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April 18, 2013

California Energy Commission
DOCKETED
12-AFC-02
TN # 70403
APR. 19 2013

VIA HAND DELIVERY

Ms. Felicia Miller, Siting Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Huntington Beach Energy Project (12-AFC-02)
Geologic Resources: Final Site Investigation Report for Soil and Groundwater for the Huntington Beach Generating Station, dated May 1998

Dear Ms. Miller:

On behalf of Applicant AES Southland Development, LLC and in response to Staff's March 14, 2013 informal request, enclosed herewith please find five (5) disks containing the "Final Site Investigation Report for Soil and Groundwater" dated May 1998 for docketing in the Huntington Beach Energy Project matter. Due to the size of the document, Applicant is serving the parties to this proceeding with a copy on disk only. A paper copy of the report will be provided to any party of this proceeding upon written request to the Applicant.

Respectfully submitted,

Kimberly J. Hellwig
Energy & Environmental Policy Specialist

KJH:jmw
Enclosure
cc: Proof of Service

Alaska California Idaho
Minnesota Oregon Utah Washington

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION FOR THE HUNTINGTON BEACH ENERGY PROJECT

Docket No. 12-AFC-02

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(Revised 03/26/2013)

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DECLARATION OF SERVICE

I, Judith M. Warmuth, declare that on April 19, 2013, I served and filed copies of the attached Final Site Investigation Report for Soil and Groundwater dated May 1998. This document is accompanied by the most recent Proof of Service, which I copied from the web page for this project at: http://www.energy.ca.gov/sitingcases/huntington_beach_energy/index.html.

The document has been sent to the other parties on the Service List above in the following manner:

(*Check one*)

For service to all other parties and filing with the Docket Unit at the Energy Commission:

☒ I e-mailed the letter (only) to all e-mail addresses on the Service List above, and I personally deposited the disk in the First Class U.S. mail with first class postage to all Service List parties; **OR**

☐ Instead of e-mailing the document, I personally delivered it or deposited it in the US mail with first class postage to all of the persons on the Service List for whom a mailing address is given.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am over the age of 18 years.

Dated: April 19, 2013

Judith M. Warmuth

Judith M. Warmuth

FINAL REPORT

PRIVILEGED AND CONFIDENTIAL
ATTORNEY WORK PRODUCT

SITE INVESTIGATION REPORT FOR SOIL AND GROUNDWATER HUNTINGTON BEACH GENERATING STATION HUNTINGTON BEACH, CALIFORNIA

Prepared for
Morrison & Foerster
555 West Fifth Street
Los Angeles, California 90013-1024

May 1998

Woodward-Clyde

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97SB044

URS
Santa Barbara Office

LETTER OF TRANSMITTAL

TO:	AES Huntington Beach 21730 Newland Street Huntington Beach, CA 92646	**DATE**	May 7, 2001
		SUBJECT:	May 1998 – Site Investigation Report – Huntington Beach Generating Station – Woodward Clyde Consultants
ATTN.:	Terry Kunz	**PROJECT #**	66-00000080.00

WE ARE TRANSMITTING ✓ **HEREWITH** ❑ **UNDER SEPARATE COVER** THE FOLLOWING:

Enclosed is one copy of the Final Site Investigation Report for Soil and Groundwater – Huntington Beach Generating Station, Huntington Beach, California. The report was issued in final in May 1998.

With regards to your question about the 1997 CH2M Hill Phase II Environmental Site Assessment, there is a Volume 2, however we have checked our files and do not have a copy of it. Essentially, Volume 2 is Appendix C, which contains the original laboratory analytical data, chain of custody forms, and data validation reports. All of the data is presented in the tables, which are included in Volume 1. So there is essentially no new information contained in Volume 2. However, it would be best to have a complete copy if the report were ever to be submitted to an agency for regulatory approval or closure. If you have any questions, feel free to call Jeremy Rowland or myself at the number below.

Regards,

Blake T. Clancy
Environmental Engineer

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FINAL REPORT

PRIVILEGED AND CONFIDENTIAL
ATTORNEY WORK PRODUCT

SITE INVESTIGATION REPORT FOR SOIL AND GROUNDWATER HUNTINGTON BEACH GENERATING STATION HUNTINGTON BEACH, CALIFORNIA

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555 West Fifth Street
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Woodward-Clyde

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TABLE OF CONTENTS

Section 1 Introduction 1-1

1.1 Scope and Site Description 1-1

Section 2 Previous Investigations 2-1

2.1 Introduction 2-1
2.2 Previous Site Area Investigations 2-1
2.2.1 Ascon Landfill 2-1
2.2.2 Wetlands Area 2-1
2.2.3 Retention Basins 2-1
2.2.4 Aboveground Storage Tanks 2-2
2.2.5 Concrete Degreasing Pit 2-3
2.2.6 Switchyard Perimeters 2-3
2.2.7 Primary Fuel Pumping Area 2-4
2.2.8 Peaker Unit Pumping Area 2-4
2.2.9 Power Block Perimeters 2-4
2.2.10 Peaker Unit 2-5
2.2.11 Transformers 2-5
2.2.12 Pipelines 2-5
2.2.13 Hazardous Waste Storage Area 2-6
2.2.14 Oil/Water Sump 2-6
2.2.15 Secondary Fuel Pumping Area 2-6
2.2.16 Former Concrete Sump Near Retention Basin 2-6
2.2.17 Peaker Unit Sump 2-7
2.2.18 Historic Oil Reservoir at Units 3 and 4 2-7
2.2.19 Oil/Water Separator and Sump at Units 1 and 2 2-7
2.2.20 Oil/Water Separator and Sump at Units 3 and 4 2-7
2.2.21 Existing and Former Underground Storage Tank Location 2-8

Section 3 Regional Environmental Setting 3-1

3.1 Geology 3-1
3.1.1 Regional Geology 3-1
3.1.2 Local Geology 3-2
3.2 Hydrogeology 3-2
3.2.1 Regional Hydrogeology 3-3
3.2.2 Local Hydrogeology 3-4

Section 4 Subsurface Investigation 4-1

4.1 Introduction 4-1
4.2 Sampling and Analysis Plan 4-2
4.3 Field Investigation Methods and Procedures 4-3

TABLE OF CONTENTS

4.3.1 Pre-Investigation Activities 4-3
4.3.2 Geoprobe and Hydropunch Direct Push Sampling 4-3
4.3.3 Hydropunch Sampling 4-5
4.4 Laboratory Methods 4-5
4.4.1 Soil Analysis 4-5
4.4.2 Groundwater Analysis 4-6
4.4.3 Quality Assurance/Quality Control (Qa/Qc) Program 4-6

Section 5 Analytical Results 5-1

5.1 Soil Sample Analytical Results for Site Areas 5-1
5.1.1 Concrete Degreasing Pit (Site Area No. 5) 5-1
5.1.2 Switchyard Perimeters (Site Area No. 6) 5-2
5.1.3 Peaker Unit Pumping Area (Site Area No. 8) 5-3
5.1.4 Power Block Perimeters (Site Area No. 9) 5-4
5.1.5 Peaker Unit (Site Area No. 10) 5-5
5.1.6 Former Concrete Sump (Site Area No. 16) 5-6
5.1.7 Historic Oil Reservoir at Units 3 and 4 (Site Area No. 18) 5-7
5.1.8 Oil / Water Separator and Sump at Units 1 and 2 (Site Area No. 19) 5-8
5.1.9 Oil / Water Separator and Sump at Units 3 and 4 (Site Area No. 20) 5-9
5.2 Groundwater Analytical Results 5-10
5.2.1 Total Petroleum Hydrocarbons - Carbon Chain Distribution 5-11
5.2.2 Volatile Organic Compounds 5-11
5.2.3 Semivolatile Organic Compounds 5-13
5.2.4 Pcbs 5-14
5.2.5 Metals 5-14

Section 6 Discussion 6-1

6.1 Discussion of Soil Results 6-1
6.1.1 Petroleum-Impacted Soil 6-1
6.1.2 Metal-Impacted Soil 6-3
6.2 Discussion of Groundwater Results 6-10
6.2.1 VOC- and SVOC-Impacted Groundwater 6-10
6.2.2 Metal-Impacted Groundwater 6-12
6.2.3 Other Groundwater Contaminants 6-13

Section 7 References 7-1

TABLE OF CONTENTS

LIST OF TABLES

2-1 Summary of Previous Phase II Investigations
4-1 Summary of Samples Collected, Analyses, and Rationale
4-2 Sampling Summary
5-1a Soil Analytical Results TPH Carbon Chain
5-1b Soil Analytical Results VOCs
5-1c Soil Analytical Results SVOCs
5-1d Soil Analytical Results Metals
5-1e Soil Analytical Results PCBs
5-1f Soil Analytical Results, TPN Carbon Chain, CH2M HILL Duplicate Samples
5-2a Groundwater Analytical Results TPH Carbon Chain
5-2b Groundwater Analytical Results VOCs
5-2c Groundwater Analytical Results SVOCs
5-2d Groundwater Analytical Results Metals
5-2e Groundwater Analytical Results PCBs
5-2f Soil Analytical Results, TPN Carbon Chain, CH2M HILL Duplicate Samples
6-1 Potential LARWQCB Soil Screening Levels for Petroleum-Impacted Sites
6-2 Potential EPA Region IX Soil Screening Levels
6-3 Typical Concentrations for Metals in California Soils
6-4 Potential Groundwater Screening Levels
6-5 Summary of Woodward-Clyde Sampling Effort - Chemicals of Concern
6-6 Summary of TPH Duplicate Sampling by CH2M HILL and Woodward-Clyde

LIST OF FIGURES

1-1 Site Location Map
4-1 Additional Investigation Sample Location Map

LIST OF APPENDICES

A Summary of CH2M HILL Phase II ESA Analytical Results
Plate 1 - Sample Location Map
B Field Procedures
C Analytical Laboratory Reports, Boring Logs, Well Permits, and Chain-of-Custody Forms
D Data Review Report
E EPA Region IX PRGs
F CH2M HILL Duplicate Sample Analyses

SECTIONONE

1.1 SCOPE AND SITE DESCRIPTION

This Site Investigation Report for Soil and Groundwater (Report) specific to the Huntington Beach Generating Station (HBGS) has been prepared by Woodward-Clyde International-Americas (WCIA) for AES Enterprises, Inc. (AES). This Report will be presented to Southern California Edison Company (SCE) pursuant to the Asset Sale Agreement. SCE is the current owner of the HBGS, and sale to AES is pending. This Report is based substantially on the Workplan (January 1998) presented to AES and SCE (Woodward-Clyde, 1997a).

Phase I and II Environmental Site Assessments (ESAs) were conducted 1997 to evaluate soil and groundwater conditions at site features identified as recognized environmental conditions (RECs) or areas of potential concern (AOPCs) (CH2M HILL, 1997a). Woodward-Clyde was contracted by AES to investigate AOPCs that were not previously sampled or that previous subsurface investigations did not adequately address.

The primary objective of implementing the activities as described in this Report is to confirm the presence of "Existing Soils Contamination" as defined in the Asset Sale Agreement governing the AES purchase of the HBGS. Secondary objectives include obtaining additional data for establishing levels of contamination in soil and groundwater at the site at the time of the transfer of property ownership from SCE to AES, and conducting additional sampling for areas and/or media where sampling was not previously conducted, or to supplement existing data.

The HBGS is located at 21770 Newland Avenue, Huntington Beach, California, as shown on Figure 1-1. A site plan of the facility is shown on Plate 1 in Appendix A. The facility is located along the southern boundary of the City of Huntington Beach adjacent to the Pacific Ocean. The site is bordered by light industrial property and the ASCON Landfill to the north of the facility, residential and personal storage property to the west, SCE-retained wetlands and the Edison Pipeline and Terminal Company (EPTC) to the east, and the Huntington Beach State Park and Pacific Ocean to the south.

For purposes of this Report, the site is defined as the portion of the property being purchased by AES. AES property is highlighted in yellow on Plate 1 in Appendix A and the portions of the property that are being retained by SCE are highlighted in red.

The HBGS has been operated by SCE as an electric generating station since June 1958. The facility is comprised of five dual-fuel-fired electric power generating units. The predominant structures located on the property include steel aboveground storage tanks (ASTs) for petroleum products; process units that include boilers, tanks, and various mechanical equipment and vessels; retention basins; office buildings; warehouses; and maintenance shops. The powerblocks contain various structures, such as battery rooms, lube oil rooms, elevators, various sumps, and control rooms and equipment, such as boilers, pumps, pre-heaters, blowers, and turbines (CH2M HILL, 1997a).

The site of the HBGS was previously a low lying area used for the Huntington Beach Airport and a wetlands area. This area was graded during the mid-1950s and expanded through the 1960s to provide the current operating configuration. The area occupied by the light industrial area to the north and the northern portion of the generating station have been reported to be part of a former operating oil field. Operating oil wells are reported to the southwest of the facility, and have been in that location since the mid-1920s. Residential and storage properties to the west of the HBGS have existed since the late 1950s and early 1960s. The ASCON Landfill includes a small area of oil field development and appears to have been present since at least the mid-1960s (CH2M HILL, 1997a).

2.1 INTRODUCTION

The following section is a summary of the Phase I and Phase II ESA findings (CH2M HILL) for each AOPC and REC identified at HBGS. Table 2-1 lists each AOPC and REC, the Phase I and Phase II investigation work performed, and the Phase II conclusions by CH2M HILL. Sample locations from previous investigations are shown on Plate 1 in Appendix A.

2.2 PREVIOUS SITE AREA INVESTIGATIONS

2.2.1 ASCON Landfill

The ASCON Landfill is a state Superfund site located to the north of the HBGS. Records indicate that groundwater contamination exists at the site and there is the potential for contaminated groundwater to have migrated toward HBGS. CH2M HILL reported that the groundwater flow is away from HBGS.

CH2M HILL advanced two soil borings and analyzed groundwater for volatile organic compounds (VOCs) and Total Petroleum Hydrocarbons-diesel range (TPH-d) in one sample. Neither VOCs nor TPH-d were detected above detection limits. CH2M HILL concluded that there is no evidence that groundwater near HBGS has been impacted by TPH-d or VOCs from the ASCON Landfill. No further action was recommended.

2.2.2 Wetlands Area

The historical aerial photograph review performed by CH2M HILL revealed activity in the wetlands area south of the HBGS during the 1970s. SCE was and is unaware of the cause of this activity.

CH2M HILL collected four surface samples along the fence line in areas of surface water runoff to the wetlands. Samples were analyzed for TPH-d only. TPH-d was detected up to 131 grams per kilogram (g/kg).

2.2.3 Retention Basins

Subsurface investigation of surface impoundments, including retention basins, is currently being conducted by SCE in response to a corporate-wide negotiated order from the Department of

Toxic Substance Control (DTSC). According to CH2M HILL in the Phase I ESA, past use of the retention basins warranted the ongoing investigation. Because of the ongoing soil and groundwater sampling at these locations, additional investigation or assessment was deemed outside the scope of the Phase II ESA.

In March 1998, SCE provided results of its ongoing investigation of the retention basins and Boiler Cleaning Basin at HBGS. The annual groundwater monitoring report, dated February 4, 1998, is presented in Appendix A. The report concluded that based on the results of four quarters of sampling and testing, that there is good indication that the retention basin has experienced some leakage, while there is a weak indication that the BCCB has allowed leakage.

2.2.4 Aboveground Storage Tanks

In the Phase I ESA, CH2M HILL indicated that SCE concluded that contamination exists at all aboveground storage tank (AST) locations at the HBGS. There are two tank areas at HBGS; the SCE and EPTC area located to the northeast of the main facility and the fuel and distillate storage tanks located on the northern section of the site. In the Phase I ESA, CH2M HILL states that the presence of the oil in the subsurface soil at the AST areas is considered a recognized environmental condition.

2.2.4.1 SCE and EPTC Tanks

The EPTC tank farm consists of three 500,000 barrel storage tanks. SCE completed a baseline tank study of the EPTC tanks and the displacement oil tanks at HBGS in February 1996. SCE concluded that the TPH by U.S. Environmental Protection Agency (EPA) Method 418.1 (ranging from nondetect to 7,500 milligrams per kilogram [mg/kg]) was from oil being sprayed on the soil for corrosion protection.

CH2M HILL recommended no further action at this time and that agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.

Woodward-Clyde did not review SCE's baseline assessment (SCE, 1996) of the EPTC tanks. The Phase II ESA analysis did not include SVOCs and only four samples were analyzed for VOCs, metals, PCBs, and benzene, toluene, ethylbenzene, and xylenes (BTEX).

2.2.4.2 HBGS ASTs

As part of the Phase II ESA, CH2M HILL sampled at 19 locations around the north, south, east, west, and distillate tanks. All soil samples were analyzed for TPH-d and one soil sample was analyzed for VOCs. TPH was detected up to 65,000 mg/kg in soil near the west tank. TPH was in groundwater up to 2.6 milligrams per liter (mg/L). VOCs were detected in soil. CH2M HILL recommended no further action at this time and that agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.

2.2.5 Concrete Degreasing Pit

The Phase I ESA (CH2M HILL, 1997a) indicated that there were two former concrete degreasing pits at HBGS. One pit was located in the area of the retention basin and another at the machine shop area near the existing underground storage tanks (USTs). The two concrete pits were reported to have been filled with an inert material and abandoned in place. Because there was no regulatory oversight or sampling during abandonment activities, the concrete degreasing pits are identified as AOPCs.

Neither degreasing pit was investigated as part of the Phase II ESA, because they were included in the SCE investigation of the retention basins.

2.2.6 Switchyard Perimeters

Two switchyard areas, the 66 kilovolt (kV) and 220 kV switchyards located at the HBGS were investigated as part of the Phase II ESA. Two shallow borings were drilled at each switchyard and soils were sampled near the ground surface and at about 3 feet below ground surface (bgs) for TPH-d and PCBs. PCBs were not detected in the samples and TPH-d was detected at concentrations up to 32 mg/kg. CH2M HILL recommended no further action at this time and that agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.

There was a reported spill of transformer oil near the 220 kV transformers from the rupture of the Number 4 Auxiliary transformer in 1984.

2.2.7 Primary Fuel Pumping Area

The Phase I ESA documented that oil spills have occurred at the primary fuel pumping area and distillate fuel pumping area. These spills were reported to have been investigated and cleaned up. However, residual contamination reportedly exists in the subsurface at both locations (CH2M HILL, 1997a).

For the Phase II ESA, two borings were installed and soils were sampled and analyzed for TPH-d and one groundwater sample was analyzed for TPH-d. TPH-d was detected in soil (34 mg/kg) and in groundwater (2.5 mg/L). CH2M HILL recommended no further action at this time and that agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.

2.2.8 Peaker Unit Pumping Area

The peaker unit pumping area was investigated by SCE in 1992. Five soil borings were advanced in the area. Soil samples were analyzed for TPH and BTEX. TPH and BTEX were detected in soil samples reportedly at low concentrations. Two groundwater samples were collected and analyzed for TPH and BTEX. Benzene, toluene, and xylene were detected in groundwater.

For the Phase II ESA, two soil borings were advanced near the peaker unit. Soil samples were analyzed for TPH-d and select samples for VOCs. TPH-d was detected in soil at low concentrations (34 mg/kg) and in groundwater the total TPH-d was 2.5 mg/L. VOCs were not analyzed for in groundwater during the Phase II ESA. CH2M HILL recommended no further action at this time and that agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.

2.2.9 Power Block Perimeters

During the Phase I ESA, oil staining was observed on the floors of the powerblocks around oil containing equipment such as lube oil pumps and tanks.

Two powerblock areas were investigated as part of the Phase II ESA. Four soil borings for each powerblock area and a total of three groundwater samples were collected and analyzed for TPH-d. Select samples were analyzed for metals and VOCs. Five metals exceeded Maximum Contamination Levels (MCLs) in groundwater and TPH-d in groundwater was 1.4 mg/L. CH2M

HILL recommended no further action at this time and that agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.

2.2.10 Peaker Unit

The Peaker Unit was previously investigated by SCE in 1992 along with the Peaker Unit Pumping Area (2.2.8). Five borings were advanced and soil samples were analyzed for TPH and BTEX. TPH was not detected above the reporting limits in any of the five samples and low concentrations of benzene, toluene, and xylene were detected in groundwater.

Two soil borings were advanced in the area for the Phase II ESA. Soil samples were analyzed for TPH-d, VOCs, and metals. "De minimis" conditions were reported; total TPH-d was reported at 63 mg/kg and 0.67 mg/L for soil and groundwater, respectively. VOCs and elevated metals were detected in soil samples. VOCs were not detected in groundwater but elevated metals were reported. CH2M HILL recommended no further action for the Peaker Unit.

2.2.11 Transformers

The Phase I ESA documented that the transformers contain less than 50 parts per million (ppm) PCBs. No records of releases of oil were discovered in the Phase I ESA.

Five transformer areas were investigated as part of the Phase II ESA. Wipe samples, two soil samples, and a groundwater sample were collected. PCBs were nondetect in the wipe and soil samples. "De minimis" conditions were reported for soil and groundwater. Total TPH-d in soil was reported up to 2,127 mg/kg. CH2M HILL recommended no further action.

2.2.12 Pipelines

According to the Phase I ESA (CH2M HILL, 1997a) subsurface and aboveground pipelines have been used to convey fuel oil from the tanks to the powerblocks. SCE indicated that the pipelines have not been leak tested since installation. Therefore, soil around the pipelines at the HBGS was identified as an AOPC.

No samples were collected for the Phase II ESA because there was no visual evidence that the pipelines had leaked. CH2M HILL recommended no further action for the pipelines.

2.2.13 Hazardous Waste Storage Area

The Hazardous Waste Storage Area is located at the northern end of the site and was identified as an area where potential releases may have resulted in subsurface contamination. Two soil samples and two groundwater samples were analyzed for TPH-d, VOCs, PCBs, and metals. Low concentrations of TPH-d were reported in soil and groundwater. Four CAM metals were detected above MCLs in groundwater. CH2M HILL recommended no further action at this time and that agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.

2.2.14 Oil/Water Sump

The oil/water sump was investigated during the Phase II ESA due to the potential for leaks to the subsurface. One boring was advanced and soil samples were collected at 9 feet bgs and 10.5 feet bgs and analyzed for TPH-d. "De minimis" levels (total TPH-d at 109 mg/kg) were reported. CH2M HILL recommended no further action at this time and that agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.

2.2.15 Secondary Fuel Pumping Area

The secondary fuel pumping area was investigated during the Phase II ESA due to the possibility of leaks resulting in subsurface contamination. Two soil borings were advanced near the secondary fuel pumping area and samples were analyzed for TPH-d and one sample was analyzed for VOCs. One groundwater sample was analyzed for TPH-d. Low levels of TPH-d was detected in soil and 0.62 mg/L was detected in groundwater. VOCs were not detected. CH2M HILL recommended no further action for the secondary fuel pumping area.

2.2.16 Former Concrete Sump Near Retention Basin

The former concrete sump near the retention basin is considered "closed-in-place" by SCE, based on a phone conversation between SCE's representative and Orange County Health Department. SCE pumped out the sump and filled it with concrete slurry.

One soil boring was advanced near the former sump and soil samples were collected at 1 foot bgs and 8 feet bgs. Samples were analyzed for TPH-d, metals, and VOCs. Total TPH-d was 167 mg/kg and three metals in groundwater exceeded MCLs. CH2M HILL recommended a

screening evaluation to demonstrate the safety of the site for industrial use and/or obtain a letter from a regulatory agency that confirms no risk management or remediation is needed for continued industrial use.

