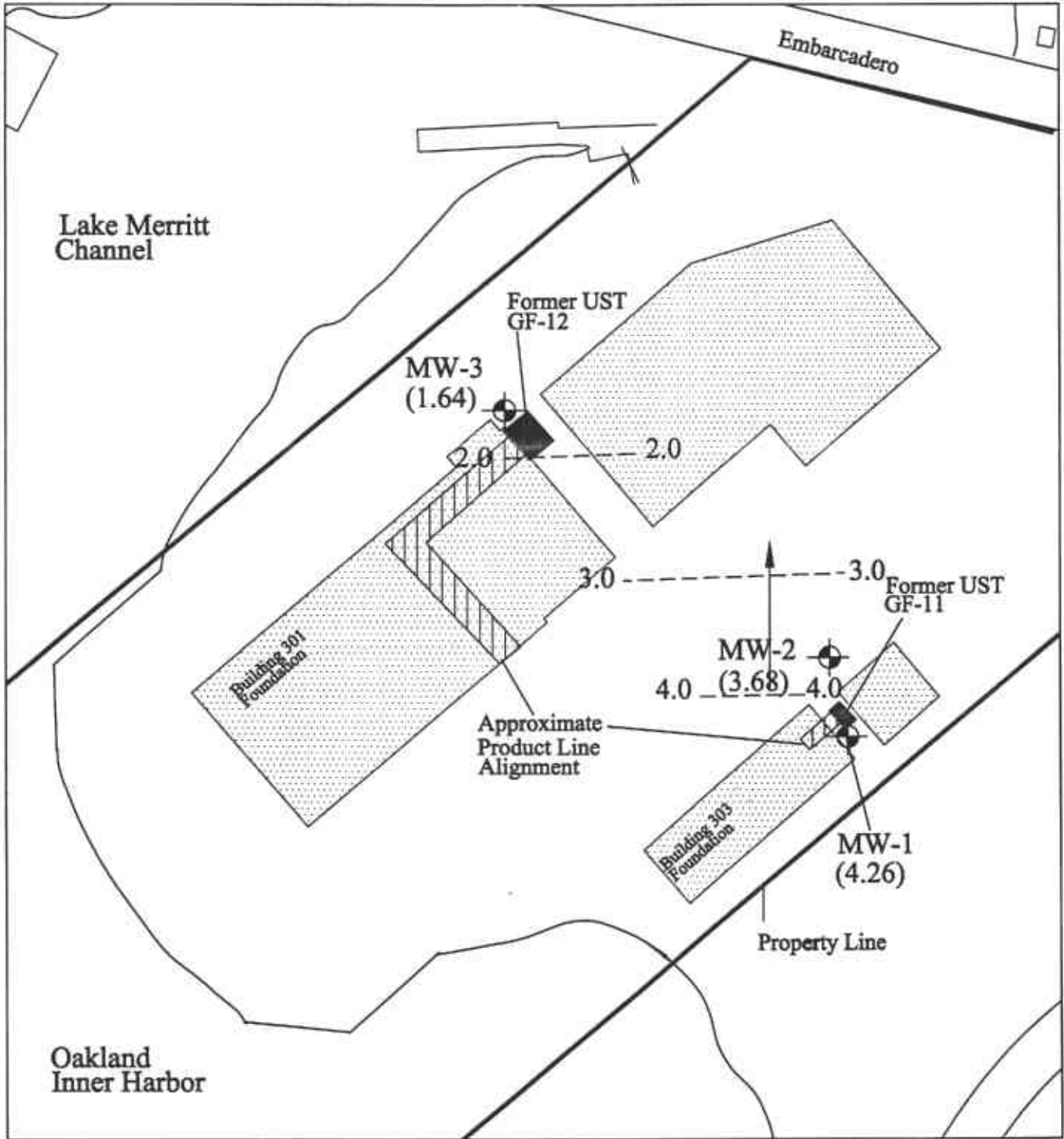


**Pacific Dry Dock Yard II**  
**321 Embarcadero**  
**Oakland, California**



**SITE PLAN AND GROUNDWATER CONTOURS**  
 September 2000

**Figure 2**



**Legend**

-  Monitoring Well Location
-  Groundwater Flow Direction

- 3.0 --- 3.0 Groundwater Elevation Contour
- (4.28) Groundwater Elevation (feet msl)

**Pacific Dry Dock Yard II**  
**321 Embarcadero, Oakland**



**ATTACHMENT A**

**GROUNDWATER SAMPLING FORMS**

# GROUNDWATER SAMPLING

Project no.:	98379-24	Well no.:	MW-1	Date:	9/25/00
Project name:	Pacific Dry Dock Yard II	Depth of well from TOC (feet):	10.03		
Location:	321 Embarcadero Oakland, CA	Well diameter (inch):	2		
Recorded by:	WKS	Screened interval from TOC (feet):	2-10		
Weather:	Sunny	TOC elevation (feet):	6.43		
Precip in past 5 days (inch):	0	Water level from TOC (feet):	2.17	Time:	12:06
		Product level from TOC (feet):	None	Time:	12:06
		Water level measurement device:	Dual-interface probe		

## CALCULATION OF WELL VOLUME:

$$[(10.03 \text{ ft}) - (2.17 \text{ ft})] \times (0.083 \text{ ft})^2 \times 3.14 \times 7.48 = \frac{1.27}{4.0} \text{ gallons in one well volume total gallons removed}$$

## CALIBRATION

	Time	Temp (° C)	pH	EC (µmho/cm)	NTU
Calibration Standard:	--	--	7.00/10.01	1,000	0.0/5.01
Before Purging:	11:50	26	7.00/10.01	1,000	0.0/5.01
After Purging:	13:55	26.8	7.06/10.03	1,043	0.0/4.98

## FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance	NTU
13:34	21.9	7.12	28.29	1.0	Clear with black particles (algae)	2.85
13:40	21.9	7.18	28.60	2.5	Clear with black particles (algae)	1.85
13:46	21.9	7.26	28.69	4.0	Clear with black particles (algae)	4.34

DO calibration:	7.95 @ 27° C	DO results after purge:	0.03
Appearance of sample:	Clear, 4.34 NTU	Time:	13:50
Duplicate/blank number:	--	Time:	--
Purge method:	Peristaltic pump and disposable polyethylene tubing		
Sampling equipment:	Peristaltic pump	VOC attachment:	N/A
Sample containers:	2-liter amber glass, three 4-ml VOAs, 1 liter poly		
Sample analyses:	TPHd, TPHmo, BTEX, Cd, Cr, Pb, Ni, Zn, PAHs	Laboratory:	Sequoia Analytical
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	Drum on site

98379-15.gw.wpd-9/27/00



# GROUNDWATER SAMPLING

Project no.:	98379-24	Well no.:	MW-3	Date:	9/25/00
Project name:	Pacific Dry Dock Yard II	Depth of well from TOC (feet):	11.05		
Location:	321 Embarcadero	Well diameter (inch):	2		
	Oakland, CA	Screened interval from TOC (feet):	4-11		
Recorded by:	WKS	TOC elevation (feet):	6.49		
Weather:	Sunny	Water level from TOC (feet):	4.85	Time:	12:00
Precip in past 5 days (inch):	0	Product level from TOC (feet):	None	Time:	12:00
		Water level measurement device:	Dual-interface probe		