2.2.17 Peaker Unit Sump

The peaker unit sump was investigated during the Phase II ESA due to the possibility of potential leaks from the sump. One soil boring was advanced and soil samples were analyzed for TPH-d, VOCs, and metals. TPH-d was detected up to 139 mg/kg. and elevated concentrations of metals were reported. VOCs were not detected. CH2M HILL recommended no further action at this time and that agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.

2.2.18 Historic Oil Reservoir at Units 3 and 4

The historic oil reservoir at Units 3 and 4 was investigated during the Phase II ESA due to the possibility of potential leaks. Three soil borings were advanced and analyzed for TPH, metals, and VOCs. TPH-d was detected up to 12,000 mg/kg. VOCs were detected in soil and groundwater. CH2M HILL recommended a screening evaluation to demonstrate the safety of the site for industrial use and/or obtain a letter from a regulatory agency that confirms no risk management or remediation is needed for continued industrial use.

2.2.19 Oil/Water Separator and Sump at Units 1 and 2

The oil/water separator and sump at Units 1 and 2 were investigated during the Phase II ESA due to the possibility of potential releases. One soil boring was advanced and analyzed for TPH-d, metals, and VOCs. TPH-d and VOCs were not detected in soil samples. Groundwater was not collected at this location. "De minimis" concentrations in soil were reported. The investigation was limited due to access restrictions. CH2M HILL recommended no additional sampling or remediation at this time and that agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.

2.2.20 Oil/Water Separator and Sump at Units 3 and 4

The oil/water separator and sump at Units 3 and 4 were investigated during the Phase II ESA due to the possibility of potential releases. Two soil borings were advanced and analyzed for TPH-d,

metals, and VOCs. TPH-d were reported and some elevated metals were detected. VOCs were not detected in soil samples. "De minimis" concentrations in soil were reported; however, TPH-d was reported up to 12,000 mg/kg. Groundwater samples were not collected at this site. CH2M HILL recommended no additional sampling or remediation at this time and that agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.

2.2.21 Existing and Former Underground Storage Tank Location

There is one UST area that was investigated as part of the Phase II ESA. Two soil borings were advanced and analyzed for TPH-d, TPH-g, and BTEX. Soil samples were collected from 3.5 feet bgs and 6.5 feet bgs. TPH-g and BTEX were not detected in the soil sample, however, TPH-d were reported. One groundwater sample was collected and analyzed for TPH-d, TPH-g, and BTEX. Low concentrations of TPH-d were detected. TPH-g and BTEX were not detected in the groundwater sample. "De minimis" concentrations of TPH-d were reported in soil; however, TPH-g was reported at 0.88 mg/L in groundwater. CH2M HILL recommended no further action.

3.1 GEOLOGY

3.1.1 Regional Geology

The HBGS is located in the southern section of the central block of the Los Angeles Structural Basin, which forms a transition between the northern portion of California's Peninsular Ranges Geologic Province and the southern portion of the Transverse Ranges Geologic Province (Yerkes et al., 1965). The Peninsular Ranges Province is characterized by northwest-trending mountains and valleys formed largely by a system of active right-lateral, strike-slip faults with a similar trend. The Transverse Range Province is characterized by east-west trending mountains and intervening valleys that were formed by a series of east-west trending fold belts and active left-lateral reverse and thrust faults. Over geologic time, the region has been influenced by fluvial, marine, and littoral depositional processes as sea levels have risen and fallen and as tectonic forces have changed the regional landscape.

The predominant structural feature of the central block is the northwest-trending, doubly plunging synclinal trough underlying its central part. Basement rocks of the deepest portion of the basin are as much as 31,000 feet sub-sea level (Yerkes et al., 1965). The southwest flank of the trough rises steeply in the area of the Newport-Inglewood Structural Zone (NISZ) to a basement rock depth of 14,000 feet sub-sea level. The NISZ is characterized by a series of northwest-trending folded sedimentary units and off-set predominantly right lateral strike slip faults (and associated normal and reverse faults) passing on-shore at Newport Beach and continuing to the vicinity of Santa Monica (Barrows, 1974).

The NISZ is expressed at the surface by a series of low hills and mesas and in the subsurface by the development of corresponding oil fields (Barrows, 1974). The HBGS is situated over the southern end of the Huntington Beach Oil Field. The structural zone is seismically active and is associated with the 1933 Long Beach earthquake. Subsurface investigations at the ASCON Landfill just to the northeast of the HBGS indicate that the subsurface trace of one element of this structural zone passes near the northeast corner of the SCE tank farm. Due to the proximity of the NISZ and other known seismically active faults in the Los Angeles area, the nature of the sediments below the site, and the high water table, the ground at HBGS would be prone to liquefy under conditions of long duration strong seismic shaking.

3.1.2 Local Geology

The HBGS is situated between the Huntington Beach and Newport Mesas in a generally flat lowland area referred to as the Santa Ana Gap (the Gap), a portion of the Orange County Coastal Plain. USGS topographic maps indicate that the HBGS is between 6 and 10 feet above mean sea level (msl). The creation of the Gap began in the late Pleistocene and continued until the last glacial period. The combination of the lowered sea level and accelerated fluvial erosion produced a valley about 200 feet deep. At the end of the glacial period, the sea level began to rise and the river backfilled the eroded channel. Recent deposition in the Gap has occurred on an influenced floodplain on which alluvial deposits interfinger with lagoonal marsh and beach deposits (CH2M HILL, 1997b). The HBGS is underlain by Recent near-coastal alluvium deposited by the Santa Ana River and underlying units of the Pleistocene age.

Beneath the Recent deposits, the site is underlain by a thick, interbedded sequence of Quaternary clays, silts, sands, and gravels (Yerkes et al., 1965; Poland et al., 1956). These Quaternary deposits are underlain by Tertiary sedimentary rocks, including claystones, siltstones, and sandstones. Schist and gneissic basement rocks lie beneath the sedimentary units. The youngest and uppermost deposits within the Quaternary sequence consist of late Pleistocene sands that form the water bearing zones beneath the site. A sequence of Tertiary marine and continental formations, which were originally deposited in the subsiding Los Angeles Basin and which have been folded and locally faulted, lie beneath the Pleistocene deposits. This complex structure present in the Tertiary rocks resulted in the formation of traps for the extensive oil reserves underlying many parts of the Los Angeles Basin.

3.2 HYDROGEOLOGY

The DTSC has jurisdiction over remediation activities at the HBGS. With regard to groundwater issues, HBGS is situated on the seaward side of an Orange County Water District (OCWD) hydraulic barrier project called the Talbert Barrier Project. In November 1982, the OCWD published a hydrogeologic report detailing various aspects of regional and local hydrogeology associated with the Talbert Barrier Project. The report, entitled "Talbert Barrier Status Report, 1979-1981," was prepared by Mr. James Fairchild, OCWD Geologist, and Mr. James Reily, OCWD Assistant Engineer. Relevant report information has been summarized below and is presented as a regional and local hydrogeologic profile of the site.

3.2.1 Regional Hydrogeology

The HBGS is located on the southwest section of the Orange County coastal plain within the Gap. The Orange County coastal plain is the southeastern portion of a rather large, low-land plain that extends from near Irvine at the southeast to near Beverly Hills at the northwest. In Orange County, the coastal plain is bordered on the east by foothills of the Santa Ana Mountains, on the south by the San Joaquin Hills, and on the west by the Pacific Ocean.

The Talbert Barrier Project maintains a seaward hydraulic gradient in underlying aquifers by the injection of potable water under pressure. The purpose of the project is to prevent sea water intrusion into the potable water supplies of the Los Angeles Basin. Although the NISZ is reported to act as a barrier to groundwater movement in deeper aquifers, it is believed that the structural zone is not water tight across the upper most aquifers. The barrier project generally consists of a water supply system and a series of closely spaced injection wells, extraction wells, and numerous monitoring wells.

In order to maintain a seaward gradient of the groundwater surface, a pressure ridge is created by injecting a combination of treated municipal wastewater and demineralized water or groundwater into a line of closely spaced wells that are perforated in aquifers subject to seawater intrusion. There are 23 injection wells placed across the Gap along Ellis Avenue, spaced approximately 600 feet apart. Preliminary geologic studies indicated that a variability in the hydraulic characteristics of the aquifers would require different injection pressures in the various aquifers. In order to accomplish this, each well was especially designed to pump to specific aquifers at various rates of flow.

The results of pump tests performed in the past indicated that the average permeability of the Talbert aquifers is approximately 1,000 gallons per day per square foot. With an assumed porosity of 30 percent and an injection rate sufficient to maintain a gradient of 5 feet per 1,000 feet, it is estimated that it would take water approximately 7.5 months to travel 500 feet along the Talbert aquifer.

Preliminary hydrologic studies indicated that at times of severe overdraft on the basin, it would be easier to maintain a seaward piezometric gradient if there was a hydraulic trough located seaward of the line of injection wells. In order to create a hydraulic trough, seven extraction wells were advanced into and screened in the Talbert aquifer. The wells can be pumped at rates

up to 1,000 gallons per minute and the brackish water produced is discharged into flood control channels for disposal to the sea.

Approximately 30 observation wells (M and SA-Wells) are utilized to monitor groundwater conditions in the Gap and to measure the effects of barrier operations. Some wells are single casing installations perforated only in the Talbert aquifer. Fifteen of the observation wells are multi-casing, similar in construction to the injection wells, except that the casings are 4-inch-diameter polyvinyl chloride (PVC) plastic.

As a channel to the larger interior groundwater basin, the Gap is very responsive to groundwater fluctuations in the basin interior. Groundwater levels in the basin interior are normally lower in the summer months of August and September and higher during March and April. The interior basin responds quite rapidly to changes in overall pumping demand and recharge, as most of the basin is an artesian system.

3.2.2 Local Hydrogeology

Previous investigations indicate marine sands and gravel of the Talbert water-bearing zone extend from about 15 to 180 feet bgs below HBGS (CH2M HILL, 1997b). Scattered clay lenses up to 10 feet thick occur within the fluvial and marine deposits. Groundwater measurements collected during the Phase II ESA investigation ranged between 5.8 and 9.0 feet bgs. These measurements were shallower than those measured during Woodward-Clyde's investigation, which were between about 8 and 15 feet bgs. The groundwater gradient within the Talbert Aquifer below the site is variable and a function of several factors: tidal fluctuations along the coast and adjacent wetlands area, recharge to the groundwater from the Huntington Beach Channel adjacent to the north end of the site, and variability of lithologic units in the near surface sediments. The regional groundwater gradient is to the southwest (CH2M HILL, 1997b).

4.1 INTRODUCTION

The Phase I and Phase II ESAs, and the Woodward-Clyde Workplan identified a total of 21 AOPCs. Based on the discussion/rationale presented in the Woodward-Clyde Workplan, the following areas were not considered for additional sampling under this scope of work:

Area	Description
1	ASCON Landfill
2	Wetlands Area
4a	SCE / EPTC Above Ground Storage Tanks
4b	SCE Above Ground Storage Tanks
7	Primary Fuel Pumping Area
11	Transformers
12	Pipelines
13	Hazardous Waste Storage Area
14	Oil/Water Sump Near the Displacement Tanks
15	Secondary Fuel Pumping Area
17	Peaker Unit Sump
21	Existing and Former UST Location

One other site area (Site 3, Retention Basins) has also been deferred from further investigation until additional documents can be obtained from SCE and reviewed. Due to the compressed timeframe for production of this report, documentation requested from SCE was either received too late for sampling to occur or has not been received as of the date of this report. Further due diligence of this site may be recommended based on a review of the additional data.

The remaining sites where additional field investigations have been performed include the following:

Area	Description
5	Concrete Degreasing Pit
6	Switchyard Perimeter
8	Peaker Unit Pumping Area
9	Power Block Perimeters
10	Peaker Unit
16	Former Concrete Sump
18	Historic Oil Reservoir Units 3 and 4
19	Oil / Water Separator and Sump Units 1 and 2
20	Oil / Water Separator and Sump Units 3 and 4

4.2 SAMPLING AND ANALYSIS PLAN

Woodward-Clyde implemented sampling and analysis for collection of additional soil and groundwater data at nine site areas. Table 4-1 summarizes the sampling and analysis rationale, sample locations, numbers of samples, and laboratory analysis types and sampling rationale for soil in each site area that was investigated. Table 4-2 provides further information on the sampling depths for each medium and dates sampled. Soil and Groundwater sampling locations are shown on Figure 4-1.

In areas that were previously sampled, proposed sampling locations for the RECs and AOPCs were selected based on the following rationale: (1) if significant contamination in soil and/or groundwater was found during the Phase II investigation; (2) if analysis was incomplete (i.e., no metals, VOCs, SVOCs, etc.), and (3) if the sampling location was not adequate (i.e., sample location was not adjacent or downgradient to REC or AOPC and/or sampling depth was too shallow for adequate characterization).

4.3 FIELD INVESTIGATION METHODS AND PROCEDURES

4.3.1 Pre-Investigation Activities

Prior to conducting the field investigation, Woodward-Clyde prepared a site-specific Health and Safety Plan (HSP) that was issued on March 2, 1998 for use by Woodward-Clyde field personnel and its subcontractors. The HSP was prepared in accordance with the applicable sections of 29 Code of Federal Regulations (CFR) 1910.120.

During the 3rd week of February 1998, Woodward-Clyde marked proposed soil sample locations with white paint and contacted Underground Service Alert (USA). USA is an information center that notifies members who operate some of the underground utilities at the HBGS of the proposed drilling program. Woodward-Clyde personnel met with the USA members to review sample locations and the locations of nearby public utilities. As an additional precaution, each proposed soil sampling location was cleared of underground utilities utilizing a geophysics subcontractor (Sub Surface Surveys) prior to beginning intrusive activities (refer to Appendix B, Field Procedures, Section B-3).

On March 16, 1998, a tailgate meeting was conducted by Woodward-Clyde, along with SCE personnel, to review health and safety issues, emergency response procedures, communication procedures, and underground utility locations. The meeting was attended by Woodward-Clyde field personnel and subcontractors (Sub Surface Surveys and Vironex) to familiarize on-site personnel with the HSP and the relevant HBGS health and safety procedures prior to initiating drilling and soil sampling.

4.3.2 Geoprobe and Hydropunch Direct Push Sampling

On March 19 and 20, 1998, direct push sample locations were advanced at the 10 locations shown on Figure 1-2 using a Geoprobe rig operated by Vironex. This subsurface intrusive method employs direct-push technology that minimizes drill cuttings and allows for relatively undisturbed soil sample collection. In addition, this direct push method has been modified such that an outer casing is driven ahead of the sampler barrel and well casing, thereby minimizing the potential for cross-contamination from the overlying strata.

Soil samples were collected generally at two levels: one sample close to the surface (e.g., 1 to 3 feet bgs) and one above the water table (e.g., 9 to 11 feet bgs). The water table was observed to

range between 8 feet bgs to greater than 20 feet bgs at HBGS. Soil samples were used to provide (1) stratigraphic descriptions (were sufficient sample recovery allowed), (2) assessment of the vertical distribution of the chemicals of concern (TPH, VOCs [i.e., benzene and chlorinated hydrocarbons], SVOCs, PCBs, and metals), and (3) the assessment of petroleum hydrocarbon concentrations within the potential "smear" zone (i.e., the zone likely influenced by tidal fluctuations) (if sufficient sample recovery allowed). A total of 20 soil samples were collected from ten locations.

The Geoprobe borings were advanced to depths ranging from 8 to 25 feet bgs, using a 1-1/2-inch outer diameter (OD), stainless steel drive casing. Sample cores were collected in 1-inch stainless steel tubes over 2-foot intervals at sampling intervals indicated in Table 4-2. Hydropunch samples were generally advanced first to determine the depth to groundwater. Based on anticipated groundwater depths, the sampling depths of soil samples were determined as shown in Table 4-2. The ends of selected sample cores were covered with a Teflon sheet and capped. The samples were labeled and placed in an insulated cooler with ice and transported under chain-of-custody procedures to the analytical laboratory.

Prior to drilling each boring, all non-disposable equipment that entered the borehole was steam-cleaned or washed in a non-phosphate solution, followed by three tap water rinses. The soil borings were logged by Woodward-Clyde personnel working under the direction of a California Registered Geologist. Boring logs are provided in Appendix C.

The geoprobe/hydropunch borings were backfilled with bentonite chips (hydrated during placement) to approximately 3 feet bgs and capped with asphalt or concrete, as appropriate, in paved areas.

Soil samples were field screened for organic vapors using a flame-ionization detector (FID) and the borings were also logged by Woodward-Clyde field personnel according to the United States Classification System (USCS). Where recovery permitted at each sampling depth, soil from one of the stainless steel tubes of soil was placed in a resealable plastic bag and allowed to volatilize for approximately 15 minutes. The headspace was then measured by inserting an organic vapor analyzer (OVA) probe into the plastic bag. Results of the organic vapor monitoring were recorded on boring logs (Appendix C).

4.3.3 Hydropunch Sampling

Groundwater samples were collected from the Geoprobe borings using a Hydropunch in situ sampling device. The Hydropunch consisted of a 4-foot-long, stainless steel screen concealed within a steel rod. Upon reaching the desired sampling depth, the push rods were retracted 2 to 3 feet to open the device. Groundwater entered the device through a screen and water was collected for analysis. When the Hydropunch sampler was not used, direct push soil borings were converted to monitoring wells by installing 1-inch-diameter PVC casings, screened over the lower 10 to 20 feet.

The groundwater samples were promptly sealed, labeled, and packed with ice in an insulated cooler that was transported under chain-of-custody procedures to Quanterra, Incorporated in Santa Ana, California for analysis.

The Hydropunch sampling device and other reusable equipment were decontaminated following use by washing in a non-phosphate detergent solution followed by rinsing twice with distilled water.

4.4 LABORATORY METHODS

4.4.1 Soil Analysis

Soil chemical analyses were performed by Quanterra Incorporated, a state-certified laboratory. Soil samples were analyzed for TPH - carbon chain distribution in the diesel and motor oil range, VOCs, SVOCs, California Code of Regulations (CCR) Title 22 metals, and PCBs. The following laboratory methods were used to analyze the selected soil samples:

- TPH-carbon chain distribution modified EPA Method 8015 for diesel and motor oil range hydrocarbons
- VOCs by EPA Method 8260A
- SVOCs by EPA Method 8270B
- CCR, Title 22 Metals by EPA Method 6010A, with the exception of arsenic (EPA Method 7060A) and mercury (Method SW7471A)
- PCBs by EPA Method 8081

4.4.2 Groundwater Analysis

Groundwater chemical analyses were performed by Quanterra Incorporated, a state-certified laboratory. Groundwater samples were analyzed for TPH-carbon chain distribution in the diesel and motor oil range, VOCs, SVOCs, CCR Title 22 metals, and PCBs. The following laboratory methods were used:

- TPH-carbon chain distribution modified EPA Method 8015 for diesel and motor oil range hydrocarbons
- VOCs by EPA Method 8260A
- SVOCs by EPA Method 8270B
- CCR, Title 22 Metals by EPA Method 6010A, with the exception of mercury (Method SW7470A)
- PCBs by EPA Method 8081

The laboratory detection limits were below state and federal MCLs. Groundwater analytical results in Section 5.0 (Tables 5-3b through 5-3d) include a comparison of state and federal MCLs with the practical quantitation limits reported by Quanterra Incorporated.

4.4.3 Quality Assurance/Quality Control (QA/QC) Program

Field and laboratory QC samples were analyzed by the laboratory. A complete data review report, including assessment of the laboratory QC results, is provided as Appendix D. The QC samples originating in the field included equipment blanks, trip blanks, and duplicates of field samples. Descriptions of the field QC samples, the frequency of collection, and the criteria by which they were evaluated are presented below.

Equipment Rinsate Blanks

Equipment rinsate blanks were used to evaluate the effectiveness of decontamination procedures. At sampling locations where dedicated or disposable sampling equipment were used, the rinsate blanks were collected by pouring distilled or organic-free water directly into sampling bottles (bottle blanks).

The equipment blanks were collected and submitted for analysis to the laboratory under the same chain-of-custody documentation and procedures used for other water samples. Equipment blanks were collected at a rate of 10 percent of the total number of soil and groundwater samples.

Field Duplicates

Field duplicate samples were collected sequentially from the same location using identical methods. The duplicate samples were intended to equally represent the medium being sampled and provide information on the variance of chemicals at a sample location and the consistency of field techniques. Field duplicates were collected for soil and groundwater samples.

Due to limited sample volume in the soil sampling sleeves, duplicate samples were sometimes collected from an adjacent location or the next sampling depth. Duplicate groundwater samples were collected by filling the bottles for each analytical group or analysis sequentially for both the original and duplicate sample. Field duplicate samples were collected at a rate of at least 10 percent of the total number of soil and groundwater samples.

Trip Blanks

Trip blanks are samples of organic-free water prepared at the laboratory. They are shipped with the sample bottles from the laboratory, remain with the sample bottles during sampling, and returned to the laboratory on a daily basis. Trip blanks were analyzed for VOCs; the data were used to evaluate if contamination had occurred during shipment or storage. Trip blanks were shipped in coolers containing samples to be analyzed for VOCs.

SECTIONFIVE Analytical Results

This section describes the results of analytical testing performed on soil and groundwater samples collected during Geoprobe/Hydropunch investigations conducted the week of March 16, 1998 at the HBGS facility.

As discussed in Section 2.0, of the 21 sites previously investigated at the HBGS by SCE for potential environmental issues, 10 were investigated further by Woodward-Clyde; however, as a result of insufficient data prior to field work, only nine were investigated. Tables 4-1 and 4-2 identify the sites investigated by Woodward-Clyde and provide information on sampling specifics at each location.

5.1 SOIL SAMPLE ANALYTICAL RESULTS FOR SITE AREAS

A summary of soil sample analytical results is provided herein by site area and chemical suite. Soil sample analytical results for TPH, VOCs, SVOCs, metals, and PCBs are provided in Tables 5-1a through 5-1e, respectively. Copies of laboratory data sheets and chain-of-custody forms are provided in Appendix C. Comparison of analytical results with potential soil screening levels is provided in Section 6.0.

Soil samples were collected to a depth of 12 feet bgs and analyzed to assess concentrations of chemical constituents in soils above the water table. The deepest sample collected at each location may have been collected within or just above the capillary fringe. The capillary fringe is estimated to be approximately 1.5 to 3 feet above the water table for the types of soils observed at HBGS during soil sampling activities (Fetter, 1994). The actual capillary fringe is transient under site conditions and the extent may be less or greater than estimated.

5.1.1 Concrete Degreasing Pit (Site Area No. 5)

Geoprobe samples were collected at intervals of 2 to 4 feet bgs and 9 to 11 feet bgs at the Concrete Degreasing Pit (Sample Location area No. 5 shown on P ate 1 in Appendix A). Both soil samples were analyzed for TPH (carbon chain distribution) by EPA modified Method 8015 for diesel. The 17 CCR, Title 22 Metals were analyzed by EPA Method 6010A; Method SW7470A was used for mercury; Method SW7060A for arsenic; EPA 8260A for VOCs; and EPA 8270B for SVOCs, (refer to Laboratory Methods, Section 4.4).

5.1.1.1 Organics

TPH

TPH were not detected above laboratory method detection limits in the soil samples from either interval.

VOCs

VOCs were not detected above laboratory method detection limits in the soil samples from either interval.

SVOCs

SVOCs were not detected above laboratory method detection limits in the soil samples from either interval.

5.1.1.2 Metals

Fourteen of the 17 CCR metals were detected in the 2- to 4-foot sample and 12 of 17 CCR metals were detected in the 9- to 11-foot sample of the Geoprobe location HG05. Metal concentrations tended to be a little higher in the 2- to 4-foot sample. None of the metal concentrations in the 2- to 4-foot sample or the 9- to 11-foot sample exceeded average metal concentrations for California soils (Kearney, 1996).

5.1.2 Switchyard Perimeters (Site Area No. 6)

Geoprobe samples were collected at two locations adjacent and south of the Switchyard at HBGS (Sample Locations 6a and 6b shown on Plate 1 in Appendix A). Soil samples were collected from each location at depths of 2 to 4 feet bgs and 6 to 8 feet bgs and analyzed for TPH by EPA modified Method 8015 carbon chain distribution for diesel. SVOCs were analyzed by EPA Method 8270A, and PCBs were analyzed by EPA Method 8081 (refer to Section 4.4, Laboratory Methods).

5.1.2.1 Organics

TPH

TPH were not detected above laboratory method detection limits in the soil samples from either interval.

SVOCs

SVOCs were not detected above laboratory method detection limits in the soil samples from either interval.

PCBs

PCBs were not detected above laboratory method detection limits in the soil samples from either interval.

5.1.3 Peaker Unit Pumping Area (Site Area No. 8)

Geoprobe samples were collected at two locations adjacent to and south of the Peaker Unit Pumping Area at HBGS (Sample Location 8 shown on Plate 1 in Appendix A). Soil samples were collected at depths of 1 to 3 feet bgs and 6 to 8 feet bgs and analyzed for TPH by EPA modified Method 8015 carbon chain distribution for diesel. The 17 CCR Title 22 Metals were analyzed by EPA Method 6010A; Method SW7060A was used for arsenic; Method SW7470 was used for mercury; EPA Method 8260A was used for VOCs; and EPA Method 8270A was used for SVOCs (refer to Section 4.4, Laboratory Methods).

5.2.3.1 Organics

TPH

TPH were not detected above laboratory method detection limits in the soil samples from either interval.

VOCs

VOCs were not detected above laboratory method detection limits in the soil samples from either interval.

SVOCs

One SVOC, bis(2-ethylhexyl)phthalate, was reported in the 1- to 3-foot duplicate sample collected from Geoprobe location HG08 at an estimated concentration of 330 µg/kg. No other SVOCs were detected above method detection limits reported by the laboratory at the Peaker Unit Pumping Area.

5.1.3.2 Metals

Twelve of the 17 CCR metals were detected in two of the soil samples and 13 of the 17 CCR metals were detected in the other sample analyzed from Geoprobe location HG08 (Table 5-1d). The reported metal concentrations were not elevated above average concentration for metals in California soils (Kearney, 1996).

5.1.4 Power Block Perimeters (Site Area No. 9)

Geoprobe samples were collected at one location north of the Power Block at Unit 1 at HBGS (Sample Location 9 shown on Plate 1 in Appendix A). Soil samples were collected at depths of 2 to 4 feet bgs and 10 to 12 feet bgs and analyzed for TPH by EPA modified Method 8015 carbon chain distribution for diesel. The 17 CCR Title 22 Metals were analyzed by EPA Method 6010A; Method SW7060A was used for arsenic; Method SW7470 was used for mercury; EPA Method 8260A was used for VOCs; and EPA Method 8270A was used for SVOCs (refer to Section 4.4, Laboratory Methods).

5.1.4.1 Organics

TPH

TPH were not detected above laboratory method detection limits in the soil samples from either interval.

VOCs

VOCs were not detected above laboratory method detection limits in the soil samples from either interval.

SVOCs

SVOCs were detected above method detection limits reported by the laboratory at the Peaker Unit Pumping Area.

5.1.4.2 Metals

Nine of the 17 CCR metals from the 2- to 4-foot sample depth and 14 of the 17 CCR metals from the 10- to 12-foot sample depth were detected in soil samples analyzed from Geoprobe location HG09. The reported metal concentrations were not elevated above average concentrations for metals in California soils (Kearney, 1996) except for one sample that reported a concentration for molybdenum slightly above the average, but was within concentration ranges for California soils.

5.1.5 Peaker Unit (Site Area No. 10)

Geoprobe samples were collected at one location north of the Peaker Unit at HBGS (Sample Location 10 shown on Plate 1 in Appendix A). Soil samples were collected at depths of 2 to 4 feet bgs and 8 to 10 feet bgs and analyzed for TPH by EPA modified Method 8015 carbon chain distribution for diesel. The 17 CCR Title 22 Metals were analyzed by EPA Method 6010A; Method SW7060A was used for arsenic; Method SW7470 was used for mercury; EPA Method 8260A was used for VOCs, and EPA Method 8270A was used for SVOCs (refer to Section 4.4, Laboratory Methods).

5.1.5.1 Organics

TPH

TPH were not detected above laboratory method detection limits in the soil samples from either interval.

VOCs

VOCs were not detected above laboratory method detection limits in the soil samples from either interval.

SVOCs

SVOCs were not detected above method detection limits reported by the laboratory at the Peaker Unit Area.

5.1.5.2 Metals

Fourteen of the 17 CCR metals were detected in the samples analyzed from Geoprobe location HG10. Arsenic, antimony, cadmium, cobalt, and molybdenum were detected at concentrations elevated above the average metals concentrations for California soils, but were within the reported ranges for California soils (Kearney, 1996).

5.1.6 Former Concrete Sump (Site Area No. 16)

Geoprobe samples were collected at one location adjacent to the Concrete Sump at HBGS (Sample Location 16 shown on Plate 1 in Appendix A). Soil samples were collected at depths of 2 to 4 feet bgs, 4 to 5 feet bgs, and 5 to 6 feet bgs and analyzed for TPH by EPA modified Method 8015 carbon chain distribution for diesel. The 17 CCR Title 22 Metals were analyzed by EPA Method 6010A; Method SW7060A was used for arsenic; Method SW7470 was used for mercury; EPA Method 8260A was used for VOCs; and EPA Method 8270A was used for SVOCs (refer to Section 4.4, Laboratory Methods).

5.1.6.1 Organics

TPH

TPH were not detected above laboratory method detection limits in the soil samples from all intervals.

VOCs

VOCs were not detected above laboratory method detection limits in the soil samples from all intervals.

SVOCs

Only bis(2-Ethylhexyl)-phthalate was detected above method detection limits reported by the laboratory at the Concrete Sump area at a concentration of 85 and 130 µg/kg in soil samples collected at 4 to 5 feet bgs and 5 to 6 feet bgs.

5.1.6.2 Metals

Fourteen of the 17 CCR metals were detected in the soil samples analyzed from Geoprobe location HG16. Only arsenic in the 5- to 6-foot bgs sample and molybdenum from the 2-to 4-foot bgs sample exceeded metals concentrations above average concentrations in California soils, but were within concentration ranges for the same metals in California soils (Kearney, 1996).

5.1.7 Historic Oil Reservoir at Units 3 and 4 (Site Area No. 18)

Geoprobe samples were collected at one location adjacent to the Historic Oil Reservoir at Units 3 and 4 at HBGS (Sample Location 18 shown on Plate 1 in Appendix A). Soil samples were collected at depths of 2 to 4 feet bgs and 10 to 12 feet bgs and analyzed for TPH by EPA modified Method 8015 carbon chain distribution for diesel. The 17 CCR Title 22 Metals were analyzed by EPA Method 6010A; Method SW7060A was used for arsenic; Method SW7470 was used for mercury; EPA Method 8260A was used for VOCs; and EPA Method 8270A was used for SVOCs (refer to Section 4.4, Laboratory Methods).

5.1.7.1 Organics

TPH

TPH were not detected above laboratory method detection limits in the soil samples collected from either interval.

VOCs

VOCs were not detected above laboratory method detection limits in the soil samples collected from either interval.

SVOCs

SVOCs were not detected above method detection limits reported by the laboratory for samples collected from either interval.

5.1.7.2 Metals

Fourteen of the 17 CCR metals were detected in the sample collected at 2 to 4 feet bgs and 15 of 17 CCR metals were detected in the 10 to 12 feet bgs sample and analyzed from Geoprobe location HG18. Only molybdenum was detected above the reported average concentration in the 2 to 4 feet bgs sample, but were within the concentration range for California soils (Kearney, 1996).

5.1.8 Oil / Water Separator and Sump at Units 1 and 2 (Site Area No. 19)

Geoprobe samples were collected at one location adjacent to the Oil/Water Separator and Sump at Units 1 and 2 at HBGS (Sample Location 19 shown on Plate 1 in Appendix A). Soil samples were collected at depths of 3 to 4 feet bgs and 9 to 11 feet bgs and analyzed for TPH by EPA modified Method 8015 carbon chain distribution for diesel. The 17 CCR Title 22 Metals were analyzed by EPA Method 6010A; Method SW7060A was used for arsenic; Method SW7470 was used for mercury; EPA Method 8260A was used for VOCs; and EPA Method 8270A was used for SVOCs (refer to Section 4.4, Laboratory Methods)

5.1.8.1 Organics

TPH

TPH were detected above the laboratory method detection limit in samples collected from both sample intervals. TPH compounds were detected at an estimated concentration of 6.6 mg/kg in the C15<C20 carbon chain range, 16 mg/kg in the C20<C25 carbon chain range, 33 mg/kg in the C25<C30 carbon chain range, 33 mg/kg in the C30<C35 carbon chain range, and 35 mg/kg in the C35<C40 carbon chain range in the 3- to 4-foot bgs sample. TPH compounds were detected at an estimated concentration of 8.4 mg/kg in the C30<C35 carbon chain range and 18 mg/kg in the C35<C40 carbon chain range in the 9- to 11-foot sample.

VOCs

VOCs were not detected above laboratory method detection limits in the soil samples collected from either interval.

SVOCs

The SVOCs benzo(a)anthracene (280 µg/kg), benzo(a)pyrene (310 µg/kg), benzo(b)fluoranthene (600 µg/kg), benzo(g,hi)perylene (240 µg/kg), bis(2-ethylhexyl)-phthalate (54 µg/kg), chrysene (420 µg/kg), flouranthene (640 µg/kg), indeno(1,2,3-c,d)pyrene (160 µg/kg), phenanthene (380 µg/kg), and pyrene (1,000 µg/kg) were detected above method detection limits in the 3- to 4-foot bgs sample. The SVOCs benzo(a)pyrene (84 µg/kg) and pyrene (100 µg/kg) were detected above the method detection limit in the 9- to 11-foot bgs sample. SVOCs were not reported by the laboratory for the 3- to 4-foot bgs duplicate sample.

5.1.8.2 Metals

Fifteen of the 17 CCR metals were detected at the 3- to 4-foot bgs sample and 14 of the 17 CCR metals were detected at the 9- to 11-foot bgs sample at Geoprobe location HG19. Only molybdenum was detected above the reported average concentration in the 3- to 4-foot bgs sample (duplicate was nondetect), but the concentration was within the concentration range for California (Kearney, 1996).

5.1.9 Oil / Water Separator and Sump at Units 3 and 4 (Site Area No. 20)

Geoprobe samples were collected at one location adjacent to the Oil/Water Separator and Sump at Units 3 and 4 at HBGS (Sample Location 20 shown on Plate 1 in Appendix A). Soil samples were collected at depths of 3 to 4 feet bgs and 9 to 11 feet bgs and analyzed for TPH by EPA modified Method 8015 carbon chain distribution for diesel. The 17 CCR Title 22 Metals were analyzed by EPA Method 6010A; Method SW7060A was used for arsenic; Method SW7470 was used for mercury; EPA Method 8260A was used for VOCs, and EPA Method 8270A was used for SVOCs (refer to Section 4.4, Laboratory Methods).

5.1.9.1 Organics

TPH

TPH were not detected above laboratory method detection limits in the soil samples collected from either interval.

VOCs

VOCs were not detected above laboratory method detection limits in the soil samples collected from either interval.

SVOCs

SVOCs were not detected above method detection limits reported by the laboratory for collected samples from either interval.

5.1.9.2 Metals

Fourteen of the 17 CCR metals were detected in samples analyzed from Geoprobe location HG20 (Table 5-1d). Only arsenic and molybdenum were detected above the reported average concentration in the sample collected in the 3- to 4-foot bgs interval, but both were within the concentration range for California (Kearney, 1996).

5.2 GROUNDWATER ANALYTICAL RESULTS

The analytical results for groundwater samples collected from Hydropunch locations are described below by site and summarized in Tables 5-2a through 5-2e. Groundwater samples were analyzed for TPH by modified EPA Method 8015 carbon chain analyses. VOCs were analyzed by EPA Method 8260A; SVOCs were analyzed by EPA Method 8270B; CCR Title 22 metals were analyzed by EPA Method 6010 (except mercury by method SW7470); and PCBs were analyzed by EPA Method 8081. TPH carbon chain results are summarized in Table 5-2a for the Hydropunch samples. VOCs results are summarized in Table 5-2b. SVOCs results are summarized in Table 5-2c. CCR Title 22 metals results are summarized in Table 5-2d. Copies of laboratory data sheets and chain-of-custody forms are provided in Appendix C. Comparison of analytical results with potential groundwater screening levels is provided in Section 6.0. Groundwater samples were not collected for Hydropunch location HG10 due to the fine-grained nature of shallow soils at that site preventing adequate groundwater recharge for sampling.

5.2.1 Total Petroleum Hydrocarbons - Carbon Chain Distribution

TPH were detected above the laboratory method detection limits in groundwater samples collected from Hydropunch location HG19. TPH were detected at a concentration of 1.1 mg/L in the C15<C20 carbon chain range and 1.3 mg/L in the C20<C25 carbon chain range. Hydropunch Locations are shown on Plate 1 in Appendix A.

5.2.2 Volatile Organic Compounds

A total of 16 VOCs were detected in groundwater samples collected from each of the seven Hydropunch locations. VOCs detected include 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), 1,2,4-trimethylbenzene, 2-butanone, benzene, carbon disulfide, chloroform, chloromethane, cis-1,2-dichloroethene, m-xylene and p-xylene, naphthalene, o-xylene, toluene, trans-1,2-dichloroethene, TCE, and vinyl chloride. VOC concentrations (in µg/L) summarized by Hydropunch location are shown below. Hydropunch locations are shown on Plate 1 in Appendix A and specific discussions of individual VOCs are presented in the following paragraphs.

VOCs	HG5	HG8	HG9	HG16	HG18	HG19	HG20
1,1-dichloroethane (1,1-DCA)	8.1	--	0.18	0.26	--	0.54	0.65
1,1-dichloroethene (1,1-DCE)	1.8	--	--	--	--	--	--
1,2,4-trimethylbenzene	--	--	0.086	--	--	--	--
2-butanone	--	--	7	--	--	9.2	--
benzene	--	0.11	--	--	0.17	0.35	--
carbon disulfide	--	--	--	--	0.26	1.6	0.28
chloroform	--	--	0.29	--	--	--	--
chloromethane	--	--	--	--	0.13	--	--
cis-1,2-dichloroethene	40	0.32	0.19	0.56	5	1.4	1.2
m-xylene, p-xylene	--	--	--	--	--	0.31	--
o-xylene	--	--	--	--	--	0.19	--
naphthalene	--	1	--	--	--	--	--
toluene	--	0.29	0.3	0.1	0.13	0.39	0.14
trans-1,2-dichloroethene	10	--	--	--	--	0.15	--
trichloroethene (TCE)	2	--	--	--	--	--	--
vinyl chloride	--	--	--	--	--	0.98	--

1,1-DCA was detected in 7 of 10 groundwater samples (including three duplicates) at concentrations ranging from 0.18 µg/L (estimated HG9) to 8.1 µg/L (HG5b). This VOC was not detected in samples analyzed from Hydropunch locations HG8 and HG18.

1,1-dichloroethene (1,1-DCE) was detected in both groundwater samples (includes the duplicate) collected at the Hydropunch location HG5b at an estimated concentration between 1.6 µg/L and 1.8 µg/L.

1,2,4-trimethylbenzene was detected in only one groundwater sample collected from Hydropunch location HG9 at an estimated concentration of 0.086 µg/L.

2-butanone was detected in two groundwater samples collected from Hydropunch location HG9 and HG19 at estimated concentrations of 7 µg/L and 9.2 µg/L, respectively.

Acetone was detected in one groundwater sample collected from Hydropunch location HG9 at an estimated concentration of 13 µg/L.

Benzene was detected in three groundwater samples collected from Hydropunch locations HG8, HG18, and HG19 at respective estimated concentrations of 0.11 µg/L, 0.17 µg/L, and 0.35 µg/L.

Carbon disulfide was detected in four groundwater samples collected at Hydropunch locations HG18, HG19, and HG20 at respective concentrations of 0.26 µg/L, 1.6 µg/L, 0.3 µg/L, and 0.28 µg/L (duplicate of HG20).

Chloroform was detected in only one groundwater sample collected from Hydropunch location HG9 at an estimated concentration of 0.29 µg/L.

Chloromethane was detected in only one groundwater sample collected from Hydropunch location HG18 at an estimated concentration of 0.13 µg/L.

Cis-1,2-dichloroethene was detected in all of the groundwater samples collected at concentrations ranging from an estimated 0.19 µg/L (HG9) to 40 µg/L (HG5b).

Xylenes (m-, p-, and o-isomers) were detected in one groundwater sample collected from Hydropunch location HG19. M- and p-xylenes were detected at estimated concentrations of 0.31 µg/L and o-xylene was detected at an estimated concentration of 0.19 µg/L.

Naphthalene was detected in one groundwater sample collected from Hydropunch location HG8 at a concentration of 1 µg/L.

Toluene was detected in all groundwater samples collected at HBGS except those from Hydropunch location HG5. Estimated concentrations ranged from 0.1 µg/L (HG16) to 0.39 µg/L (HG19).

Trans-1,2-dichloroethene was detected in three groundwater samples collected from two Hydropunch locations HG5b (includes duplicate) and HG19 at concentrations of 10 µg/L and 0.15 µg/L, respectively.

TCE was detected in two groundwater samples collected from Hydropunch location HG5b at estimated concentrations of 1.9 µg/L and 2 µg/L.

Vinyl chloride was detected in one groundwater sample collected from Hydropunch location HG19 at an estimated concentration of 0.98 µg/L.

5.2.3 Semivolatile Organic Compounds

A total of six SVOCs were detected in groundwater samples collected from each of the eight Hydropunch locations. SVOCs detected included 4-chloro-3-methylphenol, bis(2-ethylhexyl)phthalate, di-n-buytl phthalate, diethyl phthalate, dimethyl phthalate, and naphthalene. SVOC concentrations (in µg/L) identified by Hydropunch location are shown below. Hydropunch locations are shown on Plate 1 in Appendix A and specific discussions of individual VOCs are presented in the following paragraphs. Other SVOCs were not present in groundwater at detectable concentrations in the shallow or deep wells.

SVOCs	HG5	HG8	HG9	HG16	HG18	HG19	HG20
4-chloro-3-methylphenol	--	--	2.5	--	--	--	--
bis(2-ethylhexyl)phthalate	2	1.1	1	--	1.4	1.3	--
di-n-butyl phthalate	1	1.2	--	--	1.4	--	--
diethyl phthalate	1.1	--	3.2	--	--	--	--
dimethyl phthalate	--	--	1.2	--	--	--	--
naphthalene	--	1.4	1.2	--	--	--	--

4-chloro-3-methylphenol was detected only in the groundwater sample collected from Hydropunch location HG9 at an estimated concentration of 2.5 µg/L.

Bis(2-ethylhexyl)phthalate was detected in the groundwater samples at five out of eight Hydropunch locations (HG5, HG6, HG8, HG18, and HG19). Estimated concentrations ranged from 1 µg/L (HG8) to 2 µg/L (HG5).

Di-n-buytl phthalate was detected in groundwater samples from three out of the eight Hydropunch locations (HG5, HG6, and HG18) at estimated concentrations of 1 µg/L, 1.2 µg/L, and 1.4 µg/L, respectively.

Diethyl phthalate was detected in groundwater samples from two out of the eight Hydropunch locations (HG5 and HG9) at estimated concentrations of 1.1 µg/L and 3.2 µg/L, respectively.

Dimethyl phthalate was detected only in the groundwater sample collected from Hydropunch location HG9 at an estimated concentration of 1.2 µg/L.

Naphthalene was detected in groundwater samples from two out of the eight Hydropunch locations (HG8 and HG9) at estimated concentrations of 1.4 µg/L and 1.1 µg/L, respectively.

5.2.4 PCBs

PCBs were analyzed for at only two Hydropunch locations (HG6a and HG6b). No PCBs were detected in laboratory samples above the detection limits at these locations.

5.2.5 Metals

Twelve of the 17 CCR Title 22 metals were detected in groundwater samples analyzed from six Hydropunch locations by Woodward-Clyde. Metal concentrations (in mg/L) identified by Hydropunch location are shown below. Hydropunch sample locations are depicted on Plate 1 in Appendix A and specific discussions of specific metals are presented in the following paragraphs. Other metals were not present in groundwater at detectable concentrations in the shallow or deep wells.

CCR Metals	HG5	HG9	HG16	HG18	HG19	HG20
Arsenic	--	0.022	--	0.058	--	0.022
Barium	0.03	0.045	0.013	0.074	0.03	0.04
Beryllium	--	--	--	0.0013	--	--
Cadmium	--	--	--	--	--	0.0049
Chromium	--	--	--	0.035	--	--
Cobalt	--	0.0068	--	0.0052	--	--
Copper	--	0.0065	--	0.017	--	--
Molybdenum	0.041	0.033	0.015	0.032	0.09	0.015
Nickel	0.0076	--	--	0.013	--	--
Thallium	--	0.084	--	--	--	--
Vanadium	--	--	0.016	0.021	--	--
Zinc	0.01	0.0093	--	0.058	--	--

Arsenic was detected in three samples collected from Hydropunch locations at concentrations ranging from 0.022 mg/L to 0.058 mg/L. Barium was detected in nine Hydropunch locations at concentrations ranging from 0.013 mg/L to 0.074 mg/L. Beryllium was detected in one Hydropunch location at a concentration of 0.0013 mg/L. Cadmium was detected in one water sample at a concentration of 0.0049 mg/L. Chromium was detected in two samples at concentrations of 0.035 mg/L and 0.013 mg/L. Cobalt was detected in two Hydropunch locations at concentrations of 0.0052 mg/L and 0.0068 mg/L. Copper was detected in three Hydropunch locations at concentrations ranging from 0.0065 mg/L to 0.017 mg/L. Molybdenum was detected in nine Hydropunch locations at concentrations ranging from 0.011 mg/L to 0.09 mg/L. Nickel was detected in four Hydropunch locations at concentrations ranging from 0.0053 mg/L to 0.013 mg/L. Thallium was detected in one Hydropunch location at a concentration of 0.084 mg/L. Vanadium was detected in three Hydropunch location at concentrations ranging between 0.016 mg/L and 0.021 mg/L. Zinc was detected in five Hydropunch locations at concentrations ranging from 0.0065 mg/L to 0.019 mg/L.

Soil and groundwater analytical results are compared to potential regulatory soil and groundwater screening levels in order to evaluate if the concentration levels evidence contamination which may require remediation under current environmental laws.