## CALCULATION OF WELL VOLUME:

$$[(11.05 \text{ ft}) - (4.85 \text{ ft})] \times (0.083 \text{ ft})^2 \times 3.14 \times 7.48 = \frac{1.0}{3.0} \text{ gallons in one well volume}$$

well depth      water level      well radius

## CALIBRATION

	Time	Temp (° C)	pH	EC (µmho/cm)	NTU
Calibration Standard:	--	--	7.00/10.01	1,000	0.0/5.0
Before Purging:	11:50	26	7.00/10.01	1,000	0.0/5.0
After Purging:	13:55	26.8	7.06/10.03	1,043	0.0/4.98

## FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance	NTU
12:15	23.4	6.92	18.38	1.0	Clear	0.79
12:20	23.9	6.94	18.31	2.0	Clear	0.48
12:26	23.9	6.83	18.32	3.0	Clear	0.31

DO calibration:	7.95 @ 27° C	DO results after purge:	0.05
Appearance of sample:	Clear, 0.31 NTU	Time:	12:30
Duplicate/blank number:	--	Time:	--
Purge method:	Peristaltic pump and disposable polyethylene tubing		
Sampling equipment:	Peristaltic pump	VOC attachment:	N/A
Sample containers:	2-liter amber glass, three 4-ml VOAs, 1 liter poly		
Sample analyses:	TPHd, TPHmo, BTEX, Cd, Cr, Pb, Ni, Zn, PAHs	Laboratory:	Sequoia Analytical
Decontamination method:	TSP and water, DI water rinse	Rinsate disposal:	Drum on site

98379-15.gw.wpd-9/27/00

**ATTACHMENT B**  
**LABORATORY REPORTS**



# Sequoia Analytical

404 N. Wiget Lane  
Walnut Creek, CA 94598  
(925) 988-9600  
FAX (925) 988-9673  
www.sequoialabs.com

18 October, 2000

RECEIVED

OCT 19 2000

BASELINE

Bill Scott  
Baseline  
5900 Hollis St. Suite D  
Emeryville, CA 94608

RE: Pacific Dry Dock Yard II  
Sequoia Report: W009587

Enclosed are the results of analyses for samples received by the laboratory on 25-Sep-00 15:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Alan B. Kemp  
Laboratory Director

CA ELAP Certificate #1271







Baseline  
5900 Hollis St. Suite D  
Emeryville CA, 94608

Project: Pacific Dry Dock Yard II  
Project Number: 98379-15  
Project Manager: Bill Scott

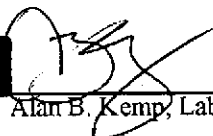
Reported:  
18-Oct-00 13:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	W009587-01	Water	25-Sep-00 13:50	25-Sep-00 15:00
MW-2	W009587-02	Water	25-Sep-00 13:20	25-Sep-00 15:00
MW-3	W009587-03	Water	25-Sep-00 12:30	25-Sep-00 15:00

Sequoia Analytical - Walnut Creek

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

  
Alan B. Kemp, Laboratory Director





Baseline  
5900 Hollis St. Suite D  
Emeryville CA, 94608

Project: Pacific Dry Dock Yard II  
Project Number: 98379-15  
Project Manager: Bill Scott

Reported:  
18-Oct-00 13:37

**Diesel Hydrocarbons (C9-C24) with Silica Gel Cleanup by DHS LUFT  
Sequoia Analytical - Walnut Creek**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (W009587-01) Water</b> <b>Sampled: 25-Sep-00 13:50</b> <b>Received: 25-Sep-00 15:00</b>									
Diesel Range Hydrocarbons	410	50	ug/l	1	0J06016	06-Oct-00	09-Oct-00	DHS LUFT	D-12
Motor Oil (C16-C36)	ND	250	"	"	"	"	"	"	
Surrogate: n-Pentacosane		120 %	50-150		"	"	"	"	
<b>MW-2 (W009587-02) Water</b> <b>Sampled: 25-Sep-00 13:20</b> <b>Received: 25-Sep-00 15:00</b>									
Diesel Range Hydrocarbons	230	50	ug/l	1	0J06016	06-Oct-00	09-Oct-00	DHS LUFT	D-12
Motor Oil (C16-C36)	ND	250	"	"	"	"	"	"	
Surrogate: n-Pentacosane		118 %	50-150		"	"	"	"	
<b>MW-3 (W009587-03) Water</b> <b>Sampled: 25-Sep-00 12:30</b> <b>Received: 25-Sep-00 15:00</b>									
Diesel Range Hydrocarbons	300	50	ug/l	1	0J06016	06-Oct-00	09-Oct-00	DHS LUFT	D-12
Motor Oil (C16-C36)	ND	250	"	"	"	"	"	"	
Surrogate: n-Pentacosane		270 %	50-150		"	"	"	"	S-04





Baseline  
5900 Hollis St. Suite D  
Emeryville CA, 94608

Project: Pacific Dry Dock Yard II  
Project Number: 98379-15  
Project Manager: Bill Scott

Reported:  
18-Oct-00 13:37

**BTEX by DHS LUFT**  
**Sequoia Analytical - Walnut Creek**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (W009587-01) Water</b> Sampled: 25-Sep-00 13:50 Received: 25-Sep-00 15:00									
Benzene	ND	0.50	ug/l	1	0J05003	05-Oct-00	05-Oct-00	EPA 8020	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	0.59	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		93.7 %	70-130		"	"	"	"	
<b>MW-2 (W009587-02) Water</b> Sampled: 25-Sep-00 13:20 Received: 25-Sep-00 15:00									
Benzene	ND	0.50	ug/l	1	0J05003	05-Oct-00	05-Oct-00	EPA 8020	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		98.0 %	70-130		"	"	"	"	
<b>MW-3 (W009587-03) Water</b> Sampled: 25-Sep-00 12:30 Received: 25-Sep-00 15:00									
Benzene	ND	0.50	ug/l	1	0I29001	29-Sep-00	18-Oct-00	EPA 8020	CC-3
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		96.3 %	70-130		"	"	"	"	





Baseline  
5900 Hollis St. Suite D  
Emeryville CA, 94608

Project: Pacific Dry Dock Yard II  
Project Number: 98379-15  
Project Manager: Bill Scott

Reported:  
18-Oct-00 13:37

**Total Metals by EPA 200 Series Methods  
Sequoia Analytical - Walnut Creek**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (W009587-01) Water    Sampled: 25-Sep-00 13:50    Received: 25-Sep-00 15:00</b>									
Cadmium	ND	0.010	mg/l	1	0J07002	07-Oct-00	18-Oct-00	EPA 200.7	
Chromium	ND	0.010	"	"	"	"	18-Oct-00	"	
Lead	ND	0.020	"	"	"	"	18-Oct-00	"	
Nickel	ND	0.010	"	"	"	"	18-Oct-00	"	
Zinc	ND	0.020	"	"	"	"	"	"	
<b>MW-2 (W009587-02) Water    Sampled: 25-Sep-00 13:20    Received: 25-Sep-00 15:00</b>									
Cadmium	ND	0.010	mg/l	1	0J07002	07-Oct-00	18-Oct-00	EPA 200.7	
Chromium	ND	0.010	"	"	"	"	18-Oct-00	"	
Lead	ND	0.020	"	"	"	"	18-Oct-00	"	
Nickel	ND	0.010	"	"	"	"	18-Oct-00	"	
Zinc	ND	0.020	"	"	"	"	18-Oct-00	"	
<b>MW-3 (W009587-03) Water    Sampled: 25-Sep-00 12:30    Received: 25-Sep-00 15:00</b>									
Cadmium	ND	0.010	mg/l	1	0J07002	07-Oct-00	18-Oct-00	EPA 200.7	
Chromium	ND	0.010	"	"	"	"	18-Oct-00	"	
Lead	ND	0.020	"	"	"	"	18-Oct-00	"	
Nickel	ND	0.010	"	"	"	"	18-Oct-00	"	
Zinc	0.029	0.020	"	"	"	"	18-Oct-00	"	





Baseline  
5900 Hollis St. Suite D  
Emeryville CA, 94608

Project: Pacific Dry Dock Yard II  
Project Number: 98379-15  
Project Manager: Bill Scott

Reported:  
18-Oct-00 13:37

**Semivolatile Organic Compounds by EPA Method 8270B**

**Sequoia Analytical - Walnut Creek**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (W009587-01) Water Sampled: 25-Sep-00 13:50 Received: 25-Sep-00 15:00</b>									
Acenaphthene	ND	5.0	ug/l	1	0129009	29-Sep-00	04-Oct-00	EPA 8270B	
Acenaphthylene	ND	5.0	"	"	"	"	"	"	
Anthracene	ND	5.0	"	"	"	"	"	"	
Benzo (a) anthracene	ND	5.0	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	5.0	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	5.0	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	5.0	"	"	"	"	"	"	
Benzo[a]pyrene	ND	5.0	"	"	"	"	"	"	
Chrysene	ND	5.0	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	5.0	"	"	"	"	"	"	
Fluoranthene	ND	5.0	"	"	"	"	"	"	
Fluorene	ND	5.0	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	5.0	"	"	"	"	"	"	
2-Methylnaphthalene	ND	5.0	"	"	"	"	"	"	
Naphthalene	14	5.0	"	"	"	"	"	"	
Phenanthrene	ND	5.0	"	"	"	"	"	"	
Pyrene	ND	5.0	"	"	"	"	"	"	

Surrogate: 2-Fluorophenol		27.2 %	21-110	"	"	"	"	"	
Surrogate: Phenol-d6		16.9 %	10-110	"	"	"	"	"	
Surrogate: Nitrobenzene-d5		55.3 %	35-114	"	"	"	"	"	
Surrogate: 2-Fluorobiphenyl		62.0 %	43-116	"	"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		76.0 %	10-123	"	"	"	"	"	
Surrogate: p-Terphenyl-d14		72.3 %	33-141	"	"	"	"	"	

<b>MW-2 (W009587-02) Water Sampled: 25-Sep-00 13:20 Received: 25-Sep-00 15:00</b>									
Acenaphthene	ND	5.0	ug/l	1	0129009	29-Sep-00	04-Oct-00	EPA 8270B	
Acenaphthylene	ND	5.0	"	"	"	"	"	"	
Anthracene	ND	5.0	"	"	"	"	"	"	
Benzo (a) anthracene	ND	5.0	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	5.0	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	5.0	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	5.0	"	"	"	"	"	"	
Benzo[a]pyrene	ND	5.0	"	"	"	"	"	"	
Chrysene	ND	5.0	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	5.0	"	"	"	"	"	"	
Fluoranthene	ND	5.0	"	"	"	"	"	"	
Fluorene	ND	5.0	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	5.0	"	"	"	"	"	"	

Sequoia Analytical - Walnut Creek

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Baseline  
5900 Hollis St. Suite D  
Emeryville CA, 94608

Project: Pacific Dry Dock Yard II  
Project Number: 98379-15  
Project Manager: Bill Scott

Reported:  
18-Oct-00 13:37

**Semivolatile Organic Compounds by EPA Method 8270B**  
**Sequoia Analytical - Walnut Creek**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-2 (W009587-02) Water</b> Sampled: 25-Sep-00 13:20 Received: 25-Sep-00 15:00									
2-Methylnaphthalene	ND	5.0	ug/l	1	0129009	29-Sep-00	04-Oct-00	EPA 8270B	
Naphthalene	21	5.0	"	"	"	"	"	"	
Phenanthrene	ND	5.0	"	"	"	"	"	"	
Pyrene	ND	5.0	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		31.9 %	21-110		"	"	"	"	
Surrogate: Phenol-d6		20.7 %	10-110		"	"	"	"	
Surrogate: Nitrobenzene-d5		61.8 %	35-114		"	"	"	"	
Surrogate: 2-Fluorobiphenyl		66.3 %	43-116		"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		80.0 %	10-123		"	"	"	"	
Surrogate: p-Terphenyl-d14		74.3 %	33-141		"	"	"	"	
<b>MW-3 (W009587-03) Water</b> Sampled: 25-Sep-00 12:30 Received: 25-Sep-00 15:00									
Acenaphthene	ND	5.0	ug/l	1	0129009	29-Sep-00	04-Oct-00	EPA 8270B	
Acenaphthylene	ND	5.0	"	"	"	"	"	"	
Anthracene	ND	5.0	"	"	"	"	"	"	
Benzo (a) anthracene	ND	5.0	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	5.0	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	5.0	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	5.0	"	"	"	"	"	"	
Benzo[a]pyrene	ND	5.0	"	"	"	"	"	"	
Chrysene	ND	5.0	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	5.0	"	"	"	"	"	"	
Fluoranthene	ND	5.0	"	"	"	"	"	"	
Fluorene	ND	5.0	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	5.0	"	"	"	"	"	"	
2-Methylnaphthalene	ND	5.0	"	"	"	"	"	"	
Naphthalene	ND	5.0	"	"	"	"	"	"	
Phenanthrene	ND	5.0	"	"	"	"	"	"	
Pyrene	ND	5.0	"	"	"	"	"	"	
Surrogate: 2-Fluorophenol		30.1 %	21-110		"	"	"	"	
Surrogate: Phenol-d6		19.1 %	10-110		"	"	"	"	
Surrogate: Nitrobenzene-d5		58.4 %	35-114		"	"	"	"	
Surrogate: 2-Fluorobiphenyl		64.1 %	43-116		"	"	"	"	
Surrogate: 2,4,6-Tribromophenol		61.1 %	10-123		"	"	"	"	
Surrogate: p-Terphenyl-d14		69.1 %	33-141		"	"	"	"	

Sequoia Analytical - Walnut Creek

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Baseline  
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Project: Pacific Dry Dock Yard II  
Project Number: 98379-15  
Project Manager: Bill Scott

Reported:  
18-Oct-00 13:37

**Diesel Hydrocarbons (C9-C24) with Silica Gel Cleanup by DHS LUFT - Quality Control  
Sequoia Analytical - Walnut Creek**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 0J06016 - EPA 3510B</b>										
<b>Blank (0J06016-BLK1)</b>										
Prepared: 06-Oct-00 Analyzed: 09-Oct-00										
Diesel Range Hydrocarbons	ND	50	ug/l							
Motor Oil (C16-C36)	ND	250	"							
Surrogate: n-Pentacosane	41.0		"	33.3		123	50-150			
<b>LCS (0J06016-BS1)</b>										
Prepared: 06-Oct-00 Analyzed: 09-Oct-00										
Diesel Range Hydrocarbons	334	50	ug/l	500		66.8	35-125			
Surrogate: n-Pentacosane	41.3		"	33.3		124	50-150			
<b>LCS Dup (0J06016-BSD1)</b>										
Prepared: 06-Oct-00 Analyzed: 09-Oct-00										
Diesel Range Hydrocarbons	400	50	ug/l	500		80.0	35-125	18.0	50	
Surrogate: n-Pentacosane	38.0		"	33.3		114	50-150			