6.1 DISCUSSION OF SOIL RESULTS

6.1.1 Petroleum-Impacted Soil

Petroleum-impacted sites are specifically exempted from the provisions and requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). For petroleum-impacted sites, applicable regulatory requirements are found in the state and federal UST requirements, the California Water Code, California Health and Safety Code, and the applicable Regional Water Quality Control Board Water Quality Control Plan.

In May 1996, the Los Angeles Water Quality Control Board (LARWQCB) issued a guidance on an interim approach for using soil screening levels to evaluate the need for remediation of petroleum-impacted soils (LARWQCB, 1996). The approach was developed to evaluate whether a site may require remedial action and what level of remediation may be required for site closure. The LARWQCB allows for site-specific risk analysis to determine the effect on groundwater and the potential health impacts for residuals in soil and groundwater on human health. The soil screening levels were developed primarily to determine if soil contamination poses a risk to groundwater. However, they generally are protective of human health from direct contact pathways (i.e. dermal exposure and soil ingestion).

The LARWQCB has developed two sets of soil screening levels: one for soil above drinking water (beneficial) aquifers and one for soil above non-drinking water (non-beneficial) aquifers. All groundwater is considered a drinking water resource unless exempted by LARWQCB based upon one of the criteria defined under State Water Resources Control Board (SWRCB) resolution 88-63: (i) total dissolved solids (TDS) greater than 3,000 mg/L; (ii) deliverability less than 22 gallons per day; or (iii) existing contamination that cannot be reasonably treated. Reported concentrations of TDS ranged from 1,200 mg/L to 44,900 mg/L, seven out of nine monitoring wells sampled and analyzed were above the TDS exemption (SCE, 1997b). Due to the proximity of the wetlands to the HBGS and potential sensitive ecological receptors, determination of beneficial or non-beneficial use may not rely on exemption to Resolution 88-63. As a result, the potential LARWQCB petroleum-impacted soil screening levels for both

non-beneficial use aquifers and for beneficial aquifers with groundwater less than 20 feet bgs have been used in the following analysis and are summarized in Table 6-1.

The LARWQCB must make the determination on what would be the most appropriate soil screening levels for the site, based on the uses or potential uses of the groundwater underlying the site. In order for LARWQCB to make this determination, data would need to be supplied on existing salinity, deliverability, nearest water supply wells, etc.

For areas that may be under the jurisdiction of the DTSC, the DTSC considers potential impacts to human health by first following the Preliminary Endangerment Assessment (PEA) process. There are no published tables with PEA values for soil. However, calculated PEA values are usually very similar to EPA Region IX PRGs. DTSC PEA and EPA Region IX PRG values are calculated considering potential human exposures from soil ingestion, dermal contact, and inhalation of VOCs and particulates. The range of potential soil screening levels for organic compounds (EPA Region IX PRGs) for the site, if the site is under the jurisdiction of the DTSC, are shown in Table 6-2. Both residential use and industrial use scenarios are presented.

LARWQCB soil screening levels for non-beneficial and beneficial uses were not exceeded with respect to those samples obtained by Woodward-Clyde at HBGS.

The laboratory separation of carbon chain distribution used in this investigation and the LARWQCB soil screening level carbon chain distribution separation do not match exactly. For example, the LARWQCB soil screening category for light hydrocarbons is C4-C12, while the laboratory separated the carbon chain into C10-C15.

LARWQCB soil screening levels for TPH were exceeded in the Phase II ESA (CH2M HILL, 1997) at the following locations:

- At the powerblocks, TPH concentrations exceeded LARWQCB beneficial use criteria at soil sample HBH01 collected from 1 to 1.3 feet bgs and soil sample HBH08 collected from 10 to 10.5 feet bgs.
- At the distillate storage tank, TPH concentrations exceeded LARWQCB beneficial use criteria in soil sample HBH28 collected from 5 to 5.5 feet bgs.
- At the historic oil reservoir, TPH concentrations exceeded LARWQCB beneficial and nonbeneficial use criteria in soil sample HBH54 collected from 8 to 8.5 feet bgs.

- At the east fuel storage tank, TPH concentrations exceeded LARWQCB beneficial use criteria in soil sample HBH57 collected from 0.5 to 1 foot bgs.
- At the west fuel storage tank, TPH concentrations exceeded LARWQCB beneficial and nonbeneficial use criteria in soil sample HBH61 collected from 0.5 to 1 foot bgs.

LARWQCB soil screening levels for benzene, ethylbenzene, toluene, and xylenes were not exceeded at the site for either non-beneficial and beneficial uses with respect to those samples obtained by Woodward-Clyde. LARWQCB soil screening levels for benzene, ethylbenzene, toluene, and xylenes were not exceeded in the Phase II ESA (CH2M HILL, 1997).

LARWQCB petroleum soil screening levels for beneficial uses appears to have been exceeded in the soil samples obtained by CH2M HILL (1998) during the soil baseline study in the following areas:

- Concrete Degreasing Pit (area 5)
- Peaker Unit Pump Area (area 8)
- Power Block Perimeters (area 9)
- Peaker Unit (area 10)
- Former Concrete Sump (area 16)
- Oil/Water Separator and Sump Units 1 and 2 (area 19)
- Oil/Water Separator and Sump Units 3 and 4 (area 20)

EPA Region IX PRGs for soil for both industrial and residential use were exceeded for benzo(a)pyrene at the oil/water separator and sumps 1 and 2 (soil sample 19 at 3 to 4 feet bgs). At the 9- to 11-foot sample depth, the EPA Region IX PRG for residential use was exceeded. No other EPA Region IX PRGs for organics in soil were exceeded with respect to those samples obtained by Woodward-Clyde.

6.1.2 Metal-Impacted Soil

EPA Region IX PRGs for metals detected in soils are described in Appendix E. Because in certain instances background concentrations of metals in California may exceed the EPA Region IX PRGs, the DTSC requires metals detected in soils to be compared to a body of data representative of local conditions unaffected by site-related activities. Metals present at

concentrations elevated with respect to these local conditions become chemicals of potential concern and are carried forward into a health risk assessment (DTSC PEA Guidance, 1997).

Metal concentrations in soil were compared to background concentrations of metals and soils for California. Background metal concentrations have been determined in 50 benchmark soils selected from throughout the state by the Kearney Foundation of Soils Science (Kearney, 1996). The Kearny database was developed to help evaluate the severity of metal pollution problems in California soils, and has been accepted by DTSC as an appropriate database for establishing background metal concentrations. These average metal concentrations are shown in Table 6-3.

For this investigation, the following metals were elevated above the average metal concentrations in soil for California (Kearney, 1996) in one or more soil samples:

- The concentration of antimony was 0.73 mg/kg at boring 8 (oil/water separator and sumps 1 and 2) collected from 6 to 8 feet bgs. The average concentration of antimony in California soils is 0.6 mg/kg.
- The concentration of arsenic was 5 mg/kg, 3.8 mg/kg, and 3.6 mg/kg at the peaker unit, former concrete sump, and oil/water separator and sump units 3 and 4, respectively. The average concentration of arsenic in California soils is 3.5 mg/kg.
- The concentration of cadmium was 0.48 mg/kg and 0.5 mg/kg at the peaker unit and oil/water separator and sump units 3 and 4, respectively. The average concentration of cadmium in California soils is 0.36 mg/kg.
- The concentration of cobalt was 15.1 mg/kg at the peaker unit. The average concentration of cobalt in California soils is 14.9 mg/kg.
- The concentration of copper was 42.5 mg/kg at the peaker unit. The average concentration of copper in California soils is 28.7 mg/kg.
- The concentration of molybdenum was 1.8 mg/kg, 2.9 mg/kg , 1.6 mg/kg, 1.7 mg/kg, and 1.7 mg/kg at the peaker unit, former concrete sump, historic oil reservoir, oil water separator at units 1 and 2, and oil water separator at units 3 and 4, respectively. The average concentration of molybdenum concentration in California soils is 1.3 mg/kg.

In the Phase II ESA (CH2M HILL, 1997), the following metals were elevated above average metal concentrations in soil for California (Kearney, 1996):

- At the powerblocks, the antimony concentrations were detected up to 52.2 mg/kg in soil sample HBH01 collected from 1 to 1.3 feet bgs. The reported concentrations exceeded the range for antimony in California soils (0.15 mg/kg to 1.95 mg/kg).

- At the oil/water separator and sump Units 1 and 2, antimony concentrations were 19.4 mg/kg and 23.9 mg/kg in soil samples HBH40 collected from 1 to 1.5 feet bgs and 5 to 5.5 feet bgs, respectively. The average concentration of antimony in California soils is 0.6 mg/kg. The reported concentrations exceeded the range for antimony in California soils (0.15 mg/kg to 1.95 mg/kg).

- At the oil/water separator and sump Units 3 and 4, antimony concentrations were 34.3 mg/kg and 39.8 mg/kg in soil samples HBH41 collected from 1.5 to 1.8 feet bgs and 3 to 3.5 feet bgs, respectively. The average concentration of antimony in California soils is 0.6 mg/kg. The reported concentrations exceeded the range for antimony in California soils (0.15 mg/kg to 1.95 mg/kg).

- At the former concrete waste oil sump, antimony concentrations were 38.6 and 25.4 mg/kg in soil samples HBH42 collected from 1 to 1.5 feet and 8.5 to 9 feet bgs. The average concentration of antimony in California soils is 0.6 mg/kg. The reported concentrations exceeded the range for antimony in California soils (0.15 mg/kg to 1.95 mg/kg).

- At the historic oil reservoir, the antimony concentration was 49 mg/kg in soil sample HBH54 collected from 0.5 to 1 foot. The average concentration of antimony in California soils is 0.6 mg/kg. The reported concentration for antimony exceeded the range in California soils (0.15 mg/kg to 1.95 mg/kg).

- At the peaker unit sump, the antimony concentrations were 24.7 mg/kg and 34.1 µg/kg in soil sample HBH55. The average concentration of antimony in California soils is 0.6 mg/kg. The reported concentration for antimony exceeded the range in California soils (0.15 mg/kg to 1.95 mg/kg).

- At the hazardous materials storage area, the antimony concentration was 25.8 mg/kg in soil sample HBH56. The reported concentrations for antimony exceeded the range in California soils (0.15 mg/kg to 1.95 mg/kg).

- At the powerblocks, the arsenic concentration was 6.6 mg/kg in soil sample HBH02 collected from 1 to 1.2 feet bgs. The arsenic concentration was 5.9 mg/kg in soil sample HBH02 collected from 5.1 to 5.5 feet bgs. The arsenic concentration was 3.8 mg/kg in soil sample HBH03 collected from 5.3 to 5.6 feet bgs. The average arsenic concentration in California soils is 3.5 mg/kg. The reported concentrations for arsenic was within the range in California soils (0.6 mg/kg to 11 mg/kg).

- At the peaker unit, the arsenic concentration was 4.3 mg/kg in soil sample HBH10 collected from 1 to 1.3 feet bgs. The average arsenic concentration in California soils is 3.5 mg/kg. The reported concentration for arsenic was within the range in California soils.

- At the powerblocks, the cadmium concentration was 34.5 mg/kg at HBH04 collected from 1.5 to 2 feet bgs. The cadmium concentration was 34.9 mg/kg at HBH04 collected from 5 to 5.5 feet bgs. The average cadmium concentration in California soils is 0.36 mg/kg. The reported concentrations for cadmium exceeded the range in California soils (0.05 mg/kg to 1.7 mg/kg).

- At the powerblocks, the cobalt concentration was 18.9 mg/kg in soil sample HBH01 collected from 1 to 1.3 feet bgs. The cobalt concentration was 42.2 mg/kg in soil sample HBH02 collected from 1 to 1.4 feet bgs. The cobalt concentration was 20.4 mg/kg in soil sample HBH05 collected from 5 to 5.3 feet bgs. The average cobalt concentration in California soils is 14.9 mg/kg. The reported concentrations for cobalt were within the range in California soils.

- At the powerblocks, the copper concentration was 94.8 mg/kg at HBH04 collected from 1.5 to 2 feet bgs. The copper concentration was 37.7 mg/kg at HBH04 collected from 5 to 5.5 feet bgs. The average copper concentration in California soils is 28.7 mg/kg. The reported concentrations for copper were within the range in California soils (9.1 mg/kg to 96.4 mg/kg).

- At the former concrete waste oil sump, the copper concentration was 35.5 mg/kg at HBH42 collected from 1 to 1.5 feet bgs. The average copper concentration in California soils is 28.7 mg/kg. The reported concentration for copper was within the range in California soils (9.1 mg/kg to 96.4 mg/kg).

- At the hazardous materials storage area, the copper concentration was 43.6 mg/kg in soil sample HBH56. The average copper concentration in California soils is 28.7 mg/kg. The reported concentration for copper was within the range in California soils (9.1 mg/kg to 96.4 mg/kg).

- At the powerblocks, the lead concentration was 28.3 mg/kg at HBH04 collected from 1.5 to 2 feet bgs. The average lead concentration in California soils is 23.9 mg/kg. The reported concentration for lead was within the range in California soils (12.4 mg/kg to 97.1 mg/kg)

- At the former concrete waste oil sump, the lead concentration was 45.9 mg/kg at HBH42 collected from 1 to 1.5 feet bgs. The average lead concentration in California soils is 23.9 mg/kg. The reported concentration for lead was within the range in California soils (12.4 mg/kg to 97.1 mg/kg).

- At the powerblocks, the mercury concentration was detected up to 2 to 3 mg/kg at HBH05 collected from 5 to 5.3 feet bgs. The average mercury concentration in California soils is 0.26 mg/kg. Four out of five of the reported concentrations of mercury exceeded the range in California soils (0.1 mg/kg to 0.9 mg/kg).

- At the peaker unit, the mercury concentration was 0.95 mg/kg at HBH08 collected from 10 to 10.5 feet bgs. The average mercury concentration in California soils is 0.26 mg/kg. The reported concentration for mercury exceeded the range in California soils (0.1 mg/kg to 0.9 mg/kg).

- At the oil/water separator and sump 1 and 2, the mercury concentrations were 2.5 mg/kg and 0.38 mg/kg at HBH40 collected from 1 to 1.5 feet bgs, and 5 to 5.5 feet bgs, respectively. The average mercury concentration in California soils is 0.26 mg/kg. The reported mercury concentrations exceeded the range in California soils (0.1 mg/kg to 0.9 mg/kg).

- At the oil/water separator and sump 3 and 4, the mercury concentration was 0.42 mg/kg at HBH41 collected from 3 to 3.5 feet bgs. The average mercury concentration in California soils is 0.26 mg/kg. The reported concentration was within the range in California soils (0.1 mg/kg to 0.9 mg/kg).

- At the historic oil reservoir, the mercury concentration was 0.62 mg/kg at soil sample HBH54. The average mercury concentration in California soils is 0.26 mg/kg. The reported concentration was within the range in California soils (0.1 mg/kg to 0.9 mg/kg).

- At the hazardous materials storage area, the mercury concentration was 0.32 mg/kg at soil sample HBH56. The average mercury concentration in California soils is 0.26 mg/kg. The reported concentration was within the range in California soils (0.1 mg/kg to 0.9 mg/kg).

- At the powerblocks, the molybdenum concentration was up to 5.8 mg/kg in soil sample HBH01 collected from 1 to 1.3 feet bgs. The average molybdenum concentration in California soils is 1.3 mg/kg.

- At the oil/water separator and sumps 1 and 2, the molybdenum concentrations were 4.2 mg/kg and 3.7 mg/kg in soil sample HBH40 collected from 1 to 1.5 feet bgs and 5 to 5.5 feet bgs, respectively. The average molybdenum concentration in California soils is 1.3 mg/kg. The reported concentrations for molybdenum were within the range for California soils (0.1 mg/kg to 9.6 mg/kg).

- At the oil/water separator and sumps 3 and 4, the molybdenum concentrations were 6 mg/kg and 7.6 mg/kg in soil sample HBH41 collected from 1.5 to 1.8 feet bgs and 3 to 3.5 feet bgs, respectively. The average molybdenum concentration in California

soils is 1.3 mg/kg. The reported concentrations for molybdenum were within the range in California soils (0.1 mg/kg to 9.6 mg/kg).

- At the former concrete waste oil sump, the molybdenum concentrations were 8.4 and 3.8 mg/kg in soil samples HBH42. The average molybdenum concentration in California soils is 1.3 mg/kg. The reported concentrations for molybdenum were within the range in California soils (0.1 mg/kg to 9.6 mg/kg).

- At the historic oil reservoir, the molybdenum concentration was 8.9 mg/kg in soil sample HBH54. The average molybdenum concentration in California soils is 1.3 mg/kg. The reported concentrations for molybdenum was within the California soils (0.1 mg/kg to 9.6 mg/kg).

- At the peaker unit, the molybdenum concentration was 5.1 mg/kg in soil sample HBH55. The reported concentration for molybdenum was within the range in California soils (0.1 mg/kg to 9.6 mg/kg).

- At the powerblocks, the selenium concentration was 0.5 mg/kg in soil sample HBH01 collected from 1 to 1.3 feet bgs. The selenium concentrations were 0.8 mg/kg in both soil samples HBH05 from 5 to 5.3 feet bgs and HBH05 collected from 5.3 to 5.6 feet bgs. The average selenium concentration in California soils is 0.058 mg/kg. The reported concentrations for selenium exceeded the range in California soils (0.015 mg/kg to 0.43 mg/kg).

- At the oil water separator and sumps 1 and 2, the selenium concentration was 0.5 mg/kg in soil sample HBH40 collected from 5 to 5.5 feet bgs. The average selenium concentration in California soils is 0.058 mg/kg. The reported concentration for selenium exceeded the range in California soils (0.015 mg/kg to 0.43 mg/kg).

- At the oil water separator and sumps 3 and 4, the selenium concentration was 0.8 mg/kg in soil sample HBH41 collected from 1.5 to 1.8 feet bgs. The average selenium concentration in California soils is 0.058 mg/kg. The reported concentration for selenium exceeded the range in California soils (0.015 mg/kg to 0.43 mg/kg).

- At the powerblocks, the silver concentration was detected up to 29.6 mg/kg in soil sample HBH04 collected from 5 to 5.5 feet bgs. The average silver concentration in California soils is 0.8 mg/kg. Two of the reported concentrations for silver exceeded the range in California soils (0.1 mg/kg to 8.3 mg/kg).

- At the oil water separator and sumps 1 and 2, the silver concentrations were 3.7 mg/kg and 6.3 mg/kg in soil sample HBH40 collected from 1 to 1.5 feet bgs and 5 to 5.5 feet bgs, respectively. The average silver concentration in California soils is 0.8 mg/kg. The reported concentrations for silver were within the range in California soils (0.1 mg/kg to 8.3 mg/kg).

- At the oil water separator and sumps 3 and 4, the silver concentrations were 2.8 mg/kg and 3.5 mg/kg in soil sample HBH41 collected from 1.5 to 1.8 feet bgs and 3 to 3.5 feet bgs, respectively. The average silver concentration in California soils is 0.8 mg/kg. The reported concentrations for silver were within the range in California soils (0.1 mg/kg to 8.3 mg/kg).

- At the former concrete waste oil sump, the silver concentrations were 3.6 mg/kg and 2.6 mg/kg in soil samples HBH42. The average silver concentration in California soils is 0.8 mg/kg. The reported concentrations for silver were within the range in California soils (0.1 mg/kg to 8.3 mg/kg).

- At the historic oil reservoir, the silver concentration was 4.3 mg/kg in soil sample HBH54. The average silver concentration in California soils is 0.8 mg/kg. The reported concentrations for silver were within the range in California soils (0.1 mg/kg to 8.3 mg/kg).

- At the peaker unit, the silver concentrations were 2.8 and 2.1 mg/kg in soil sample HBH55. The reported concentrations for silver were within the range in California soils (0.1 mg/kg to 8.3 mg/kg).

- At the hazardous materials storage area, the silver concentration was 6.7 mg/kg in soil sample HBH56. The reported concentrations for silver were within the range in California soils (0.1 mg/kg to 8.3 mg/kg).

The following metals exceeded the range and average of metal concentrations for benchmark soils in California at HBGS:

- Antimony
- Cadmium
- Mercury
- Selenium
- Silver

The SCE Soil Boring Baseline Study (1997) of the retention basins detected the following metals in soil samples above the average concentration found in California soils (Kearney, 1996):

- Ten metals (aluminum, antimony, arsenic, cadmium, copper, iron, molybdenum, nickel, selenium, vanadium) were detected in the soil samples at concentrations in excess of the average concentration found in California soils.

- Five metals (antimony, arsenic, cadmium, lead, molybdenum) were detected in the soil samples at concentrations in excess of the average concentration found in California soils.

The SCE Well Construction Report (Hamilton, 1987) detected the following metals that were elevated above average metal concentrations in soil for California (Kearney, 1996):

- Soil samples from the Retention Basins indicate that one metal (selenium) was detected at concentrations in the soils above the average concentration found in California.

6.2 DISCUSSION OF GROUNDWATER RESULTS

The primary screening criteria available for groundwater at the site are state and EPA primary maximum contaminant levels (MCLs), secondary MCLs, and action levels. MCLs are part of the drinking water standards adopted by both the EPA under the Safe Drinking Water Act and the Department of Health Services (DHS). MCLs are enforceable on water supply systems and at the tap and are applicable to ground and surface water resources when they are specifically referenced as water quality objectives in the pertinent Regional Water Quality Control Plans. MCLs would apply to groundwater beneath the site based on the current Regional Water Quality Control Plan.

There are no MCLs for TPH, only for chemicals of concern that are constituents of petroleum hydrocarbons (i.e., benzene, toluene, ethylbenzene, and xylenes). State and EPA primary MCLs, secondary MCLs, action levels and DTSC Public Health Goals (PHGs) for the chemicals of concern detected in groundwater at the site are listed in Table 6-4.

The state and EPA levels may not be appropriate for the site if the groundwater is not being used for drinking water purposes or no other beneficial use is determined (e.g., ecological). The LARWQCB would have to make the determination of what the appropriate level would be for the site. For chemicals without state or EPA MCLs, state action levels, and Federal Health Advisory Levels are shown, when available.

6.2.1 VOC- and SVOC-Impacted Groundwater

Concentrations of VOCs detected in groundwater (Tables 5-2b) were compared to primary state MCLs, primary EPA MCLs, MCL goals, secondary state MCLs, secondary EPA MCLs, state

interim action levels, and federal health advisories (i.e., potential threshold concentrations) (Table 6-4). The following VOCs detected in the groundwater samples were elevated above one or more of the above-listed MCLs:

- The 1,1-DCA concentration was 8.1 µg/L in the groundwater sample collected near the concrete decreasing pit (site area No. 5). The state MCL for 1,1-DCA is 5 µg/L.
- Cis-1,2-dichloroethene was detected at a concentration of 40 µg/L in the groundwater sample collected near the concrete decreasing pit (site area No. 5). The state MCL is 6 µg/L.
- Trans-1,2-dichloroethene was detected at a concentration of 10 µg/L in the groundwater sample collected near the concrete decreasing pit (site area No. 5). The state MCL is 10 µg/L.
- Vinyl chloride in groundwater was detected a 0.98 µg/L at the oil/water separator and sump at units 1 and 2 (site area No. 20). The state MCL for vinyl chloride is 0.5 µg/L and the federal MCL is 2.0 µg/L.

In the Phase II ESA (CH2M HILL, 1997), the following VOCs detected in the groundwater samples were elevated above one or more of the above-listed MCLs:

- 1,1-DCE was detected at a concentration of 16 µg/L in groundwater at the historic oil reservoir. The state MCL is 5 µg/L.