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Project Manager: Bill Scott

Reported:  
18-Oct-00 13:37

## BTEX by DHS LUFT - Quality Control Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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### Batch 0I29001 - EPA 5030B [P/T]

#### Blank (0I29001-BLK1)

Prepared & Analyzed: 29-Sep-00

Benzene	ND	0.50	ug/l							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Surrogate: <i>a,a,a</i> -Trifluorotoluene	27.7		"	30.0		92.3	70-130			

#### LCS (0I29001-BS1)

Prepared: 29-Sep-00 Analyzed: 18-Oct-00

Benzene	21.0	0.50	ug/l	20.0		105	70-130			
Toluene	21.1	0.50	"	20.0		106	70-130			
Ethylbenzene	21.2	0.50	"	20.0		106	70-130			
Xylenes (total)	67.4	0.50	"	60.0		112	70-130			
Surrogate: <i>a,a,a</i> -Trifluorotoluene	28.7		"	30.0		95.7	70-130			

#### Matrix Spike (0I29001-MS1)

Source: W009566-03

Prepared: 29-Sep-00 Analyzed: 18-Oct-00

Q-07

Benzene	6.97	0.50	ug/l	20.0	ND	34.8	70-130			
Toluene	18.8	0.50	"	20.0	ND	94.0	70-130			
Ethylbenzene	18.7	0.50	"	20.0	ND	93.5	70-130			
Xylenes (total)	60.1	0.50	"	60.0	ND	100	70-130			
Surrogate: <i>a,a,a</i> -Trifluorotoluene	28.3		"	30.0		94.3	70-130			

#### Matrix Spike Dup (0I29001-MSD1)

Source: W009566-03

Prepared: 29-Sep-00 Analyzed: 18-Oct-00

Q-07

Benzene	8.58	0.50	ug/l	20.0	ND	42.9	70-130	20.7	20	
Toluene	19.5	0.50	"	20.0	ND	97.5	70-130	3.66	20	
Ethylbenzene	19.3	0.50	"	20.0	ND	96.5	70-130	3.16	20	
Xylenes (total)	61.9	0.50	"	60.0	ND	103	70-130	2.95	20	
Surrogate: <i>a,a,a</i> -Trifluorotoluene	27.3		"	30.0		91.0	70-130			







Baseline  
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Project: Pacific Dry Dock Yard II  
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Project Manager: Bill Scott

Reported:  
18-Oct-00 13:37

## BTEX by DHS LUFT - Quality Control Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 0J05003 - EPA 5030B [P/T]</b>										
<b>Blank (0J05003-BLK1)</b> Prepared & Analyzed: 05-Oct-00										
Benzene	ND	0.50	ug/l							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Surrogate: <i>a, a, a</i> -Trifluorotoluene	31.1		"	30.0		104	70-130			
<b>LCS (0J05003-BS1)</b> Prepared & Analyzed: 05-Oct-00										
Benzene	19.6	0.50	ug/l	20.0		98.0	70-130			
Toluene	20.0	0.50	"	20.0		100	70-130			
Ethylbenzene	20.7	0.50	"	20.0		104	70-130			
Xylenes (total)	59.0	0.50	"	60.0		98.3	70-130			
Surrogate: <i>a, a, a</i> -Trifluorotoluene	28.3		"	30.0		94.3	70-130			
<b>Matrix Spike (0J05003-MS1)</b> Source: W009564-20 Prepared & Analyzed: 05-Oct-00										
Benzene	21.8	0.50	ug/l	20.0	ND	109	70-130			
Toluene	22.1	0.50	"	20.0	ND	111	70-130			
Ethylbenzene	22.3	0.50	"	20.0	ND	111	70-130			
Xylenes (total)	64.0	0.50	"	60.0	ND	107	70-130			
Surrogate: <i>a, a, a</i> -Trifluorotoluene	29.0		"	30.0		96.7	70-130			
<b>Matrix Spike Dup (0J05003-MSD1)</b> Source: W009564-20 Prepared & Analyzed: 05-Oct-00										
Benzene	20.0	0.50	ug/l	20.0	ND	100	70-130	8.61	20	
Toluene	20.2	0.50	"	20.0	ND	101	70-130	8.98	20	
Ethylbenzene	20.3	0.50	"	20.0	ND	101	70-130	9.39	20	
Xylenes (total)	58.3	0.50	"	60.0	ND	97.2	70-130	9.32	20	
Surrogate: <i>a, a, a</i> -Trifluorotoluene	27.0		"	30.0		90.0	70-130			





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Reported:  
18-Oct-00 13:37

## Total Metals by EPA 200 Series Methods - Quality Control Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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### Batch 0J07002 - 200.7

#### Blank (0J07002-BLK1)

Prepared: 07-Oct-00 Analyzed: 18-Oct-00

Cadmium	ND	0.010	mg/l							
Chromium	ND	0.010	"							
Lead	ND	0.020	"							
Nickel	ND	0.010	"							
Zinc	ND	0.020	"							

#### LCS (0J07002-BS1)

Prepared: 07-Oct-00 Analyzed: 18-Oct-00

Cadmium	0.976	0.010	mg/l	1.00		97.6	80-120			
Chromium	0.949	0.010	"	1.00		94.9	80-120			
Lead	0.955	0.020	"	1.00		95.5	80-120			
Nickel	1.04	0.010	"	1.00		104	80-120			
Zinc	1.10	0.020	"	1.00		110	80-120			

#### LCS Dup (0J07002-BSD1)

Prepared: 07-Oct-00 Analyzed: 18-Oct-00

Cadmium	1.02	0.010	mg/l	1.00		102	80-120	4.41	20	
Chromium	0.988	0.010	"	1.00		98.3	80-120	4.03	20	
Lead	0.999	0.020	"	1.00		99.9	80-120	4.50	20	
Nickel	1.03	0.010	"	1.00		103	80-120	0.966	20	
Zinc	1.13	0.020	"	1.00		113	80-120	2.69	20	





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Project: Pacific Dry Dock Yard II  
Project Number: 98379-15  
Project Manager: Bill Scott

Reported:  
18-Oct-00 13:37

**Semivolatile Organic Compounds by EPA Method 8270B - Quality Control  
Sequoia Analytical - Walnut Creek**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 0I29009 - EPA 3510B**

Blank (0I29009-BLK1)

Prepared: 29-Sep-00 Analyzed: 02-Oct-00

Acenaphthene	ND	5.0	ug/l							
Acenaphthylene	ND	5.0	"							
Anthracene	ND	5.0	"							
Benzo (a) anthracene	ND	5.0	"							
Benzo (b) fluoranthene	ND	5.0	"							
Benzo (k) fluoranthene	ND	5.0	"							
Benzo (ghi) perylene	ND	5.0	"							
Benzo[a]pyrene	ND	5.0	"							
Chrysene	ND	5.0	"							
Dibenz (a,h) anthracene	ND	5.0	"							
Fluoranthene	ND	5.0	"							
Fluorene	ND	5.0	"							
Indeno (1,2,3-cd) pyrene	ND	5.0	"							
2-Methylnaphthalene	ND	5.0	"							
Naphthalene	ND	5.0	"							
Phenanthrene	ND	5.0	"							
Pyrene	ND	5.0	"							
Surrogate: 2-Fluorophenol	66.2		"	150		44.1	21-110			
Surrogate: Phenol-d6	39.7		"	150		26.5	10-110			
Surrogate: Nitrobenzene-d5	70.9		"	100		70.9	35-114			
Surrogate: 2-Fluorobiphenyl	74.5		"	100		74.5	43-116			
Surrogate: 2,4,6-Tribromophenol	102		"	150		68.0	10-123			
Surrogate: p-Terphenyl-d14	72.3		"	100		72.3	33-141			

**LCS (0I29009-BS1)**

Prepared: 29-Sep-00 Analyzed: 02-Oct-00

Acenaphthene	70.8	5.0	ug/l	100		70.8	46-118			
Pyrene	69.7	5.0	"	100		69.7	26-127			
Surrogate: 2-Fluorophenol	69.6		"	150		46.4	21-110			
Surrogate: Phenol-d6	42.2		"	150		28.1	10-110			
Surrogate: Nitrobenzene-d5	77.2		"	100		77.2	35-114			
Surrogate: 2-Fluorobiphenyl	76.2		"	100		76.2	43-116			
Surrogate: 2,4,6-Tribromophenol	118		"	150		78.7	10-123			
Surrogate: p-Terphenyl-d14	69.9		"	100		69.9	33-141			

Sequoia Analytical - Walnut Creek

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Baseline  
5900 Hollis St. Suite D  
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Project: Pacific Dry Dock Yard II  
Project Number: 98379-15  
Project Manager: Bill Scott

Reported:  
18-Oct-00 13:37

## Semivolatile Organic Compounds by EPA Method 8270B - Quality Control Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 0I29009 - EPA 3510B</b>										
<b>LCS Dup (0I29009-BSD1)</b>					Prepared: 29-Sep-00 Analyzed: 02-Oct-00					
Acenaphthene	68.6	5.0	ug/l	100		68.6	46-118	3.16	30	
Pyrene	74.9	5.0	"	100		74.9	26-127	7.19	30	
Surrogate: 2-Fluorophenol	64.3		"	150		42.9	21-110			
Surrogate: Phenol-d6	38.8		"	150		25.9	10-110			
Surrogate: Nitrobenzene-d5	74.0		"	100		74.0	35-114			
Surrogate: 2-Fluorobiphenyl	74.6		"	100		74.6	43-116			
Surrogate: 2,4,6-Tribromophenol	108		"	150		72.0	10-123			
Surrogate: p-Terphenyl-d14	71.9		"	100		71.9	33-141			





Baseline  
5900 Hollis St. Suite D  
Emeryville CA, 94608

Project: Pacific Dry Dock Yard II  
Project Number: 98379-15  
Project Manager: Bill Scott

Reported:  
18-Oct-00 13:37

### Notes and Definitions

- CC-3 Continuing Calibration indicates that the quantitative result for this analyte includes a greater than 15% degree of uncertainty. The value as reported is within method acceptance.
- D-12 Chromatogram Pattern: Unidentified Hydrocarbons > C16
- Q-07 The RPD value for this QC sample is above the established control limit. Review of associated QC indicates the high RPD does not represent an out-of-control condition for the batch.
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference



# Chromatogram

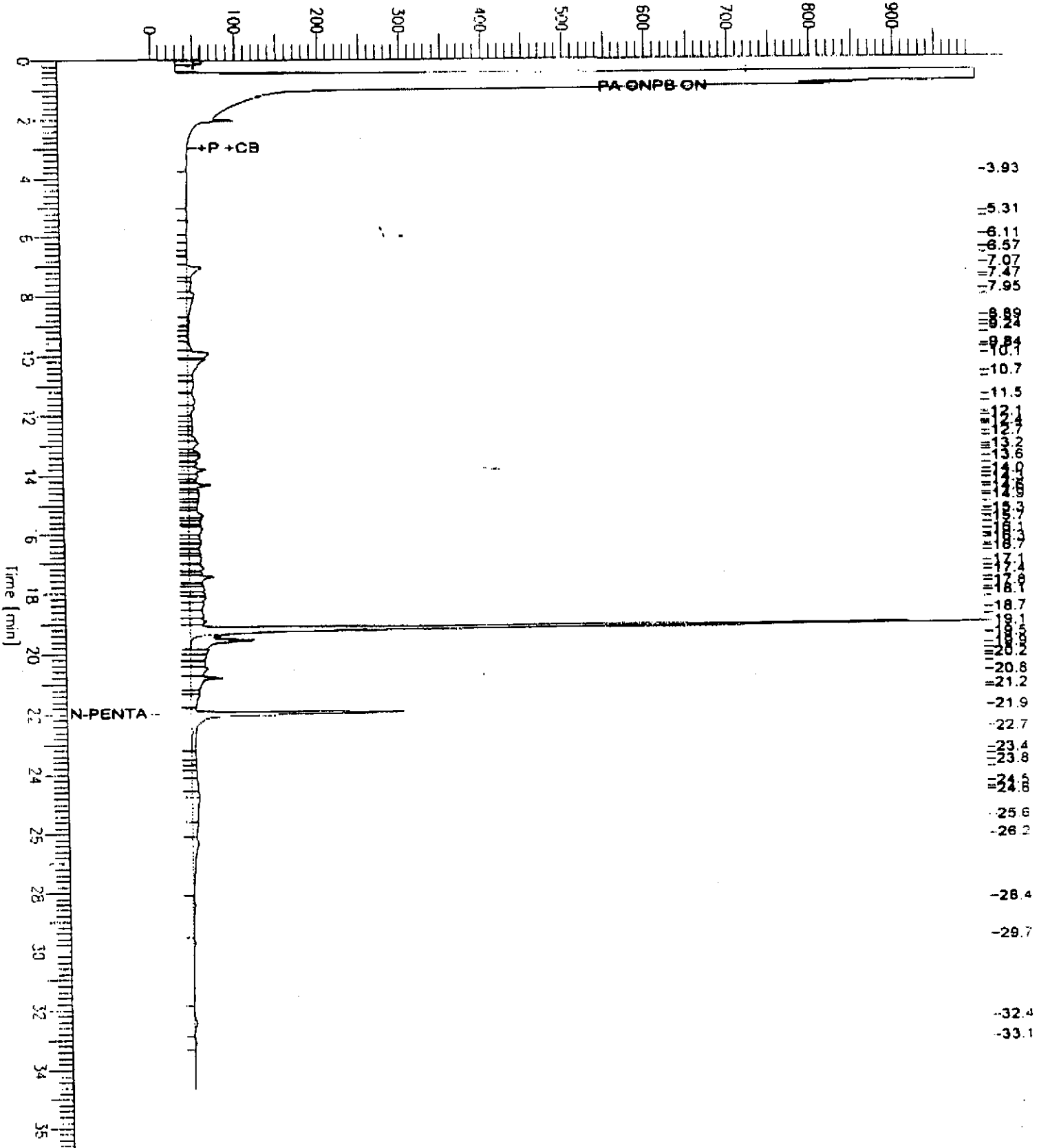
*MW-1*

Sample Name : W009587-01  
 FileName : C:\HP3DATA\JAOC154.raw  
 Method : TPH03A  
 Start Time : 0.00 min  
 Scale Factor: 0.0