The SCE Annual Groundwater Monitoring Report (Hamilton, 1998) detected the following VOCs in the groundwater samples were elevated above one or more of the MCLs:

- In the Retention Basins, one VOC (cis-1,2-dichloroethene) was detected in the groundwater at concentrations in excess of the state and federal MCLs. One VOC (1,1-dichloroethane) was detected above the state MCL and two VOCs (trichloroethene, vinyl chloride) were detected above the federal MCL goal but below state and federal MCLs.
- In the cross gradient wells, one VOC (cis-1,2-dichloroethene) was detected in the groundwater at concentrations in excess of the state and federal MCLs. Four VOCs (benzene, chloroform, methylene chloride and tetrachloroethene) were detected above the federal MCL goal but below the state and federal MCLs.

No SVOCs were detected above potential "threshold" concentrations in groundwater sampled at HBGS.

6.2.2 Metal-Impacted Groundwater

The following metals in groundwater were reported in samples obtained by Woodward-Clyde at concentrations elevated above threshold levels for groundwater:

- Arsenic was detected at a concentration of 58 µg/L in groundwater at the historic oil reservoir. The state and federal MCL is 50 µg/L.
- Thallium was detected at a concentration of 84 µg/L in groundwater at the power blocks. The state and federal MCL is 2 µg/L.

In the Phase II ESA (CH2M HILL, 1997), the following metals in groundwater were reported at concentrations elevated above one or more of the above-listed MCLs:

- Arsenic was detected at a concentration of 80 µg/L in groundwater at the historic oil reservoir. The state and federal MCL is 50 µg/L.
- Beryllium was detected at a concentration of 4.6 µg/L in groundwater at the powerblocks. The state and federal MCL is 4 µg/L.
- Cadmium was detected at a concentration of 7 µg/L in groundwater at the powerblocks. The state and federal MCL is 5 µg/L.
- Cadmium was detected at a concentration of 12 µg/L in groundwater at the historic oil reservoir. The state and federal MCL is 5 µg/L.
- Chromium was detected at a concentration of 210 µg/L in groundwater at the powerblocks. The state MCL is 50 µg/L and the federal MCL is 100 µg/L.
- Copper was detected at a concentration of 230 µg/L in groundwater at the powerblocks. The DTSC PHG is 170 µg/L.
- Lead was detected at concentration of 80.9 µg/L and 40.1 µg/L in groundwater at the powerblocks. The State Action Level for lead is 15 µg/L.
- Lead was detected at a concentration of 70 µg/L at the former concrete waste oil sump. The State and Federal Action Level for lead is 15 µg/L.
- Lead was detected at a concentration of 70 µg/L in groundwater at the historic oil reservoir. The State and Federal Action Level for lead is 15 µg/L.
- Mercury was detected at concentrations of 5 µg/L and 6 µg/L in groundwater at the powerblocks in samples RBH20 and RBH21, respectively. The state and federal MCL is 2 µg/L for mercury.

- Mercury was detected at a concentrations of 5 µg/L in groundwater at the former concrete waste oil sump. The state and federal MCL is 2 µg/L for mercury.
- Mercury was detected at concentration of 7 µg/L and 30 µg/L in groundwater at the hazardous materials storage area. The state and federal MCL is 2 µg/L for mercury.
- Nickel was detected at a concentration of 140 µg/L in groundwater at the former concrete waste oil sump. The state MCL is 100 µg/L for nickel.
- Silver was detected at a concentration of 220 µg/L in the hazardous materials storage area. The secondary federal MCL is 100 µg/L for silver.
- Silver was detected at a concentration of 160 µg/L in the historic oil reservoir. The secondary federal MCL is 100 µg/L for silver.

The SCE Annual Groundwater Monitoring Report (Hamilton, 1998) detected the following metals at concentrations elevated above one or more of the MCLs:

- In the Retention Basin, two metals (arsenic, and selenium) were detected at concentrations in groundwater above state and federal MCLs. One metal (fluoride) was detected at concentrations above the state MCL and two metals (iron and manganese) were detected at concentrations in groundwater above state and federal secondary MCLs.
- In the Boiler Chemical Cleaning Basin, one metal (iron) was detected at concentrations above state and federal secondary MCLs.
- In the cross gradient wells (HB2,HB3, HB4 and HB5), one metal (antimony) was detected above state and federal MCLs and one metal (aluminum, manganese and iron) were detected above state and federal secondary MCLs.

6.2.3 Other Groundwater Contaminants

The SCE Annual Groundwater Monitoring Report (Hamilton, 1998) detected the following contaminants at concentrations elevated above one or more of MCLs:

- In the Retention Basin, four contaminants (fluoride, chloride, sulfate and Total Dissolved Solids) were detected at concentrations in groundwater above the state and federal secondary MCLs. One parameter (E.C.) was detected at concentrations in groundwater above the state secondary MCL.

- In the Boiler Chemical Cleaning Basin, three contaminants (chloride, sulfate, and Total Dissolved Solids) were detected above state and federal secondary MCLs. One parameter (E.C.) was detected above the state secondary MCL.

- In the cross gradient wells, four contaminants (chloride, sulfate, fluoride and total dissolved solids) were detected above state and federal secondary MCLs. One parameter (EC) was detected above the state secondary MCL.

Table 6-5 summarizes the chemicals of concern in soil and groundwater identified in the Woodward-Clyde sampling effort that exceed the applicable criteria noted above.

SECTIONSEVEN References

Barrows, Allan G., 1974. A Review of the Geology and Earthquake History of the Newport-Inglewood Structural Zone, Southern California. Special Report 114. California Division of Mines and Geology. Prepared in cooperation with the County of Los Angeles, Department of County Engineer and the Los Angeles County Flood Control District.

CH2M HILL, 1997a. Phase I Environmental Assessment, Huntington Beach Generating Station. May.

CH2M HILL, 1997b. Huntington Beach Generating Station Phase II Environmental Assessment. June.

CH2M HILL, 1998. Soil Boring Baseline Study.

DTSC, 1997. Preliminary Endangerment Assessment Guidance Manual.

Fetter, C.W., 1994. Applied Hydrogeology. 3rd Edition, 517 p.

Hamilton, 1997. Well Construction Report, Huntington Beach Generating Station, SCE.

Hamilton, 1998. Annual Groundwater Monitoring Report, Huntington Beach Generating Station Groundwater Detection Monitoring Program, SCE.

Kearney Foundation of Soil Science. 1996. Background Concentrations of Trace and Major Elements in California Soils. Kearney Foundation of Soil Science Special Report.

Poland, J.F. and A.M. Piper, et al, 1956. Ground-water Geology of the Coastal Zone Long Beach-Santa Ana Area, California. Geological Survey Water-Supply Paper 1109. U.S. Department of the Interior. Prepared in cooperation with the Orange County Flood Control District, the Orange County Water District, the Los Angeles County Flood Control District, and the Board of Water Commissioners of the city of Long Beach, all of California.

Poland, J.F., 1959. Hydrology of the Long Beach-Santa Ana Area, California. Geological Survey Water-Supply Paper 1471. U.S. Department of the Interior. Prepared in cooperation with the Orange County Flood Control District, the Orange County Water District, the Los Angeles County Flood Control District, and the Board of Water Commissioners of the city of Long Beach.

RWQCB, 1996. Interim Site Assessment and Cleanup Guidebook. May. Los Angeles and Ventura Counties, Region 4.

State of California Department of Water Resources Southern District, 1961. Bulletin NO. 104, Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A, Ground Water Geology. June. Reprinted April 1988.

Woodward-Clyde, 1997a. Work Plan for Soil and Groundwater Investigation and Analysis at the Huntington Beach Generating Station (HBGS), January.

Woodward-Clyde, 1997b. Health and Safety Plan for the Field Investigation at the Huntington Beach, Alamitos, and Redondo Beach Generating Stations, February.

Yerkes, R.F., T.H. McCulloh, J.E. Schoellhamer, and J.G. Vedder, 1965. Geology of the Los Angeles Basin California--an Introduction. Geological Survey Professional Paper 420-A. U.S. Department of the Interior.

TABLE 2-1
Summary of Previous Phase II Investigations
Huntington Beach Generating Station

Area	Site Located on Sale Property?	Basis of Issue	Phase I/II Investigation Work Performed	Phase I/II Investigation Conclusions
1) ASCON Landfill	N	Potential groundwater contamination migrating from ASCON Landfill.	Two groundwater samples (HBH46 and HBH47) were collected and analyzed for VOCs in both samples and TPH-d in HBH46 only. VOCs and TPH-d were not above detection limits. Groundwater at ASCON site reportedly flows away from HBGS.	No further action.
2) Wetlands Area	N	Potential surface contamination from HBGS surface water runoff.	Four surface samples (HBH48, HSS49-HSS51) were collected along the fence line in areas of surface water runoff to wetlands.	No further action. TPH-d at de minimis concentrations in soil.
3) Retention Basins	Y	Potential leaks resulting in subsurface contamination.	Subsurface investigation of surface impoundments is currently being conducted by SCE in a order from DTSC. Soil and groundwater sampling is occurring in the area.	Not applicable.
4a) Aboveground Storage Tanks (ASTs) SCE and Pipeline Terminal Company (EPTC) Tanks	N	Previous investigations indicate contamination exists at tank locations.	No add. sampling was conducted as part of the Phase II ESA. Existing data indicates contamination is present. SCE conducted limited sampling around the EPTC tanks 2/96 and concluded no impacts from TPH, BTEX & metals.	No further action at this time. Agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.
4b) Aboveground Storage Tanks (ASTs)	N	Previous investigations indicate contamination exists at tank locations.	19 locations sampled N, S, E, W and Distillate tanks. Soil was analyzed for TPH-d and 1 sample analyzed for VOCs. TPH was detected up to 65,000 mg/kg in soil at the West tank. Some VOCs detected. TPH in gw up to 2.6 mg/L.	No further action at this time. Agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.
5) Concrete Degreasing Pit	Y	Potential for past leaks resulting in subsurface contamination.	Sampling was not conducted due to limited accessibility of the pit.	No further action at this time. Agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.
6) Switchyard Perimeters	Y	Potential for past leaks or releases resulting in subsurface contamination.	Two shallow samples taken at each switchyard and analyzed for TPH-d and PCBs. TPH-d detected low levels (32 ppm).	No further action at this time. Agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.
7) Primary Fuel Pumping Area	Y	Previous spills reportedly not completely cleaned up.	Two soil borings were completed and sampled for TPH-d (HBH32 and HBH33 soil/gw). ND in gw and up to 430 mg/kg in soil.	No additional sampling or remediation was recommended. Agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.
8) Peaker Unit Pumping Area	Y	Previous spills reportedly not completely cleaned up.	Two soil borings were completed and sampled for TPH-d (HBH43 and HBH44soil/gw).TPH-d at 34 mg/kg in soil and 2.5 mg/l of total TPH-d in gw.	No additional sampling or remediation was recommended. Agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.
9) Power Block Perimeters	Y	Potential leaks penetrating concrete floors or leaking drain lines resulting in subsurface contamination.	4 soil borings for each powerblock and a total of 3 gw samples analyzed for TPH-d. Some samples analyzed for metals and VOCs. De minims conditions were reported for soil and groundwater.	No further action at this time. Agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.
10) Peaker Unit	Y	Potential leaks penetrating concrete floors, or leaking drain lines resulting in subsurface contamination.	Two soil borings analyzed for TPH-d and metals. De minimis conditions (TPH-d total 63 mg/kg). TPH in gw at 0.67 mg/L.	No further action.

TABLE 2-1
Summary of Previous Phase II Investigations
Huntington Beach Generating Station

Area	Site Located on Sale Property?	Basis of Issue	Phase I/II Investigation Work Performed	Phase I/II Investigation Conclusions
11) Transformers	Y	Potential for past leaks and spills resulting in subsurface contamination.	Two soil borings. De minimis conditions.	No additional sampling or remediation is recommended.
12) Pipelines	Y	Potential leaks resulting in subsurface contamination. Phase I indicates pipelines have not been tested since installation.	Most pipelines are aboveground and no evidence or documentation of a release was observed or obtained during the Phase II ESA. A subsurface investigation was not performed and adjacent areas were sampled during the Phase II ESA.	No further action.
13) Hazardous Waste Storage Area	N	Potential releases resulting in subsurface contamination.	Two samples HBH56 soil/gw and HBH65 soil/gw were analyzed for TPH-d, VOCs, PCBs and metals. De minimis conditions.	No additional sampling or remediation was recommended. Agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.
14) Oil/Water Sump Near Displacement Oil Tank	Y	Potential leaks resulting in subsurface contamination.	One soil boring, 2 samples from 9' bgs and 10.5' bgs analyzed for TPH-d. Total TPH-d at 109 mg/kg.	No additional sampling or remediation was recommended. Agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.
15) Secondary Fuel Pumping Area	Y	Potential leaks resulting in subsurface contamination.	Samples from 2 soil borings (HBH03 and HBH37) analyzed for TPH-d and 1 sample for metals. 1 gw sample analyzed for TPH-d.	No further action.
16) Former Concrete Sump Near Retention Basin	Y	Potential leaks resulting in subsurface contamination.	Samples from 1 boring HBH42 soil/gw analyzed for TPH-d, metals and VOCs	Undertake a screening evaluation for demonstrating the safety of the site for industrial use and/or obtain a letter from regulatory agency which confirms no risk management or remediation is needed for continued industrial use.
17) Peaker Unit Sump	Y	Potential leaks resulting in subsurface contamination.	Samples from 1 boring HBH55 analyzed for TPH-d and metals.	No additional sampling or remediation was recommended. Agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.
18) Historic Oil Reservoir at Units 3 & 4	Y	Potential leaks resulting in subsurface contamination.	3 soil borings (HBH54, HBH69, and HBH70). TPH d at 29,000 mg/kg, some VOCs detected in soil and gw.	Undertake a screening evaluation for demonstrating the safety of the site for industrial use and/or obtain a letter from regulatory agency which confirms no risk management or remediation is needed for continued industrial use.
19) Oil/Water Separator & Sump at Units 1 & 2	Y	Potential releases resulting in subsurface contamination.	1 soil boring (HBH40) analyzed for VOCs, metals and TPH-d. De minimis concentrations in soil, however, investigation was limited due to access restrictions.	No additional sampling or remediation was recommended. Agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.
20) Oil/Water Separator & Sump at Units 3& 4	Y	Potential releases resulting in subsurface contamination.	3 soil borings (HBH41, HBH53, and HBH54) analyzed for TPH-d, VOCs and metals. De minimis concentrations in soil reported. TPH-d at 29,000 mg/kg and VOCs in soil.	No additional sampling or remediation was recommended. Agency negotiations, additional sampling, and/or remediation may be necessary or appropriate as part of decommissioning.
21) Existing and Former UST Location	Y	Potential subsurface contamination.	2 soil borings (HBH34 soil and HBH35 soil/gw) sampled for TPH-d and g, and BTEX. TPHg at 0.88 mg/L detected in gw.	No further action.

TABLE 4-1

Summary of Samples Collected, Analyses, and Rationale

Huntington Beach Generating Station

Location No.	Location Name	No. of Samples		Sample Numbers	Number and Type of Analyses						Sampling Rationale
		Field	Dup.		Metals	TPH-d	TPH-g	VOCs	SVOC	PCBs	
Soil Samples											
5	Concrete Degreasing Pit	2	-	HG05-01, HG05-02	2	2	-	2	2	-	Not assessed during Phase I / II
6 (a,b)	Switchyard Perimeters	4	-	HG06A-01, HG06A-02, HG06B-01, HG06B-02	-	4	-	-	4	4	Confirmation of previous findings, include SVOCs.
8	Peaker Unit Pumping Area	2	1	HG08-01, HG08-02, HG08-03 (DUP)	3	3	-	3	3	-	Further assessment of latera spread of contamination, include SVOCs.
9	Power Block Perimeters	2	-	HG09-01, HG09-02	2	2	-	2	2	-	Confirmation of previous findings, include SVOCs.
10	Peaker Unit	2	-	HG10-01, HG10-02	2	2	-	2	2	-	Confirmation of previous findings and expand to include VOCs and SVOCs.
16	Former Concrete Sump	2	1	HG16-01, HG16-02, HG16-03 (DUP)	3	3	-	3	3	-	Collect down gradient samples for analyses, include SVOCs.
18	Historic Oil Reservoir @ Units 3 and 4	2	-	HG18-01, HG18-02	2	2	-	2	2	-	Further assessment of latera spread of contamination, include SVOCs.
19	O/WS & Sump @ Units 1 and 2	2	1	HG19-01, HG19-02, HG19-03 (DUP)	3	3	-	3	3	-	Collect down gradient samples for analyses, include SVOCs.
20	O/WS & Sump @ Units 3 and 4	2	-	HG20-01, HG20-02	2	2	-	2	2	-	Further assessment of latera spread of contamination, include SVOCs.
	Total	**20**	**3**		**19**	**23**	**0**	**19**	**23**	**4**	
Groundwater Samples											
5	Concrete Degreasing Pit	1	1	HG5B-10-W, HG5B-11-W	2	2	-	2	2	-	Not assessed during Phase I / II
6 (a,b)	Switchyard Perimeters	2	-	HG06A-10-W, HG06B-10-W	-	2	-	-	2	2	Confirmation of previous findings, include SVOCs.
8	Peaker Unit Pumping Area	1	-	HG08-10-W, HG08-11-W	-	2	-	1	1	-	Further assessment of latera spread of contamination, include SVOCs.
9	Power Block Perimeters	1	-	HG09-10-W	1	1	-	1	1	-	Confirmation of previous findings, include SVOCs.
10	Peaker Unit	-	-	-	-	-	-	-	-	-	Confirmation of previous findings and expand to include VOCs and SVOCs.
16	Former Concrete Sump	1	-	HG16-10-W	1	1	-	1	1	-	Collect down gradient samples for analyses, include SVOCs.
18	Historic Oil Reservoir @ Units 3 and 4	1	1	HG18-10-W, HG18-11-W (DUP)	2	2	-	2	2	-	Further assessment of latera spread of contamination, include SVOCs.
19	O/WS & Sump @ Units 1 and 2	1	-	HG19-10-W	1	1	-	1	1	-	Collect down gradient samples for analyses, include SVOCs.
20	O/WS & Sump @ Units 3 and 4	1	1	HG20-10-W, HG20-11-W	2	2	-	2	2	-	Further assessment of latera spread of contamination, include SVOCs.
	Total	**9**	**3**		**9**	**13**	**0**	**10**	**12**	**2**	

TABLE 4-2
Sampling Summary
Huntington Beach Generating Station

Location	Name	No. of Samples		Date	Sample	Sample
		Field	Dup.	Sampled	Numbers	Depth Interval (ft.)*
Soil Samples						
5	Concrete Degreasing Pit	2	-	3/19/98	HG05-01, HG05-02	2-4, 9-11
6a	Switchyard Perimeters	2	-	3/19/98	HG06A-01, HG06A-02	2-4, 6-8
6b		2		3/19/98	HG06B-01, HG06B-02	2-4, 6-8
8	Peaker Unit Pumping Area	2	1	3/19/98	HG08-01, HG08-02, HG08-03 (DUP)	1-3, 6-8, 1-3
9	Power Block Perimeters	2	-	3/20/98	HG09-01, HG09-02	2-4, 10-12
10	Peaker Unit	2	-	3/19/98	HG10-01, HG10-02	2-4, 8-10
16	Former Concrete Sump	2	1	3/19/98	HG16-01, HG16-02, HG16-03 (DUP)	2-4, 4-5, 5-6
18	Historic Oil Reservoir @ Units 3 and 4	2	-	3/19/98	HG18-01, HG18-02	2-4, 10-12
19	O/WS & Sump @ Units 1 and 2	2	1	3/19/98	HG19-01, HG19-02, HG19-03 (DUP)	3-4, 9-11, 3-4
20	O/WS & Sump @ Units 3 and 4	2	-	3/20/98	HG20-01, HG20-02	3-4, 9-11
Groundwater Samples						
5	Concrete Degreasing Pit	1	1	3/20/98	HG5B-10-W, HG5B-11-W	25
6a	Switchyard Perimeters	1	-	3/19/98	HG06A-10-W	20
6b		1	-	3/19/98	HG06B-10-W	16
8	Peaker Unit Pumping Area	1	1	3/20/98	HG08-10-W, HG08-11-W	13
9	Power Block Perimeters	1	-	3/20/98	HG09-10-W	13
10	Peaker Unit	-	-	-	-	-
16	Former Concrete Sump	1	-	3/19/98	HG16-10-W	20
18	Historic Oil Reservoir @ Units 3 and 4	1	1	3/19/98	HG18-10-W, HG18-11-W (DUP)	20
19	O/WS & Sump @ Units 1 and 2	1	-	3/19/98	HG19-10-W	25
20	O/WS & Sump @ Units 3 and 4	1	1	3/20/98	HG20-10-W, HG20-11-W	25

Notes:

* For groundwater samples, depth of sampling refers to the bottom depth of the temporary piezometer

Table 5-1a
Soil Analytical Results TPH Carbon Chain
Huntington Beach Generating Station
(Concentrations in mg/kg)

Sample ID	Sample Location	Sample Date	Sample Depth (feet)	C10-<C15	C15-<C20	C20-<C25	C25-<C30	C30-<C35	C35-C40
HG05-01	5	3/19/98	2-4	<12	<12	<12	<12	<12	<12
HG05-02	5	3/19/98	9-11	<11	<11	<11	<11	<11	<11
HG06A-01	6a	3/19/98	2-4	<12	<12	<12	<12	<12	<12
HG06A-02	6a	3/19/98	6-8	<11	<11	<11	<11	<11	<11
HG06B-01	6b	3/19/98	2-4	<12	<12	<12	<12	<12	<12
HG06B-02	6b	3/19/98	6-8	<12	<12	<12	<12	<12	<12
HG08-01	8	3/19/98	1-3	<12	<12	<12	<12	<12	<12
HG08-02	8	3/19/98	6-8	<11	<11	<11	<11	<11	<11
HG08-03	8	3/19/98	1-3	<12	<12	<12	<12	<12	<12
HG09-01	9	3/19/98	2-4	<11	<11	<11	<11	<11	<11
HG09-02	9	3/19/98	10-12	<12	<12	<12	<12	<12	<12
HG10-01	10	3/19/98	2-4	<11	<11	<11	<11	<11	<11
HG10-02	10	3/19/98	8-10	<14	<14	<14	<14	<14	<14
HG16-01	16	3/19/98	2-4	<11	<11	<11	<11	<11	<11
HG16-02	16	3/19/98	4-5	<12	<12	<12	<12	<12	<12
HG16-03	16	3/19/98	5-6	<12	<12	<12	<12	<12	<12
HG18-01	18	3/19/98	2-4	<11	<11	<11	<11	<11	<11
HG18-02	18	3/19/98	10-12	<12	<12	<12	<12	<12	<12
HG19-01	19	3/20/98	3-4	<11	**6.6 J**	**16**	**33**	**33**	**35**
HG19-02	19	3/20/98	9-11	<12	<12	<12	<12	**8.4 J**	**18**
HG19-03	19	3/20/98	3-4	<11	<11	<11	<11	<11	<11
HG20-01	20	3/20/98	3-4	<11	<11	<11	<11	<11	<11
HG20-02	20	3/20/98	9-11	<12	<12	<12	<12	<12	<12

Notes:

Samples analyzed for TPH distribution by modified EPA Method 8015. Laboratory Practical Quantitation Limits (PQL) were reported.

mg/kg - milligrams per kilogram

TPH - Total Petroleum Hydrocarbons

Numbers in bold indicate a reported concentration above the practical quantitation limit.