End Time : 36.70 min  
 Plot Offset: 0 mV

Page 1 of 1  
 Sample #: Sample  
 Date : 10/9/00 05:57 PM  
 Time of Injection: 10/9/00 05:23 PM  
 Low Point : 0.00 mV  
 High Point : 1000.00 mV  
 Plot Scale: 1000.0 mV

Response [mV]



# Chromatogram

MW-2

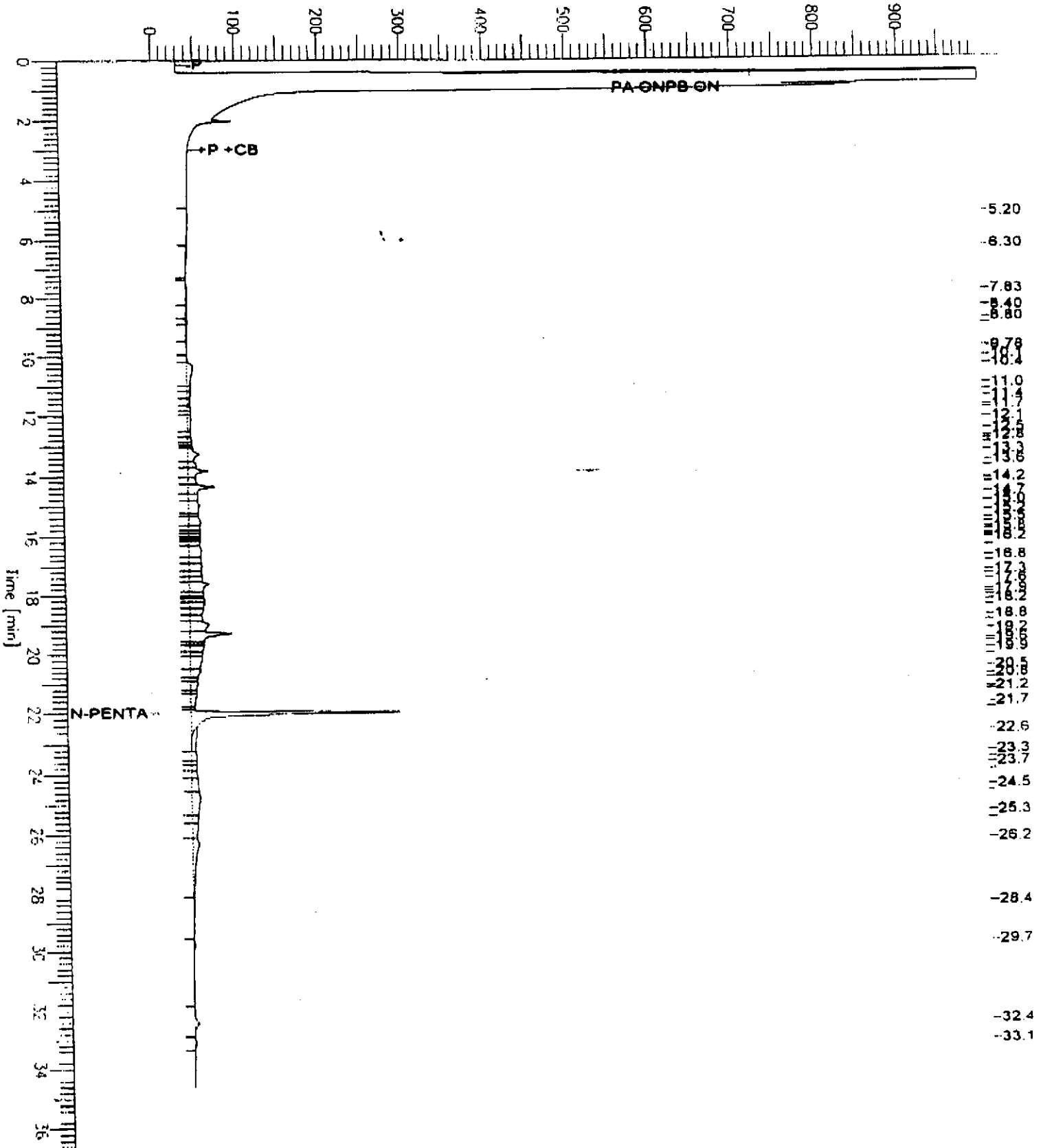
File Name : W009587-02  
 File Name : C:\NP3DATA\JAOC155.raw  
 Method : TPH03A  
 Start Time : 0.00 min  
 Scale Factor: 0.0

End Time : 36.70 min  
 Plot Offset: 0 mV

Sample #: Sample  
 Date : 10/9/00 06:39 PM  
 Time of Injection: 10/9/00 06:04 PM  
 Low Point : 0.00 mV  
 Plot Scale: 1000.0 mV  
 High Point : 1000.00 mV

Page 1 of 1

Response [mV]