J - Estimated value. Concentration is between PQL and Method Detection Limit (MDL).

"<" - Compound was not detected above indicated PQL.

Table 5-1b
Soil Analytical Results VOCs
Huntington Beach Generating Station
(Concentrations in ug/kg)

Sample ID	Sample Location	Sample Date	Sample Depth (feet)	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-chloropropane
HG05-01	5	3/19/98	2-4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG05-02	5	3/19/98	9-11	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG08-01	8	3/19/98	1-3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG08-02	8	3/19/98	6-8	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG08-03	8	3/19/98	1-3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG09-01	9	3/19/98	2-4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG09-02	9	3/19/98	10-12	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG10-01	10	3/19/98	2-4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG10-02	10	3/19/98	8-10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG16-01	16	3/19/98	2-4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG16-02	16	3/19/98	4-5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG16-03	16	3/19/98	5-6	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG18-01	18	3/19/98	2-4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG18-02	18	3/19/98	10-12	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG19-01	19	3/20/98	3-4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG19-02	19	3/20/98	9-11	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG19-03	19	3/20/98	3-4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG20-01	20	3/20/98	3-4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
HG20-02	20	3/20/98	9-11	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10

Sample ID	1,2-Dibromoethane (EDB)	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chloroethyl vinyl ether	2-Chlorotoluene
HG05-01	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG05-02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG08-01	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG08-02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG08-03	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG09-01	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG09-02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG10-01	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG10-02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG16-01	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG16-02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG16-03	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG18-01	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG18-02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG19-01	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG19-02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG19-03	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG20-01	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5
HG20-02	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<10	<5

Sample ID	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene
HG05-01	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG05-02	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG08-01	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG08-02	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG08-03	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG09-01	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG09-02	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG10-01	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG10-02	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG16-01	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG16-02	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG16-03	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG18-01	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG18-02	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG19-01	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG19-02	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG19-03	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG20-01	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5
HG20-02	<10	<5	<10	<20	<5	<5	<5	<5	<10	<5	<5	<5

Sample ID	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Dichlorofluoromethane	Ethylbenzene	Hexachlorobutadiene	Isopropylbenzene
HG05-01	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG05-02	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG08-01	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG08-02	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG08-03	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG09-01	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG09-02	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG10-01	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG10-02	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG16-01	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG16-02	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG16-03	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG18-01	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG18-02	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG19-01	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG19-02	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG19-03	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG20-01	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5
HG20-02	<10	<5	<10	<2.5	<5	<5	<5	<10	<5	<5	<5	<5

Sample ID	m-Xylene & p-Xylene	Methyl tert-butyl ether	Methylene chloride	n-Butylbenzene	n-Propylbenzene	Naphthalene	o-Xylene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	tert-Butylbenzene
HG05-01	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG05-02	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG08-01	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG08-02	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG08-03	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG09-01	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG09-02	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG10-01	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG10-02	<2.	<5	<5 B	<5	<5	<5	<2.5	<5	<5	<5	<5
HG16-01	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG16-02	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG16-03	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG18-01	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG18-02	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG19-01	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG19-02	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG19-03	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG20-01	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5
HG20-02	<2.	<5	<5	<5	<5	<5	<2.5	<5	<5	<5	<5

Sample ID	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl acetate	Vinyl chloride
HG05-01	<5	<5	<2.5	<5	<5	<10	<10	<10
HG05-02	<5	<5	<2.5	<5	<5	<10	<10	<10
HG08-01	<5	<5	<2.5	<5	<5	<10	<10	<10
HG08-02	<5	<5	<2.5	<5	<5	<10	<10	<10
HG08-03	<5	<5	<2.5	<5	<5	<10	<10	<10
HG09-01	<5	<5	<2.5	<5	<5	<10	<10	<10
HG09-02	<5	<5	<2.5	<5	<5	<10	<10	<10
HG10-01	<5	<5	<2.5	<5	<5	<10	<10	<10
HG10-02	<5	<5	<2.5	<5	<5	<10	<10	<10
HG16-01	<5	<5	<2.5	<5	<5	<10	<10	<10
HG16-02	<5	<5	<2.5	<5	<5	<10	<10	<10
HG16-03	<5	<5	<2.5	<5	<5	<10	<10	<10
HG18-01	<5	<5	<2.5	<5	<5	<10	<10	<10
HG18-02	<5	<5	<2.5	<5	<5	<10	<10	<10
HG19-01	**0.41 J**	<5	<2.5	<5	<5	<10	<10	<10
HG19-02	<5	<5	<2.5	<5	<5	<10	<10	<10
HG19-03	<5	<5	<2.5	<5	<5	<10	<10	<10
HG20-01	<5	<5	<2.5	<5	<5	<10	<10	<10
HG20-02	<5	<5	<2.5	<5	<5	<10	<10	<10

Notes:

Samples analyzed for VOC distribution by EPA Method 8260A. Laboratory Practical Quantitation Limits (PQL) were reported.
ug/kg - micrograms per kilogram
VOC - Volatile Organic Compound
Numbers in bold indicate a reported concentration above the practical quantitation limit.
J - Estimated value. Concentration is between PQL and Method Detection Limit (MDL).
B - Data qualified as non detect following QA/QC review due to blank contamination.
"<" - Compound was not detected above indicated PQL.

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Table 5-1c
Soil Analytical Results SVOCs
Huntington Beach Generating Station
(Concentrations in ug/kg)

Sample ID	Sample Location	Sample Date	Sample Depth (feet)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-methylphenol	4-Bromophenyl phenyl ether	4-Chloro-3-methylphenol	4-Chloroaniline	4-Chlorophenyl phenyl ether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	bis(2-Chloroethoxy)-methane	bis(2-Chloroethyl) ether	bis(2-Ethylhexyl)-phthalate	Butyl benzyl phthalate	Carbazole	Chrysene	Di-n-butyl phthalate	Di-n-octyl phthalate	Dibenz(a,h)anthracene	Dibenzofuran	Diethyl phthalate	Dimethyl phthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-c,d)pyrene	Isophorone	N-Nitroso-di-n-propylamine	N-Nitrosodiphenylamine	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
HG05-01	5	3/19/98	2-4	<1900	<390	<390	<390	<1900	<390	<390	<390	<390	<390	<390	<1900	<390	<770	<1900	<1900	<390	<760	<390	<390	<390	<1900	<1900	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<1900	<390	<390	<390	<390	<390	<390	<390	<1900	<390	<390	<390
HG05-02	5	3/19/98	9-11	<1800	<380	<380	<380	<1800	<380	<380	<380	<380	<380	<380	<1800	<380	<760	<1800	<1800	<380	<750	<380	<380	<380	<1800	<1800	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<1800	<380	<380	<380	<380	<380	<380	<380	<1800	<380	<380	<380
HG06A-01	6a	3/19/98	2-4	<1900	<400	<400	<400	<1900	<400	<400	<400	<400	<400	<400	<1900	<400	<800	<1900	<1900	<400	<780	<400	<400	<400	<1900	<1900	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<1900	<400	<400	<400	<400	<400	<400	<400	<1900	<400	<400	<400
HG06A-02	6a	3/19/98	6-8	<1800	<370	<370	<370	<1800	<370	<370	<370	<370	<370	<370	<1800	<370	<740	<1800	<1800	<370	<730	<370	<370	<370	<1800	<1800	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<1800	<370	<370	<370	<370	<370	<370	<370	<1800	<370	<370	<370
HG06B-01	6b	3/19/98	2-4	<1900	<400	<400	<400	<1900	<400	<400	<400	<400	<400	<400	<1900	<400	<800	<1900	<1900	<400	<790	<400	<400	<400	<1900	<1900	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<1900	<400	<400	<400	<400	<400	<400	<400	<1900	<400	<400	<400
HG06B-02	6b	3/19/98	6-8	<1900	<390	<390	<390	<1900	<390	<390	<390	<390	<390	<390	<1900	<390	<780	<1900	<1900	<390	<770	<390	<390	<390	<1900	<1900	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<1900	<390	<390	<390	<390	<390	<390	<390	<1900	<390	<390	<390
HG08-01	8	3/19/98	1-3	<1900	<390	<390	<390	<1900	<390	<390	<390	<390	<390	<390	<1900	<390	<780	<1900	<1900	<390	<770	<390	<390	<390	<1900	<1900	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<1900	<390	<390	<390	<390	<390	<390	<390	<1900	<390	<390	<390
HG08-02	8	3/19/98	6-8	<1800	<380	<380	<380	<1800	<380	<380	<380	<380	<380	<380	<1800	<380	<750	<1800	<1800	<380	<740	<380	<380	<380	<1800	<1800	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<1900	<380	<380	<380	<380	<380	<380	<380	<1900	<380	<380	<380
HG08-03	8	3/19/98	1-3	<1900	<390	<390	<390	<1900	<390	<390	<390	<390	<390	<390	<1900	<390	<780	<1900	<1900	<390	<770	<390	<390	<390	<1900	<1900	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<1900	<390	<390	<390	<390	<390	<390	<390	<1900	<390	<390	<390
HG09-01	9	3/19/98	2-4	<1700	<360	<360	<360	<1700	<360	<360	<360	<360	<360	<360	<1700	<360	<720	<1700	<1700	<360	<710	<360	<360	<360	<1700	<1700	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	330 J	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<1700	<360	<360	<360	<360	<360	<360	<360	<1700	<360	<360	<360
HG09-02	9	3/19/98	10-12	<1900	<380	<380	<380	<1900	<380	<380	<380	<380	<380	<380	<1900	<380	<770	<1900	<1900	<380	<750	<380	<380	<380	<1900	<1900	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<1900	<380	<380	<380	<380	<380	<380	<380	<1900	<380	<380	<380
HG10-01	10	3/19/98	2-4	<1800	<380	<380	<380	<1800	<380	<380	<380	<380	<380	<380	<1800	<380	<750	<1800	<1800	<380	<740	<380	<380	<380	<1800	<1800	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<1800	<380	<380	<380	<380	<380	<380	<380	<1800	<380	<380	<380
HG10-02	10	3/19/98	8-10	<2200	<450	<450	<450	<2200	<450	<450	<450	<450	<450	<450	<2200	<450	<900	<2200	<2200	<450	<880	<450	<450	<450	<2200	<2200	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<450	<2200	<450	<450	<450	<450	<450	<450	<450	<2200	<450	<450	<450
HG16-01	16	3/19/98	2-4	<1800	<380	<380	<380	<1800	<380	<380	<380	<380	<380	<380	<1800	<380	<750	<1800	<1800	<380	<740	<380	<380	<380	<1800	<1800	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<1800	<380	<380	<380	<380	<380	<380	<380	<1800	<380	<380	<380
HG16-02	16	3/19/98	4-5	<1900	<390	<390	<390	<1900	<390	<390	<390	<390	<390	<390	<1900	<390	<780	<1900	<1900	<390	<770	<390	<390	<390	<1900	<1900	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	130 J	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<1900	<390	<390	<390	<390	<390	<390	<390	<1900	<390	<390	<390
HG16-03	16	3/19/98	5-6	<1900	<390	<390	<390	<1900	<390	<390	<390	<390	<390	<390	<1900	<390	<780	<1900	<1900	<390	<770	<390	<390	<390	<1900	<1900	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	85 J	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<1900	<390	<390	<390	<390	<390	<390	<390	<1900	<390	<390	<390
HG18-01	18	3/19/98	2-4	<1700	<360	<360	<360	<1700	<360	<360	<360	<360	<360	<360	<1700	<360	<710	<1700	<1700	<360	<700	<360	<360	<360	<1700	<1700	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<360	<1900	<360	<360	<360	<360	<360	<360	<360	<1900	<360	<360	<360
HG18-02	18	3/19/98	10-12	<1900	<390	<390	<390	<1900	<390	<390	<390	<390	<390	<390	<1900	<390	<790	<1900	<1900	<390	<770	<390	<390	<390	<1900	<1900	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<390	<1900	<390	<390	<390	<390	<390	<390	<390	<1700	<360	<360	<360
HG19-01	19	3/20/98	3-4	<3500	<720	<720	<720	<3500	<720	<720	<720	<720	<720	<720	<3500	<720	<1400	<3500	<3500	<720	<1400	<720	<720	<720	<3500	<3500	<720	<720	<720	280 J	310 J	600 J	240 J	<720	<720	<720	54 J	<720	<720	420 J	<720	<720	<720	<720	<720	<720	640 J	<720	<720	<720	<3500	<720	160 J	<720	<720	<720	<720	<720	<3500	380 J	<720	1000
"	19	3/20/98	9-11	<3800	<780	<780	<780	<3800	<780	<780	<780	<780	<780	<780	<3800	<780	<1600	<3800	<3800	<780	<1500	<780	<780	<780	<3800	<3800	<780	<780	<780	<780	84 J	<780	<780	<780	<780	<780	<780	58 J	<780	<780	<780	<780	<780	<780	<780	<780	<780	<780	<780	<780	<3800	<780	<780	<780	<780	<780	<780	<780	<3800	<780	<780	100 J
"	19	3/20/98	3-4	<1800	<370	<370	<370	<1800	<370	<370	<370	<370	<370	<370	<1800	<370	<730	<1800	<1800	<370	<720	<370	<370	<370	<1800	<1800	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<1800	<370	<370	<370	<370	<370	<370	<370	<1800	<370	<370	<370
HG20-01	20	3/20/98	3-4	<1800	<370	<370	<370	<1800	<370	<370	<370	<370	<370	<370	<1800	<370	<750	<1800	<1800	<370	<740	<370	<370	<370	<1800	<1800	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<370	<1800	<370	<370	<370	<370	<370	<370	<370	<1800	<370	<370	<370
HG20-02	20	3/20/98	9-11	<1900	<380	<380	<380	<1900	<380	<380	<380	<380	<380	<380	<1900	<380	<770	<1900	<1900	<380	<760	<380	<380	<380	<1900	<1900	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<380	<1900	<380	<380	<380	<380	<380	<380	<380	<1900	<380	<380	<380

Notes:

Samples analyzed for SVOC distribution by EPA Method 8270B. Laboratory Practical Quantitation Limits (PQL) were reported.
ug/kg - micrograms per kilogram
SVOC - Semi Volatile Organic Compound
Numbers in bold indicate a reported concentration above the practical quantitation limit.
J - Estimated value. Concentration is between PQL and Method Detection Limit (MDL).
"<" - Compound was not detected above indicated PQL.

Table 5-1d
Soil Analytical Results Metals
Huntington Beach Generating Station
(Concentrations in mg/kg)

Sample ID	Sample Location	Sample Date	Sample Depth (feet)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
HG05-01	5	3/19/98	2-4	0.4 J	2.8	36.8	0.3	0.1 J	19	4.1 J	8.8	3.9	<0.12	1.2 J	11.1	<0.58	<0.58	0.77 J	23.3	34.7
HG05-02	5	3/19/98	9-11	0.4 J	2.4	12.1	0.1 J	<0.57	34.4	1.6 J	2.7 J	0.89	<0.11	1.2 J	17.3	<0.57	<0.57	<1.1	10.7	10.8
HG08-01	8	3/19/98	1-3	0.4 J	1.4	35.7	0.27	0.066 J	21.8	3.7 J	4.5	2.2	<0.12	0.5 J	12.2	<0.59	<0.59	<1.2	20.6	21.1
HG08-02	8	3/19/98	6-8	0.73 J	3.4	90.7	0.45	<1.1	22.7	8.4 J	15.6	4.3	<0.11	0.87 J	14.8	<1.1	<1.1	1.4 J	42.7	58.5
HG08-03	8	3/19/98	1-3	0.42 J	1.3	28.8	0.2	<0.59	20	2.7 J	3.8	1.3	<0.12	0.52 J	10.6	<0.59	<0.59	<1.2	17.2	18.6
HG09-01	9	3/19/98	2-4	0.51 J	3.2 j	56.4	0.44	0.23 J	26.2 j	6.3	14.8 j	5.8	<0.11	1.5 J	16.4 j	<0.54	<0.54	0.89 J	35.4	48.5 j
HG09-02	9	3/19/98	10-12	0.47 J	2.8	42	0.31	0.28 J	19	4.7 J	10.4	3.9	<0.12	1 J	12.1	<0.58	<0.58	0.99 J	26.5	36
HG10-01	10	3/19/98	2-4	0.38 J	1.7	25.9	0.32	0.084 J	15.4	4.1 J	4.3	2.2	<0.11	0.67 J	8.6	<0.57	<0.57	0.61 J	22.4	21.6
HG10-02	10	3/19/98	8-10	1.3 J	5	166	0.99	0.48 J	40.7	15.1	42.5	13.5	0.037 J	1.8 J	27.5	<1.4	<1.4	<2.7	78.7	108
HG16-01	16	3/19/98	2-4	0.59 J	3	55.1	0.49	0.2 J	19.9	6.4	17.1	8.6	<0.11	2.9 J	13.3	<0.57	<0.57	1 J	33.7	58.3
HG16-02	16	3/19/98	4-5	0.44 J	3.1	34.3	0.25	0.099 J	14.9	4.1 J	6.3	2.1	<0.12	1.1 J	9.1	<0.59	<0.59	0.74 J	24.1	32.5
HG16-03	16	3/19/98	5-6	0.45 J	3.8	37.4	0.31	0.14 J	18.1	4.7 J	9.5	3.6	<0.12	1.3 J	13.9	<0.59	<0.59	1 J	29.9	37.7
HG18-01	18	3/19/98	2-4	0.47 J	3.2	48.3	0.29	0.17 J	17	6	18.2	6.6	<0.11	1.6 J	11.4	<0.54	<0.54	0.81 J	24.9	35.5
HG18-02	18	3/19/98	10-12	0.38 J	2.5	32.8	0.22	0.071 J	14.5	3.9 J	5.7	1.9	0.037 J	1.2 J	8.4	<0.6	<0.6	0.95 J	20.5	30.1
HG19-01	19	3/20/98	3-4	0.5 J	2.7	57.8	0.28	0.17 J	18.5	4.8 J	12.6	8.5	0.046 J	1.7 J	31.8	<0.55	<0.55	0.91 J	60.4	40.8
HG19-02	19	3/20/98	9-11	0.43 J	1.2	44.3	0.18	0.081 J	13.5	3.8 J	9.9	5.2	<0.12	0.86 J	23.2	<0.59	<0.59	0.67 J	44	30.4
HG19-03	19	3/20/98	3-4	0.55 J	2.8	73.8	0.31	0.17 J	20.6	6	12.1	7.2	0.092 J	0.87 J	19.1	<0.55	<0.55	<1.1	34.9	46.5
HG20-01	20	3/20/98	3-4	0.42 J	3.6	101	0.24	0.5 J	20.2	3.2 J	4.5	2.2	<0.11	1.7 J	12.3	<0.57	<0.57	0.6 J	32.9	28.8
HG20-02	20	3/20/98	9-11	0.48 J	2.3	34.6	0.21	0.091 J	14.6	3.7 J	5.3	1.7	<0.12	1 J	8.9	<0.58	<0.58	0.65 J	21.8	29.1

Notes:

Samples analyzed for CCR Title 22 in accordance with EPA Methods 6010A with the exception of arsenic (EPA Method 7060) and mercury (EPA Method 7471A).

mg/kg - milligrams per kilograms

Numbers in bold indicate a reported concentration above the PQL

J - Estimated value. Concentration is between PQL and Method Detection Limit (MDL).

j - Qualified as estimated value following QA/QC review.

"<" - Compound was not detected above indicated PQL.

Table 5-1e
Soil Analytical Results PCBs
Huntington Beach Generating Station
(Concentrations in ug/kg)

Sample ID	Sample Location	Sample Date	Sample Depth (feet)	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
HG06A-01	6a	35873	2-4	<40	<40	<40	<40	<40	<40	<40
HG06A-02	6a	35873	6-8	<37	<37	<37	<37	<37	<37	<37
HG06B-01	6b	35873	2-4	<40	<40	<40	<40	<40	<40	<40
HG06B-02	6b	35873	6-8	<39	<39	<39	<39	<39	<39	<39

Notes:

Samples analyzed for PCB distribution by EPA Method 8081. Laboratory Practical Quantitation Limits (PQL) were reported.
ug/kg - micrograms per kilogram
PCB - Polychlorinated Biphenyls
Numbers in bold indicate a reported concentration above the practical quantitation limit.
J - Estimated value. Concentration is between PQL and Method Detection Limit (MDL).
"<" - Compound was not detected above indicated PQL.

TABLE 5-1f
Soil Analytical Results TPH Carbon Chain
CH2MHILL Collected Duplicate Samples
Huntington Beach Generating Station
(Concentrations in mg/kg)

Sample ID	Sample Location	Sample Depth	C10-<C15	C16-<C19	C20-<C23	C24-<C27	C28-<C35	C36-C39	C40-C43	Total
HG02	2	10.5-11.0	ND	ND	ND	ND	68	107	161	336
HG05-01	5		77	110	16	ND	ND	19	95	317
HG05-02	5		30	ND	ND	ND	ND	ND	ND	30
HG06A-01	6a		35	ND	ND	ND	ND	ND	ND	35
HG06A-02	6a		ND	ND	11	20	ND	ND	ND	31
HG08-01	8		ND	ND	ND	ND	ND	ND	ND	
HG08-02	8		23	81	118	268	1,320	10,780	940	13,530
HG08-03	8		ND	ND	ND	26	35	123	184	368
HG09-01	9		102	116	31	ND	13	ND	ND	262
HG09-02	9		109	ND	16	69	ND	ND	ND	194
HG10-01	10	5.0-5.5	90	112	15	38	11	12	34	312
HG16-01	16	3.0-3.5	ND	83	240	650	2,510	1,014	933	5,430
HG16-03	16		42	12	ND	ND	ND	ND	ND	54
HG18-01	18	5.0-5.5	31	12	10	ND	ND	11	ND	64
HG18-02	18	11.5-12.0	61	12	38	ND	ND	ND	ND	111
HG19-01	19		312	230	416	1,030	3,000	1,100	1,130	7,218
HG19-02	19		348	172	117	34	22	77	42	812
HG20-02	20		19	112	ND	17	ND	17	13	178

Notes:
Samples analyzed for TPH distribution by modified EPA Method 8015. Laboratory Practical Quantitation Limits (PQL) were reported.
mg/kg = milligrams per kilogram
TPH = Total Petroleum Hydrocarbons
Numbers in bold indicate a reported concentration above the PQL
J = Estimated value. Concentration is between PQL and Method Detection Limit (MDL).
"<" = Compound was not detected above indicated PQL.