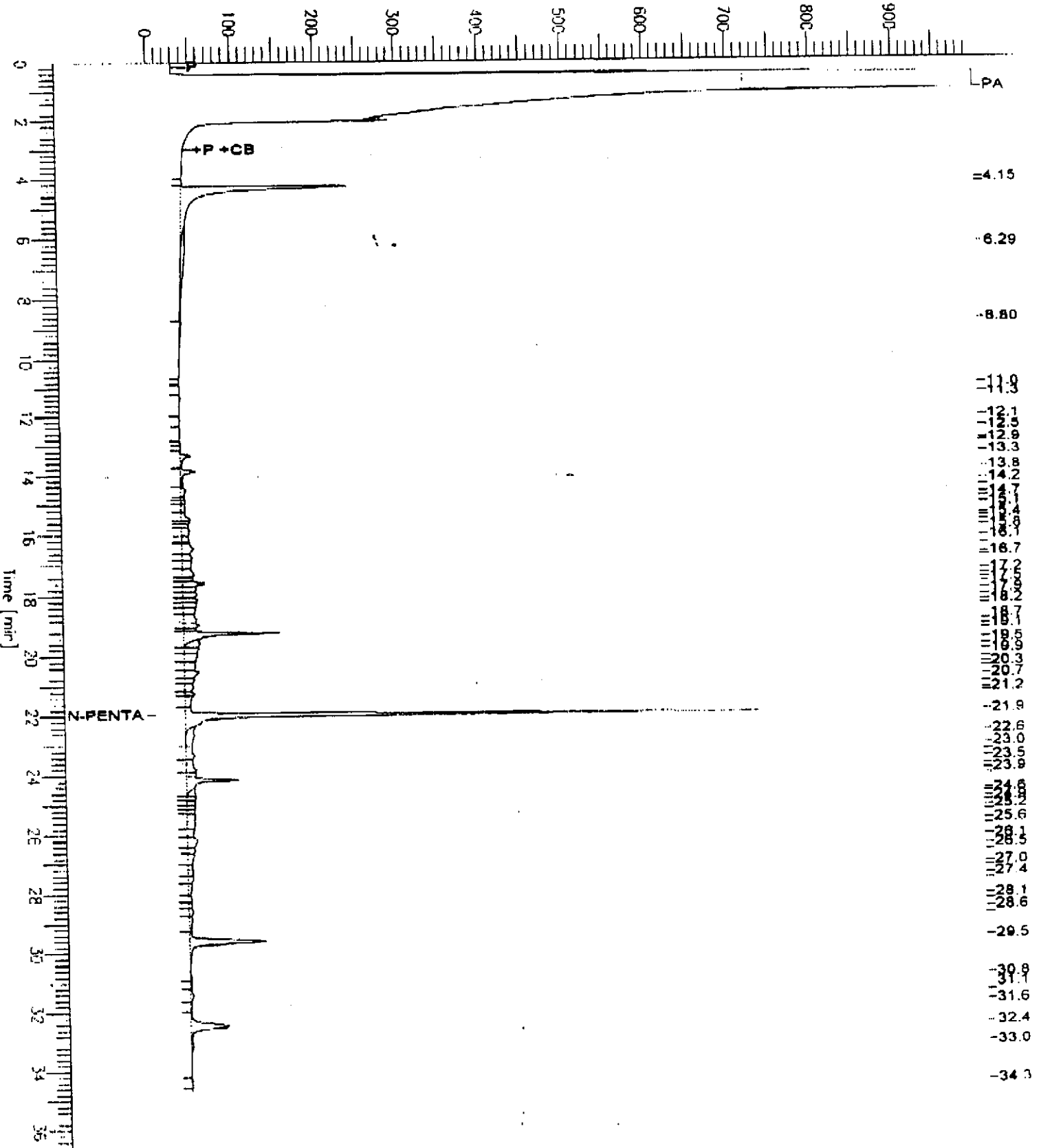
MW-3

Sample Name : W009587-03  
FileName : C:\HP\DATA\JAOC156.raw  
Method : TPH03A  
Start Time : 0.00 min  
Scale Factor: 0.0

End Time : 36.70 min  
Plot Offset: 0 mV

Sample #: Sample  
Date : 10/9/00 07:21 PM  
Time of Injection: 10/9/00 06:46 PM  
Low Point : 0.00 mV  
Plot Scale: 1000.0 mV  
High Point : 1000.00 mV

Response [mV]





# Chromatogram

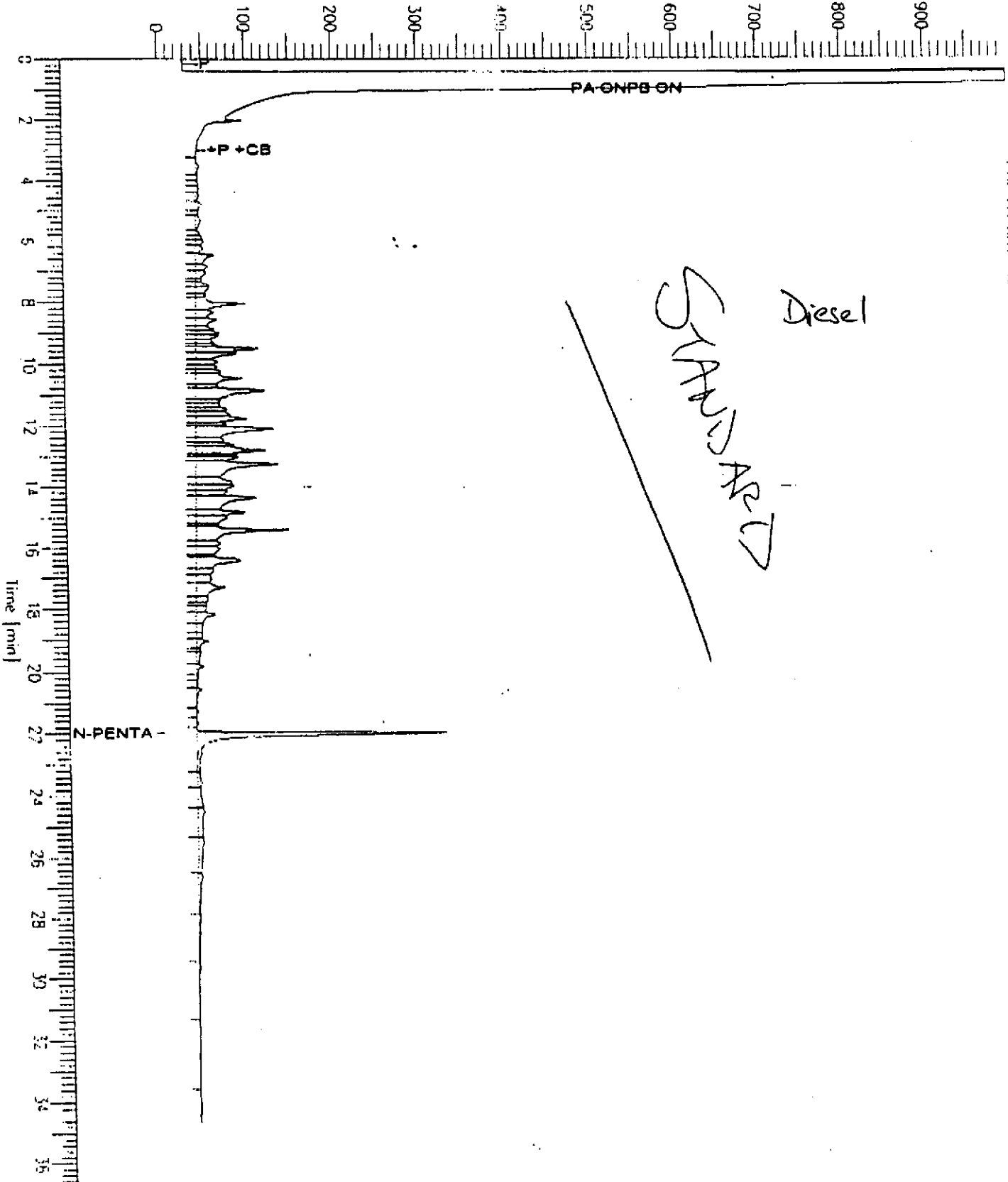
Sample Name : 0092601  
 FileName : C:\HP3DATA\JAOC148.raw  
 Method : TPH03A  
 Start Time : 0.00 min  
 Scale Factor : 0.0

End Time : 36.70 min  
 Plot Offset : 0 mV

Sample #: 500ppmCCV  
 Date : 10/9/00 11:12 AM  
 Time of Injection: 10/9/00 10:37 AM  
 Low Point : 0.00 mV  
 Plot Scale: 1000.0 mV  
 High Point : 1000.00 mV

Page 1 of 1

Response [mV]



*STANDARD Diesel*

36.70  
 36.00  
 35.00  
 34.00  
 33.00  
 32.00  
 31.6  
 30.00  
 29.00  
 28.00  
 27.5  
 26.6  
 25.4  
 24.2  
 23.5  
 22.6  
 21.0  
 20.00  
 19.00  
 18.00  
 17.00  
 16.00  
 15.00  
 14.00  
 13.00  
 12.00  
 11.00  
 10.00  
 9.00  
 8.00  
 7.00  
 6.00  
 5.00  
 4.00  
 3.5  
 3.00  
 2.00  
 1.00  
 0.00



Quality Control Checklist  
for Review of Laboratory Report

Job No.: 98379-24  
 Laboratory: Sequoia Analytical  
 Report Date: 11/18/00

Site: Pacific Dry Dock Yard II  
 Laboratory Report No: 98379-15  
 BASELINE Review By: J. Petjohn