TABLE 5-2a
Groundwater Analytical Results TPH Carbon Chain
Huntington Beach Generating Station
(Concentrations in mg/L)

Sample ID	Sample Location	Sample Date	Sample Depth (feet)	C10-<C15	C15-<C20	C20-<C25	C25-<C30	C30-<C35	C35-C40
HG5B-10-W	5b	3/20/98	25	<1	<1	<1	<1	<1	<1
HG5B-11-W	5b	3/20/98	25	<1	<1	<1	<1	<1	<1
HG06A-10-W	6a	3/20/98	20	<1	<1	<1	<1	<1	<1
HG06B-10-W	6b	3/19/98	16	<1	<1	<1	<1	<1	<1
HG08-10-W	8	3/20/98	13	<1	<1	<1	<1	<1	<1
HG08-11-W	8	3/20/98	13	<1	<1	<1	<1	<1	<1
HG09-10-W	9	3/19/98	13	<1	<1	<1	<1	<1	<1
HG16-10-W	16	3/19/98	20	<1	<1	<1	<1	<1	<1
HG18-10-W	18	3/19/98	20	<1	<1	<1	<1	<1	<1
HG18-11-W	18	3/19/98	20	<1	<1	<1	<1	<1	<1
HG19-10-W	19	3/20/98	25	<1	**1.1**	**1.3**	<1	<1	<1
HG20-10-W	20	3/20/98	25	<1	<1	<1	<1	<1	<1
HG20-11-W	20	3/20/98	25	<1	<1	<1	<1	<1	<1

Notes:

Samples analyzed for TPH distribution modified EPA Method 8015. Laboratory Practical Quantitation Limits (PQL) were reported.
mg/L - milligrams per Liter
TPH - Total Petroleum Hydrocarbons
Numbers in bold indicate a reported concentration above the practical quantitation limit.
J - Estimated value. Concentration is between PQL and Method Detection Limit (MDL).
"<" - Compound was not detected above indicated PQL.

TABLE 5-2b
Groundwater Analytical Results VOC's
Huntington Beach Generating Station
(Concentrations in µg/L)

Sample ID	Sample Location	Sample Date	Sample Depth (feet)	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene
HG5B-10-W	5b	3/20/98	25	<2.1	<2.1	<2.1	<2.1	8.1	1.8 J	<2.1	<2.1	<2.1	<2.1	<2.1
HG5B-11-W	5b	3/20/98	25	<2.1	<2.1	<2.1	<2.1	8	1.6 J	<2.1	<2.1	<2.1	<2.1	<2.1
HG08-10-W	8	3/20/98	13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
HG09-10-W	9	3/19/98	13	<1	<1	<1	<1	0.18 J	<1	<1	<1	<1	<1	0.086 J
HG16-10-W	16	3/19/98	20	<1	<1	<1	<1	0.26 J	<1	<1	<1	<1	<1	<1
HG18-10-W	18	3/19/98	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
HG18-11-W	18	3/19/98	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
HG19-10-W	19	3/20/98	25	<1	<1	<1	<1	0.54 J	<1	<1	<1	<1	<1	<1
HG20-10-W	20	3/20/98	25	<1	<1	<1	<1	0.65 J	<1	<1	<1	<1	<1	<1
HG20-11-W	20	3/20/98	25	<1	<1	<1	<1	0.63 J	<1	<1	<1	<1	<1	<1
State MCLs					200			5	6		NA		NA	
Federal MCLs					200			NA	7		NA		NA	

Sample ID	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane (EDB)	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone	2-Chloroethyl vinyl ether
HG5B-10-W	<4.2	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<21	<2.4
HG5B-11-W	<4.2	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<21	<2.4
HG08-10-W	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1.2
HG09-10-W	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	7 J	<1.2
HG16-10-W	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1.2
HG18-10-W	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1.2
HG18-11-W	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1.2
HG19-10-W	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	9.2 J	<1.2
HG20-10-W	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1.2
HG20-11-W	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1.2
State MCLs				0.5		NA						
Federal MCLs				5		NA						

Sample ID	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide
HG5B-10-W	<2.1	<21	<2.1	<21	<21	<2.1	<2.1	<2.1	<2.1	<2.1	<4.2	<2.1
HG5B-11-W	<2.1	<21	<2.1	<21	<21	<2.1	<2.1	<2.1	<2.1	<2.1	<4.2	<2.1
HG08-10-W	<1	<10	<1	<10	<33 B	0.11 J	<1	<1	<1	<1	<2	<1
HG09-10-W	<1	<10	<1	<10	13	<1	<1	<1	<1	<1	<2	<1
HG16-10-W	<1	<10	<1	<10	<10	<1	<1	<1	<1	<1	<2	<1
HG18-10-W	<1	<10	<1	<10	<10	<1	<1	<1	<1	<1	<2	0.26
HG18-11-W	<1	<10	<1	<10	<10	0.17 J	<1	<1	<1	<1	<2	<1
HG19-10-W	<1	<10	<1	<10	<33 B	0.35 J	<1	<1	<1	<1	<2	1.6
HG20-10-W	<1	<10	<1	<10	<10	<1	<1	<1	<1	<1	<2	0.3 J
HG20-11-W	<1	<10	<1	<10	<10	<1	<1	<1	<1	<1	<2	0.28
State MCLs					NA	1						
Federal MCLs					NA	5						

Sample ID	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Dichlorofluoromethane	Ethylbenzene
HG5B-10-W	<2.1	<2.1	<4.2	<2.1	<4.2	40	<2.1	<2.1	<2.1	<4.2	<4.2	<2.1
HG5B-11-W	<2.1	<2.1	<4.2	<2.1	<4.2	38	<2.1	<2.1	<2.1	<4.2	<4.2	<2.1
HG08-10-W	<1	<1	<2	<1	<2	0.32 J	<1	<1	<1	<2	<2	<1
HG09-10-W	<1	<1	<2	0.29 J	<2	0.19 J	<1	<1	<1	<2	<2	<1
HG16-10-W	<1	<1	<2	<1	<2	0.56	<1	<1	<1	<2	<2	<1
HG18-10-W	<1	<1	<2	<1	0.13 J	4.8	<1	<1	<1	<2	<2	<1
HG18-11-W	<1	<1	<2	<1	<2	5	<1	<1	<1	<2	<2	<1
HG19-10-W	<1	<1	<2	<1	<2	1.4	<1	<1	<1	<2	<2	<1
HG20-10-W	<1	<1	<2	<1	<2	1.1	<1	<1	<1	<2	<2	<1
HG20-11-W	<1	<1	<2	<1	<2	1.2	<1	<1	<1	<2	<2	<1
State MCLs			NA	100		6						700
Federal MCLs			NA	100		70						700

Sample ID	Hexachlorobutadiene	Isopropylbenzene	m-Xylene & p-Xylene	Methyl tert-butyl ether	Methylene chloride	n-Butylbenzene	n-Propylbenzene	Naphthalene	o-Xylene	p-Isopropyltoluene	sec-Butylbenzene
HG5B-10-W	<2.1	<2.1	<1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<2.1
HG5B-11-W	<2.1	<2.1	<1	<2.1	<2.1	<2.1	<2.1	<2.1	<1	<2.1	<2.1
HG08-10-W	<1	<1	<0.5	<1	<1	<1	<1	1	<0.5	<1	<1
HG09-10-W	<1	<1	<0.5	<1	<1	<1	<1	<1	<0.5	<1	<1
HG16-10-W	<1	<1	<0.5	<1	<1	<1	<1	<1	<0.5	<1	<1
HG18-10-W	<1	<1	<0.5	<1	<1 B	<1	<1	<1	<0.5	<1	<1
HG18-11-W	<1	<1	<0.5	<1	<1 B	<1	<1	<1	<0.5	<1	<1
HG19-10-W	<1	<1	0.31 J	<1	<1	<1	<1	<1	0.19 J	<1	<1
HG20-10-W	<1	<1	<0.5	<1	<1	<1	<1	<1	<0.5	<1	<1
HG20-11-W	<1	<1	<0.5	<1	<1	<1	<1	<1	<0.5	<1	<1
State MCLs		NA	1750	35		45	NA	NA	1750	NA	NA
Federal MCLs		NA	10000	30-40		NA	NA	20	10000	NA	NA

Sample ID	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl acetate	Vinyl chloride
HG5B-10-W	<2.1	<2.1	<2.1	<2.1	10	<2.1	1.9 J	<2.1	<4.2	<4.2
HG5B-11-W	<2.1	<2.1	<2.1	<2.1	10	<2.1	2 J	<2.1	<4.2	<4.2
HG08-10-W	<1	<1	<1	0.29 J	<0.5	<1	<1	<1	<2	<2
HG09-10-W	<1	<1	<1	0.3 J	<0.5	<1	<1	<1	<2	<2
HG16-10-W	<1	<1	<1	0.1 J	<0.5	<1	<1	<1	<2	<2
HG18-10-W	<1	<1	<1	0.13 J	<0.5	<1	<1	<1	<2	<2
HG18-11-W	<1	<1	<1	0.12 J	<0.5	<1	<1	<1	<2	<2
HG19-10-W	<1	<1	<1	0.39 J	0.15 J	<1	<1	<1	<2	0.98 J
HG20-10-W	<1	<1	<1	0.14 J	<0.5	<1	<1	<1	<2	<2
HG20-11-W	<1	<1	<1	0.11 J	<0.5	<1	<1	<1	<2	<2
State MCLs		NA	5	150			5			
Federal MCLs		NA	5	1000			5			

Notes

Samples analyzed for VOC distribution by EPA Method 8260A. Laboratory Practical Quantitation Limits (PQL) were reported.
ug/L - micrograms per Liter
VOC - Volatile Organic Compound
NA - Not Available
Numbers in bold indicate a reported concentration above the practical quantitation limit.
Numbers in bold and shade indicate a reported concentration above screening levels.
J - Estimated value. Concentration is between Practical Quantitation Limit (PQL) and Method Detection Limit (MDL).
B - Data qualified as non detect following QA/QC review due to blank contamination.
" pound was not detected above indicated (PQL).

TABLE 5-2c
Groundwater Analytical Results SVOCs
Huntington Beach Generating Station
(Concentrations in µg/L)

Sample ID	Sample Location	Sample Date	Sample Depth (feet)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3,3'-Dichlorobenzidine	3-Nitroaniline	4,6-Dinitro-2-methylphenol	4-Bromophenyl phenyl ether	4-Chloro-3-methylphenol	4-Chloroaniline	4-Chlorophenyl phenyl ether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	bis(2-Chloroethoxy)-methane	bis(2-Chloroethyl) ether	bis(2-Ethylhexyl)-phthalate	Butyl benzyl phthalate	Carbazole	Chrysene	Di-n-butyl phthalate	Di-n-octyl phthalate	Dibenz(a,h)anthracene	Dibenzofuran	Diethyl phthalate	Dimethyl phthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-c,d)pyrene	Isophorone	N-Nitroso-di-n-propylamine	N-Nitrosodiphenylamine	Naphthalene	Nitrobenzene	Pentachlorophenol	Phenanthrene	Phenol	Pyrene
HG5B-10-W	5b	3/20/98	25	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<50	<10	<50	<50	<50	<10	<10	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	**2 J**	<10	<10	<10	**1 J**	<10	<10	<10	**1.1 J**	<10	<10	<10	<1	<10	<50	<10	<10	<10	<10	<10	<10	<10	<50	<10	<10	<10
HG5B-11-W	5b	3/20/98	25	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<50	<10	<50	<50	<50	<10	<10	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<10	<50	<10	<10	<10	<10	<10	<10	<10	<50	<10	<10	<10
HG06A-10-W	6a	3/20/98	20	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<50	<10	<50	<50	<50	<10	<10	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	**1.1 J**	<10	<10	<10	**1.2 J**	<10	<10	<10	<10	<10	<10	<10	<1	<10	<50	<10	<10	<10	<10	<10	<10	<10	<50	<10	<10	<10
HG06B-10-W	6b	3/19/98	16	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<50	<10	<50	<50	<50	<10	<10	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<10	<50	<10	<10	<10	<10	<10	<10	<10	<50	<10	<10	<10
HG08-10-W	8	3/20/98	13	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<50	<10	<50	<50	<50	<10	<10	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	**1 J**	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<10	<50	<10	<10	<10	<10	**1.4 J**	<10	<50	<10	<10	<10
HG09-10-W	9	3/19/98	13	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<50	<10	<50	<50	<50	<10	**2.5 J**	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10 B	<10	<10	<10	<10	<10	<10	<10	**3.2 J**	**1.2 J**	<10	<10	<1	<10	<50	<10	<10	<10	<10	<10	**1.1 J**	<10	<50	<10	<10	<10
HG16-10-W	16	3/19/98	20	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<50	<10	<50	<50	<50	<10	<10	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10 B	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<10	<50	<10	<10	<10	<10	<10	<10	<10	<50	<10	<10	<10
HG18-10-W	18	3/19/98	20	<10 j	<10 j	<10 j	<10 j	<50 j	<10 j	<10 j	<10 j	<10 j	<10 j	<10 j	<50 j	<10 j	<50 j	<50 j	<50 j	<10 j	<10 j	<10 j	<10 j	<10 j	<50 j	<50 j	<10 j	<10 j	<10 j	<10 j	<10 j	<10 j	<10 j	<10 j	<10 j	<10 j	<10 B	<10 j	<10 j	<10 j	**1.1 J**	<10 j	<10 j	<10 j	<10 j	<10 j	<10 j	<10 j	< 1 j	<10 j	<50 j	<10 j	<10 j	<10 j	<10 j	<10 j	<10 j	<10 j	<50	<10 j	<10 j	<10 j
HG18-11-W	18	3/19/98	20	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<50	<10	<50	<50	<50	<10	<10	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10 B	<10	<10	<10	**1.4 J**	<10	<10	<10	<10	<10	<10	<10	<1	<10	<50	<10	<10	<10	<10	<10	<10	<10	<50	<10	<10	<10
HG19-10-W	19	3/20/98	25	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<50	<10	<50	<50	<50	<10	<10	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	**1.3 J**	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<10	<50	<10	<10	<10	<10	<10	<10	<10	<50	<10	<10	<10
HG20-10-W	20	3/20/98	25	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<50	<10	<50	<50	<50	<10	<10	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<10	<50	<10	<10	<10	<10	<10	<10	<10	<50	<10	<10	<10
HG20-11-W	20	3/20/98	25	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<50	<10	<50	<50	<50	<10	<10	<10	<10	<10	<50	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<10	<50	<10	<10	<10	<10	<10	<10	<10	<50	<10	<10	<10

Notes:
Samples analyzed for SVOC distribution by EPA Method 8270B. Laboratory Practical Quantitation Limits (PQL) were reported.
ug/L - micrograms per liter
SVOC - Semi Volatile Organic Compound
N[illegible]ers in bold indicate a reported concentration above the PQL.
J [illegible]mated value. Concentration is between PQL and Method Detection Limit (MDL).
j - Qualified as estimated value following QA/QC review.
B - Data qualified as non detect following QA/QC review due to blank contamination.
"<" - Compound was not detected above indicated PQL.

TABLE 5-2d
Groundwater Analytical Results Metals
Huntington Beach Generating Station
(Concentrations in mg/L)

Sample ID	Sample Location	Sample Date	Sample Depth (feet)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
HG5B-10-W	5b	3/20/98	25	<0.06	<0.3	**0.03 J**	<0.005	<0.005	<0.01	<0.05	<0.025	<0.1	<0.0002	**0.041**	**0.0076 J**	<0.25	<0.01	<2	<0.05	**0.01 J**
HG5B-11-W	5b	3/20/98	25	<0.06	<0.3	**0.019 J**	<0.005	<0.005	<0.01	<0.05	<0.025	<0.1	<0.0002	**0.03 J**	**0.0053 J**	<0.25	<0.01	<2	<0.05	**0.0065 J**
HG09-10-W	9	3/19/98	13	<0.06	**0.022 J**	**0.045 J**	<0.005	<0.005	<0.01	**0.0068 J**	**0.0065 J**	<0.1	<0.0002	**0.033 J**	<0.04 B	<0.25	<0.01	**0.084 J**	<0.05	**0.0093 J**
HG16-10-W	16	3/19/98	20	<0.06	<0.3	**0.013 J**	<0.005	<0.005	<0.01	<0.05	<0.025	<0.1	<0.0002	**0.015 J**	<0.04	<0.25	<0.01	<2	**0.016 J**	<0.02
HG18-10-W	18	3/19/98	20	<0.06	**0.058 J**	**0.074 J**	**0.0013 J**	<0.005	**0.035**	**0.0052 J**	**0.017 J**	<0.1	<0.0002	**0.032 J**	**0.013 J**	<0.25	<0.01	<2	**0.21**	**0.058**
HG18-11-W	18	3/19/98	20	<0.06	<0.3	**0.05 J**	<0.005	<0.005	**0.013**	<0.05	**0.0079 J**	<0.1	<0.0002	**0.022 J**	**0.0063 J**	<0.25	<0.01	<2	**0.1**	**0.019 J**
HG19-10-W	19	3/20/98	25	<0.06	<0.3	**0.03 J**	<0.005	<0.005	<0.01	<0.05	<0.025	<0.1	<0.0002	**0.09**	<0.04	<0.25	<0.01	<2	<0.05	<0.02
HG20-10-W	20	3/20/98	25	<0.06	**0.022 J**	**0.04 J**	<0.005	<0.005	<0.01	<0.05	<0.025	<0.1	<0.0002	**0.015 J**	<0.04	<0.25	<0.01	<2	<0.05	<0.02 B
HG20-11-W	20	3/20/98	25	<0.06	<0.3	**0.033 J**	<0.005	**0.0049 J**	<0.01	<0.05	<0.025	<0.1	<0.0002	**0.011 J**	<0.04	<0.25	<0.01	<2	<0.05	<0.02 B

Notes:

Samples analyzed for CCR Title 22 in accordance with EPA Methods 6010A with the exception of mercury (EPA Method 7470A).
mg/L - milligrams per Liter
Numbers in bold indicate a reported concentration above the PQL
J - Estimated value. Concentration is between PQL and Method Detection Limit (MDL).
B - Data qualified as non detect following QA/QC review due to blank contamination.
"<" - Compound was not detected above indicated PQL.

Table 5-2e
Groundwater Analytical Results PCBs
Huntington Beach Generating Station
(Concentrations in µg/L)

Sample ID	Sample Location	Sample Date	Sample Depth (feet)	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
HG06A-10-W	6a	3/20/98	20	<1	<1	<1	<1	<1	<1	<1
HG06B-10-W	6b	3/19/98	16	<1	<1	<1	<1	<1	<1	<1

Notes:

Samples analyzed for PCB distribution by EPA Method 8081. Laboratory Practical Quantitation Limits (PQL) were reported.
ug/L - micrograms per Liter
PCB - Polychlorinated Biphenyls
Numbers in bold indicate a reported concentration above the practical quantitation limit.
J - Estimated value. Concentration is between PQL and Method Detection Limit (MDL).
"<" - Compound was not detected above indicated PQL.

TABLE 5-2f
Groundwater Analytical Results
TPH Carbon Chain
CH2MHILL Collected Duplicate Samples
Huntington Beach Generating Station
(Concentrations in mg/L)

Sample ID	Sample Location	Sample Depth	C10-C15	C16-C19	C20-C23	C24-C27	C28-C35	C36-C39	C40-C43	Total
HG05-10	5		40	132	19	19	ND	ND	ND	210
HG05-11	5		160	209	113	87	69	24	ND	662
HG06A-10	6a		108	130	82	63	12	12	60	467
HG06B-10	6b		264	261	145	125	80	26	ND	901
HG08-10	8		205	232	114	126	48	23	ND	748
HG09-10	9		170	235	209	101	36	ND	ND	751
HG16-10	16		490	373	210	227	217	118	32	1,667
HG18-10	18		116	188	70	128	33	19	ND	554
HG19-10	19		192	237	133	81	48	12	ND	703
HG20-10	20		20	111	ND	ND	ND	ND	ND	131
HG20-11	20		154	192	80	50	38	14	ND	528

Notes:

Samples analyzed for TPH distribution by modified EPA Method 8015. Laboratory Practical Quantitation Limits (PQL) were reported.
mg/L = milligrams per liter
TPH = Total Petroleum Hydrocarbons
Numbers in bold indicate a reported concentration above the PQL
J = Estimated value. Concentration is between PQL and Method Detection Limit (MDL).
"<" = Compound was not detected above indicated PQL.

TABLE 6-1
Potential LARWQCB Soil Screening Levels for Petroleum-Impacted Sites
Huntington Beach Generating Station
Huntington Beach, California

	Non-Beneficial Use[1] (mg/kg)	Beneficial Use[1] (mg/kg)
Benzene	0.1	0.011
Toluene	15	0.15
Ethylbenzene	70	0.7
Xylenes	175	1.75
TPH C4-C12	1,000	100
TPH C13-C22	10,000	100
TPH C23-C40	50,000	1,000

Notes:

(1) Reference: Regional Water Quality Control Board, Los Angeles Region, 1996. Interim Site Assessment and Cleanup Guidebook. May.
LARWQCB Los Angeles Regional Water Quality Control Board
mg/kg milligrams per kilogram
TPH Total petroleum hydrocarbon (carbon chain distribution shown).

TABLE 6-2
POTENTIAL EPA REGION IX SOIL SCREENING LEVELS
HUNTINGTON BEACH GENERATING STATION
Long Beach, California

	Residential Use[1] (mg/kg)	Industrial Use[1] (mg/kg)
1,1,1-Trichloroethane	1,200	3,000
1,1-Dichloroethane	500	17,000
1,1-Dichloroethene	0.037	0.080
1,2-Dichlorobenzene (o-DCB)	700	700
1,4-Dichlorobenzene (p-DCB)	3.6	8.5
0-Chlorotoluene	160	550
Benzene	0.63	1.4
Bis(2-ethylhexyl)phthalate	32	140
Chlorobenzene	65	220
cis-1,2-Dichloroethene	31	100
Ethylbenzene	230	230
Fluorene	90	90
Methylene chloride	7.8	18
Naphthalene	240	240
Phenol	39,000	39,000
Tetrachloroethene (PCE)	5.4	170
Toluene	790	880
Trans-1,2-Dichloroethene	78	270
Trichloroethene	3.2	7.0
Vinyl Chloride	0.016	0.035
Xylenes	320	320

Notes:

(1) USEPA Region IX, 1996. Region IX Preliminary Remediation Goals (PRGs) 1996. August 1.

mg/kg milligrams per kilogram

TABLE 6-3

Typical Concentrations for Metals in California Soils[1]

HUNTINGTON BEACH GENERATING STATION

Huntington Beach, California

Compound	Range (mg/kg)	Average[2] (mg/kg)
Arsenic	0.6 - 11	3.5
Aluminum	3.0 - 10.6	7.3
Antimony	0.15 - 1.95	0.60
Barium	133 - 1,400	509
Beryllium	0.25 - 2.7	1.28
Cadmium	0.05 - 1.7	0.36
Calcium	2,451 - 45,577	14,466
Chromium	23 - 1,579	122
Cobalt	2.7 - 46.9	14.9
Copper	9.1 - 96.4	28.7
Iron	1.0 - 8.7	3.7
Lead	12.4 - 97.1	23.9
Magnesium	1,456 - 32,378	9,923
Manganese	253 - 1,687	646
Mercury	0.1 - 0.9	0.26
Molybdenum	0.1 - 9.6	1.3
Nickel	9 - 509	57
Potassium	0.21 - 3.0	1.73
Selenium	0.015 - 0.43	0.058
Silicon	13.2 - 39.4	29.4
Silver	0.1 - 8.3	0.8
Sodium	0.1 - 9.6	15,838
Thallium	5.3 - 36.2	15.7
Titanium	2,012 - 12,890	4,716
Vanadium	39 - 288	112
Zinc	88 - 236	149

(1) Kearney, 1996

(2) The average metal concentrations were used for the analysis of soil screening levels (Table 6-5).