	Yes	No	NA
<b>GENERAL QUESTIONS</b> (Describe "no" responses below in "comments" section. Contact the laboratory, as required, for further explanation or action on "no" responses; document discussion in comments section.)			
1a. Does the report include a case narrative? (A case narrative <i>MUST</i> be prepared by the lab for all analytical work requested by BASELINE)	✓		X
1b. Is the number of pages for the lab report as indicated on the case narrative/lab transmittal consistent with the number of pages that are included in report?	✓		X
1c. Does the case narrative indicate which samples were analyzed by a subcontractor and the subcontractor's name?			✓
1d. Does the case narrative summarize subsequent requests not shown on the chain-of-custody (e.g., additional analyses requested, release of "hold" samples)?			✓
1e. Does the case narrative explain why requested analyses could not be performed by laboratory (e.g., insufficient sample)?			✓
1f. Does the case narrative explain all problems with the QA/QC data as identified in the checklist (as applicable) ?	✓		
2a. Is the laboratory report format consistent and legible throughout the report?	✓		X
2b. Are the sample and reported dates shown in the laboratory report correct?	✓		X
3a. Does the lab report include the original chain-of-custody form?	✓		X
3b. Were all samples appropriately analyzed as requested on the chain-of-custody form?	✓		X
4. Was the lab report signed and dated as being reviewed by the laboratory director, QA manager, or other appropriate personnel? (Some lab reports have signature spaces for each page). (This requirement also applies to any analyses subcontracted out by the laboratory)	✓		X
5a. Are preparation methods, cleanup methods (if applicable), and laboratory methods indicated for all analyses?	✓		X
5b. If additional analytes were requested as part of the reporting of the data for an analytical method, were these included in the lab report?			✓
6. Are the units in the lab report provided for each analysis consistent throughout the report?	✓		X
7. Are the detection limits (DL) appropriate based on the intended use of the data? (e.g., DL below applicable MCLs for water quality issues?)	✓		X
8a. Are detection limits appropriate based on the analysis performed? (i.e., not elevated due to dilution effects)	✓		X
8b. If no, is an explanation provided by the laboratory?			✓

# Laboratory Quality Control Checklist

Page 2

	Yes	No	NA
9a. Were the samples analyzed within the appropriate holding time? (generally 2 weeks for volatiles, and up to 6 months for total metals)	✓		⊗
9b. If no, was it flagged in the report?			✓
10. If samples were composited prior to analysis, does the lab report indicate which samples were composited for each analysis?			✓
11a. Do the chromatograms confirm quantitative laboratory results? (petroleum hydrocarbons)	✓		
11b. Is a standard chromatogram(s) included in the laboratory report?	✓		
11c. Do the chromatograms confirm laboratory notes, if present (e.g., sample exhibits lighter hydrocarbon than standard)	✓		
12. Are the results consistent with previous analytical results from the site? (If no, contact the lab and request review/reanalysis of data, as appropriate)			✓
13a. REVISED LAB REPORTS ONLY. Is the revised lab report or revised pages to a lab report signed and dated as being reviewed by the laboratory director, QA manager, or other appropriate personnel?			✓
13b. REVISED LAB REPORTS ONLY. Does the case narrative indicate the date of revision and provide an explanation for the revision?			✓
13c. REVISED LAB REPORTS ONLY. Does the revised lab report adequately address the problem(s) which triggered the need for a revision?			✓
13d. REVISED LAB REPORTS ONLY. Are the data included in the revised report the same as data reported in the original report, except where the report was revised to correct incorrectly reported data?			✓
<b>QA/QC Questions</b>			
Field/Laboratory Quality Control - Groundwater Analyses			
14. Are field blanks reported as "ND"? (groundwater samples) <i>A field blank is a sample of DI water which is prepared in the field using the same collection and handling procedures as the other samples collected, and used to demonstrate that the sampling procedure has not contaminated the sample.</i>			✓
15. Are trip blanks reported as "ND"? (groundwater samples/volatile analyses) <i>A trip blank is a sample of contaminant-free matrix placed in an appropriate container by the lab and transported with the field samples collected. Provides information regarding positive interference introduced during sample transport, storage, preservation, and analysis. The sample is NOT opened in the field.</i>			✓
16. Are duplicate sample results consistent with the original sample? (groundwater samples) <i>Field duplicates consist of two independent samples collected at the same sampling location during a single sampling event. Used to evaluate precision of the analytical data and sampling technique. (Differences between the duplicate and sample results may also be attributed to environmental variability).</i>			✓

Laboratory Quality Control Checklist

	Yes	No	NA
<p><b>Batch Quality Control</b>                      (Samples are batched together by matrix [soil, water] and analyses requested. A batch generally consists of 20 or fewer samples of the same matrix type, and is prepared using the same reagents, standards, procedures, and time frame as the samples. QC samples are run with each batch to assess performance of the entire measurement process.)</p>			
17. Do the sample batch numbers and corresponding laboratory QA/QC batch numbers match?	✓		
18a. Are method blanks (MB) for the analytical method(s) below the laboratory reporting limits? <i>Used to assess lab contamination and prevent false positive results. MBs should be "ND."</i>	✓		
18b. If no, is an explanation provided in the case narrative to validate the data?			✓
18c. Are analytes which may be considered laboratory contaminants reported below the laboratory reporting limit? <i>Common lab contaminants include acetone, methylene chloride, diethylhexyl phthalate, and di-n-octyl phthalate.</i>			✓
18d. If no, was the laboratory contacted to determine whether reported analyte could be a potential laboratory contaminant and was an explanation included in the case narrative?			✓
19. Are laboratory control samples (LCS) and LCS duplicate (LCSD) [a.k.a., Blank Spike (BS) and BS duplicates (BSD)] within laboratory reporting limits? Limits should be provided on the report. <i>LCS is a reagent blank spike with a representative selection of target analyte(s) and prepared in the same manner as the samples analyzed. The LCS should be spiked with the same analytes as the matrix spike (below). The LCS is free from interferences from the sample matrix and demonstrates the ability of the lab instruments to recover the target analytes. Accuracy (recovery information) is generally reported as % spike recovery; precision (reproducibility of results) between the LCS and LCSD is generally reported as the relative percent difference (RPD). LCS/LCSD can be run in addition to or in lieu of, matrix QC data.</i>	✓		
20a. Are the Matrix QC data (i.e., MS/MSD) within laboratory limits? Limits should be provided on the lab report. <i>The lab selects a sample from the batch and analyzes a spike and a spike duplicate of that sample. Matrix QC data is used to obtain precision and accuracy information and is reported in the same manner as LCS/LCSD. If the MS/MSD fails, the results may still be considered valid if the MB and either the LCS/LCSD or BS/BSD is within the lab's limits (failure is probably due to matrix interference).</i>	✓		
20b. If no, is the MB and either LCS/LCSD or BS/BSD within lab limits to validate the data?			✓

Laboratory Quality Control Checklist

Page 4

	Yes	No	NA
<b>Sample Quality Control</b>			
21a. Are the surrogate spikes reported within the lab's acceptable recovery limits? <i>A surrogate is a non-target analyte, which is similar in chemical structure to the analyte(s) being analyzed for, and which is not commonly found in environmental samples. A known concentration of the surrogate is spike into the sample or QA "sample" prior to extraction or sample preparation. Results are usually reported as % recovery of the spike. Failure to meet lab's limits for primary and secondary surrogates results in rebatching and reanalysis of the sample; failure of only the primary or the secondary surrogate may be acceptable under certain circumstances. Failure generally is due to coelution with the sample matrix.</i>	✓		
21b. If no, is an explanation given in the case narrative to validate the data?			

Comments:

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