TABLE 6-4
Potential Groundwater Screening Levels
Huntington Beach Generating Station
Huntington Beach, California

Organics	State MCL µg/L (1)	Federal MCL µg/L (2)	Federal MCL Goal µg/L (3)	Secondary State MCL µg/L (4)	Secondary Federal MCL µg/L (5)	PHG Proposed µg/L (6)
1,1,1-Trichloroethane	200	200	200			
1,1,2,2-Tetrachloroethane	1					
1,1,2-Trichloroethane	5	5	3			
1,1-Dichloroethane	5					
1,1-Dichloroethene	6	7	7			
1,2,4-Trichlorobenzene	70	70	70			
1,2-Dibromo-3-Chloropropane	0.2	0.2	0			
1,2-Dichlorobenzene (o-DCB)	600	600	600			600
1,2-Dichloroethane	0.5	5	0			
1,2-Dichloropropane	5	5	0			
1,3-Dichloropropene	0.5					
1,4-Dichlorobenzene (p-DCB)	5	75	75			6
Benzene	1	5	0			
Benzoapyrene	0.2	0.2	0			0.004
Bis(2-ethyl hexyl)phthalate	4	6	0			
Chloroform (Total trihalomethanes)	100	100	0			
cis-1,2-Dichloroethene	6	70	70			
Di (2-ethyl hexyl) phthate (DEHP)	4	6	0			12
Dibutylphthalate	–	710(7)				
Ethylbenzene	700	700	700		30	340
Methylene chloride	5	5	0			
Methyl-tert-butylether	35(8)	30-40(7)				
N-Butylbenzene	45(8)					
Naphthalene		20(7)				
Phenol	5(9)	4,000(7)				
Tetrachloroethene	5	5	0			
Toluene	150	1,000	1,000		40	
trans -1,2- Dichloroethene	10	100	100			
Trichloroethene	5	5	0			
Vinyl Chloride	0.5	2.0	0			
Xylenes (m-p-, and o-isomers)	1,750	10,000	10,000		20	1,800
INORGANICS						
Aluminum	1,000			200	200	
Antimony	6	6	6			20
Arsenic	50	50	50			
Barium	1,000	2,000	2,000			
Beryllium	4	4	4			
Cadmium	5	5	5			
Chloride				500mg/l	250 mg/l	
Chromium	50	100	100			
Iron				300	300	
Fluoride	*	4	4			
Manganese				50	50	
Mercury	2	2	2			
Nickel	100					
Nitrate (NO3)	45,000	10,000	10,000			
Selenium	50	50	50			
Silver			100	100		
Sulfate				500 mg/l	250 mg/l	
Thallium	2	2	0.5			
Zinc			5,000	5,000		
PHYSICAL PARAMETERS						
Total Dissolved Solids (TDS)				1,000 mg/l	500 mg/l	
pH					6.5 - 8.5	
Electrical Conductivity (E.C.)				1,600 uohms		
DRINKING WATER ACTION LEVELS						
Copper	1,300 (5)	1,300 (5)	1,300	1,000	1,000	170
Lead	15 (5)	15 (5)	0			2

Notes:

- State MCL for Flouride ranges from 1.4 mg/l to 2.4 mg/l. The specific level depends of annual average of maximum daily air temperatures experienced over a five year period - 22 CCR 64431

(1) California Code of Regulations, Title 22, Section 64431, 64444
(2) Code of Federal Regulations, Title 40, Part 141.61, 141.62
(3) Code of Federal Regulations, Title 40, Part 141.50, 141.51
(4) California Code of Regulations, Title 22, Section 64449
(5) Code of Federal Regulations, Title 40, Part 143 / California Code of Regulations, Title 22, Section 64672.3
(6) Public Health Goal technical support documents proposed by Cal EPA (1997)
(7) Federal Health Advisory
(8) State Interim Action Level for Toxicity
(9) State Action Level for Taste and Odor

TABLE 6-5
Summary of Woodward-Clyde Sampling Effort - Chemicals of Concern
Huntington Beach Generating Station
Huntington Beach, California

Location No.	Location Name	Soil	Groundwater
4	Distillate Storage Tanks, East Fuel Storage Tanks, West Fuel Storage Tanks	TPH	None
5	Concrete Degreasing Pit	None	Trans 1,2-DCE, 1,1-DCA, CIS 1,2-DCE
6	Switchyard Perimeters	None	None
8	Peaker Unit Pumping Area	None	None
9	Powerblock Perimeters	TPH, cadmium, antimony, arsenic, silver, selenium, mercury, lead, cobalt, copper, molybdenum	thallium, beryllium, cadmium, chromium, copper, lead, mercury
10	Peaker Unit	cadmium, arsenic, cobalt, silver, antimony, copper, molybdenum, ,mercury	None
13	Hazardous Materials Storage Area	Antimony, copper, mercury, silver	Mercury, silver
16	Former Concrete Sump	silver, antimony, arsenic, lead, copper, molybdenum	lead, mercury, nickel, silver
18	Historic Oil Reservoir	silver, antimony, TPH, molybdenum, mercury	1,1-DCE, arsenic, cadmium, lead, silver
19	Oil/Water Seperator and Sump at Units 1 and 2	benzo(a)pyrene, antimony, molybdenum, mercury, selenium, silver	vinyl chloride
20	Oil/Water Seperator and Sump at Units 3 and 4	arsenic, cadmium, molybdenum, antimony, mercury, selenium, silver	None

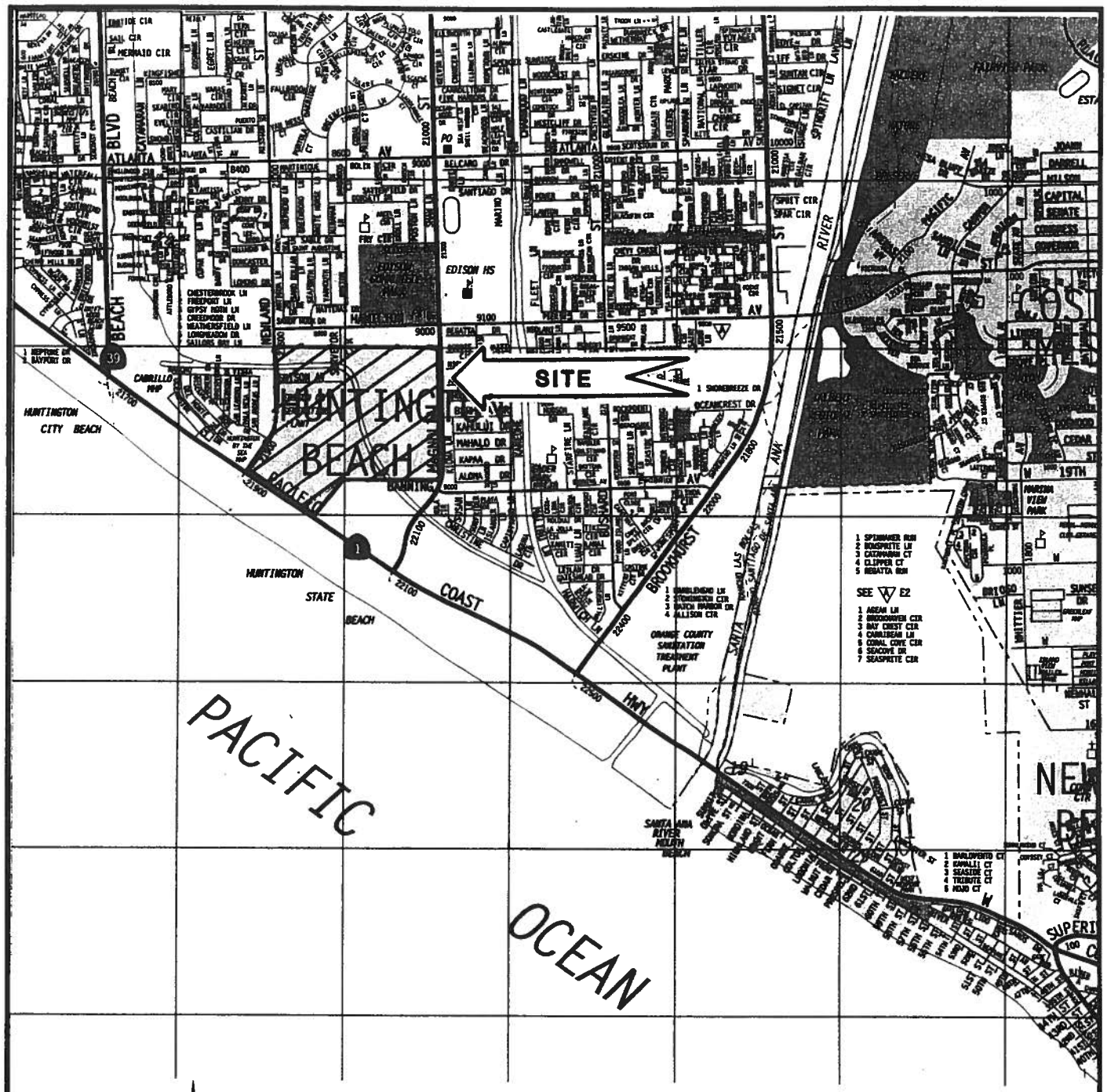
Notes:

1,1-DCA = 1,1-dichloroethane
Cis-1, 2-DCE = Cis-1, 2- dichloroethene
Trans-1, 2-DCE = Trans-1, 2- dichloroethene

TABLE 6-6
Summary of TPH Duplicate Sampling By CH2M HILL and Woodward-Clyde
Huntington Beach Generating Station
Huntington Beach, California

SOIL			GROUNDWATER		
Sample Location	Woodward-Clyde TPH (mg/kg)	CH2MHILL TPH (mg/kg)	Sample Location	Woodward-Clyde TPH (mg/L)	CH2MHILL TPH (m/L)
5	ND	317	5b	ND	662
6a	ND	35	6a	ND	467
8	ND	13,530	6b	ND	901
9	ND	262	8	ND	748
10	ND	312	9	ND	751
16	ND	5,430	16	ND	1,667
18	ND	111	18	ND	554
19	124	7,218	19	2.4	703
20	ND	178	20	ND	528

Notes:
(1) The value reflects the total concentration of TPH (the sum of all ranges from Table 5-1f and 5-2f) detected in area samples.



0 2,400 4,800

SCALE, feet

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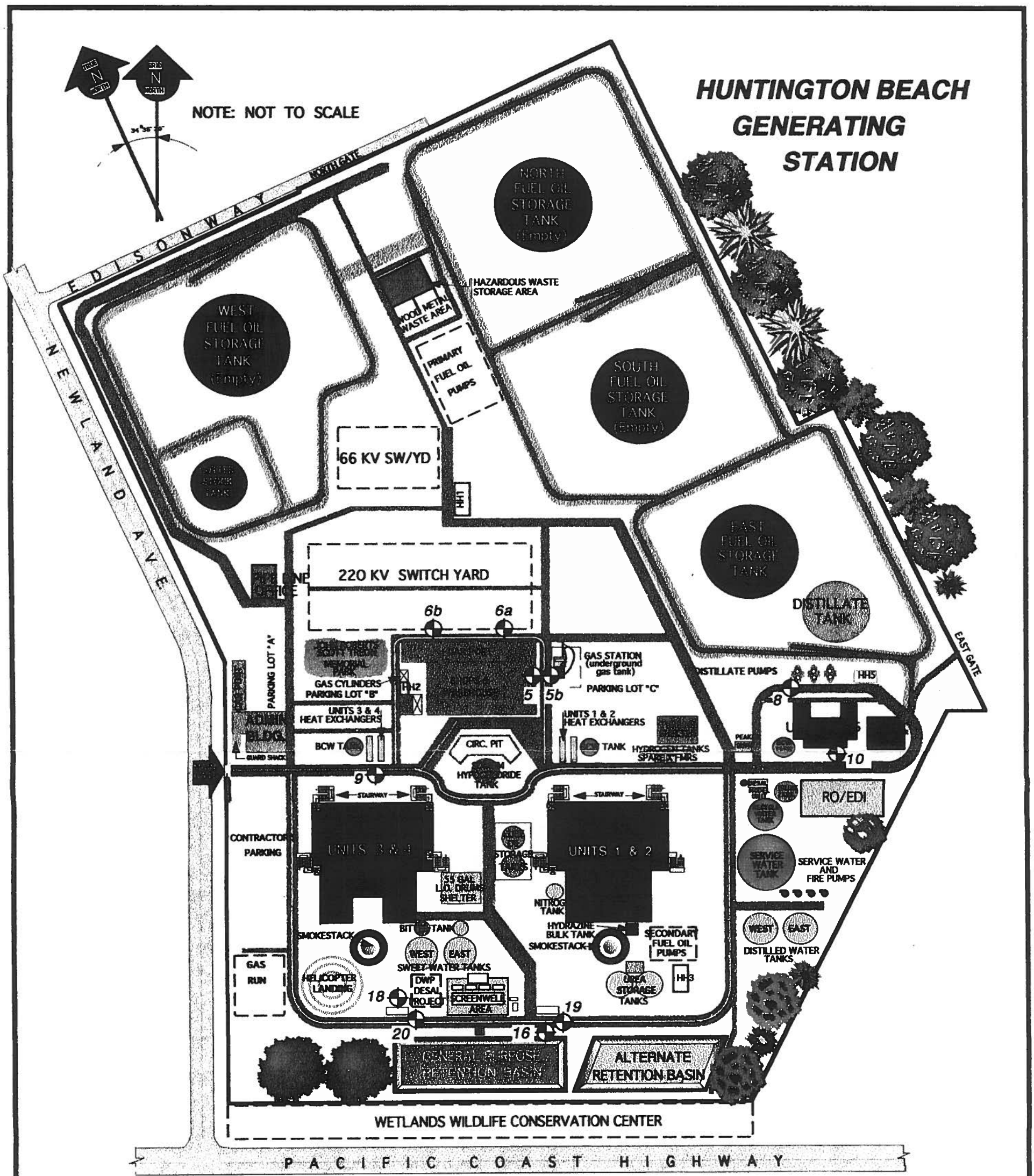
SITE LOCATION MAP

Project No.:	Date:	Project:	Fig.
97SB044	APRIL 1998	AES – HUNTINGTON BEACH	1-1

Woodward-Clyde



LEGEND

- Roadway
- F.O. Tanks Dike
- Property Line
- 2a Sample Locations with Identification Number

Woodward-Clyde

ADDITIONAL INVESTIGATION SAMPLE LOCATION MAP
Huntington Beach Generating Station

Project No.: 97SB044	APR., 1998	Figure 4-1

APPENDIX A

SUMMARY OF CH2M HILL PHASE II ESA ANALYTICAL RESULTS

APPENDIX B

FIELD PROCEDURES

Woodward-Clyde conducted a soil and groundwater investigation of the Huntington Beach Generating Station (HBGS) for AES during March 1998. The investigation included advancing borings and collecting groundwater samples. These methods included direct-push (Geoprobe) and Hydropunch methods. Details of Geoprobe and Hydropunch, and groundwater sampling procedures are discussed below. On behalf of Southern California Edison Company (SCE), CH2M HILL personnel witnessed soil sampling procedures and collected split soil samples where possible. In general, Woodward-Clyde personnel collected the bottom two sample tubes and CH2M HILL personnel collected the second tube, or the third from the bottom of sampler barrel. In some instances, because of low recovery at the desired depth, soil borings were advanced further or a new boring installed to collect soil samples for CH2M HILL.

B.1 SOIL INVESTIGATION

Field procedures for drilling and soil sampling were conducted in general accordance with the guidelines provided by American Society of Testing and Materials (ASTM). A description of the standard field protocols is provided below.

B.1.1 Soil Sample Collection with Geoprobe

Soil samples were collected using a Geoprobe. This soil drilling method employs direct-push technology that minimizes drill cuttings and allows for relatively undisturbed soil sample collection. In addition, this drilling method was modified such that an outer casing was driven ahead of the sampler barrel and well casing, thereby minimizing the potential for cross-contamination from the overlying strata.

The soil borings were advanced to a maximum of 22 feet bgs using a 2-inch outer diameter (OD), stainless steel drive casing. Approximate 2-foot sample cores consisting of four 1-inch-diameter stainless steel tubes were generally collected at two depths (2-4 and 8-10). Sometimes these depths were modified in the field depending upon groundwater level. The ends of the sample cores were wrapped with Teflon tape and capped. The samples were stored in plastic bags on ice in an insulated cooler for transportation to Quanterra. Prior to drilling each boring, all non-disposable equipment that entered the borehole were steam-cleaned or washed in a solution of Liquinox™ and water followed by three tap water rinses. The soil borings were logged by Woodward-Clyde personnel working under the direction of a California Registered Geologist. The soil borings were backfilled with a bentonite-based cement grout to approximately 1 foot bgs and capped with asphalt or concrete, as appropriate, in paved areas.

B.2 GROUNDWATER INVESTIGATION

Field procedures for groundwater sampling were conducted in accordance with industry practices for performing environmental assessment and sampling. A description of the standard field protocols for groundwater sampling is provided below.

B.2.1 Groundwater Sampling - Hydropunch

A total of nine groundwater sampling points were installed approximately between 10 feet bgs and 30 feet bgs. The sampling points were installed using 2-inch OD drive casing. The drive casing was driven to depths ranging between 13 feet to 30 feet bgs to seal off the overlying strata. A stainless steel sampling probe with a stainless steel expendable tip was driven through the outer casing to the completed sampling point depth. The expendable tip was pushed out and the probe retracted approximately 4 feet to expose the annulus of the sampling probe to the formation groundwater. The water level was allowed to equilibrate prior to sampling.

Once sampling was completed, the sampling probe was removed and the borehole backfilled with bentonite-based cement grout by pressure grouting through the outer casing as it was removed from the borehole. The boreholes were backfilled with grout to match surface grade in soil covered areas or to approximately 1 foot bgs and capped with concrete in paved areas.

B.2.2 Groundwater Sampling - Temporary Piezometers

Groundwater sampling was also conducted using temporary piezometers. The sampling points were installed using a 2-inch OD drive casing. The drive casing was driven to depths ranging from 13 feet bgs to 30 feet bgs. Following that, 1-inch Schedule 40 PVC pipes with 10-foot screen (5-foot screen if shallow depth) were installed through the other casing. Once the PVC pipes were set, the outer casing was pulled out. The water level was allowed to equilibrate prior to sampling.

Once sampling was completed, the sampling probe was removed and the borehole backfilled with bentonite-based cement grout by pressure grouting through the outer casing as it was removed from the borehole. The boreholes were backfilled with grout to match surface grade in soil covered areas or to approximately 1 foot bgs and capped with concrete in paved areas.

B.2.3 Sample Collection

Following groundwater well setup, the well was allowed to recharge to at least 80 percent of the measured depth to water level prior to sampling; however, the well was sampled within 2 hours following purging, regardless of recovery. The following procedures were followed each time a monitoring well was sampled:

1. Sampling equipment and containers were checked for serviceability prior to use.

2. Each well was sampled within 2 hours after purging. For groundwater sampling points with inadequate recovery, sampling was conducted the following day.

3. Groundwater samples were collected using disposal ¼-inch polygon tubing.

4. Water samples were placed in appropriate sample bottles supplied by the analytical laboratory. The groundwater samples were collected in the containers as specified below:

   - TPH-diesel carbon chain analysis in 1-liter amber bottle and filled so there was no headspace remaining in the bottle.

   - CCR Title 22 metals in a 1-liter plastic bottle. Groundwater samples were filtered at Quanterra within 24 hours of sample collection using an EPA-approved 0.45 micron filter and then preserved.

   - VOCs and TPH-g (HCl preserved) in 40 ml VOA bottles.

   - SVOCs (no preservative) in a 1-liter amber bottle.

   - PCBs (no preservative) in a 1-liter amber bottle.

5. Sample bottles were placed in an insulated cooler containing ice and logged on the COC form.

B.2.4 Sample Identification, Storage, and Transportation

B.2.4.1 Sample Identification

The method of identification of a sample depended on the type of measurement or analysis performed. Samples were identified by the type of matrix by the letters "S" or "W" for soil or groundwater, respectively, on the COC. The samples were identified by the boring or well identification, sample depth, the number of the tube, if applicable, the date the sample was collected

and the matrix (soil or liquid). Additional information such as the samplers initials, analysis requested, and applicable project codes were identified on the sample label.

B.2.4.2 Sample Storage

After collection, samples remained in the possession of the sampling personnel until they were released to VOC Analytical's courier. Immediately after collection, during storage prior to shipment and during shipment to the laboratory, samples were stored on ice in coolers. Any temporary sample storage areas were to be locked and secured to maintain sample integrity and COC requirements.

The procedures and material used for sample packaging adequately protected sample containers from accidental breakage during shipping. Glass sample containers were placed into plastic bags and cushioned in inert packing material. Plastic sample containers were packed well to prevent movement during transport. Ice was placed in plastic bags between sample bottles and containers and on the top of the samples in order to maintain the cooler temperature.

B.2.4.3 Sample Transportation

During field sampling activities, traceability of each sample was maintained from the time the samples were collected until laboratory data were issued. Information on the custody, transfer, handling, and shipping of samples were recorded on a COC form. The COC is a one-page form with two or three carbonless copies.

The sampler was responsible for initiating and filling out the COC form. The COC form was signed by the sampler when the sampler relinquished the samples to the lab courier. A COC form was completed for each cooler of samples collected daily, and contained the following information:

- Sampler's signature and affiliation
- Project number
- Date and time of collection
- Sample identification number
- Sample type/matrix

- Analyses requested
- Number of containers
- Person to contact regarding analyses
- Signature of persons relinquishing custody, dates, and times
- Signature of persons accepting custody, dates, and times (laboratory)
- Method of shipping

The person responsible for delivery of the samples to Quanterra, the courier service that signed the COC form, retained the last copy of the three-part form, documented the method shipment, and sent the original and the second copy of the form with the samples (taped in a resealable plastic bag to the inner cooler lid). Upon receipt at the analytical laboratory, the person receiving the samples signed the form and returned the second copy to the Woodward-Clyde project file. Copies of the forms and all custody documentation have been filed. The original forms remained with the samples until final disposition of the samples by the laboratory. The analytical laboratory will dispose of the samples in an appropriate manner 60 to 90 days after data reporting.

B.2.5 Decontamination Procedures

New tubes were used at each sampling depth interval. Groundwater samples were collected using disposable ¼-inch polygen tubes to avoid cross-contamination between wells. Reusable soil sampling equipment were decontaminated between each sampling interval or well location using the following procedures:

1. Wash with Liquinox and brush to remove contaminants.
2. Second wash with Liquinox and brush.
3. Rinse with deionized water.
4. Second rinse with deionized water.
5. Dry with paper towels or drip dry.
6. Keep sampling equipment covered with plastic bags when not in use or between sampling locations.

B.2.6 Investigation Derived Waste Management

Investigation-derived wastes generated during the field activities included decontamination water and disposable sampling supplies (e.g., paper towels, plastic bags, etc.). Wastes generated during the field activities were stored in DOT-approved 55-gallon drums or roll-off bins, properly labeled, and sealed for later disposal. Notations on drum information were also made on field logs in order manage the disposal of the drums at a later date.

B.3 GEOPHYSICAL SITE CLEARING

On March 17, 1998 through March 20, 1998, subsurface surveys were tested by Woodward-Clyde to clear proposed Geoprobe/Hydropunch locations at the HBGS. Ground penetrating radar, electromagnetic induction (two types), magnetic gradiometer, and a line tracer were applied to the search.

Multiple methods were utilized because each instrument senses different material properties of the ground and buried objects. At any given site, the situation, geologic and cultural, may be such that one or two of the instruments may record excessive "noise", the ground may not provide sufficient contrasts with installations or discards, or there may be overlapping anomalies, and thereby those instruments may not be definitive. Generally, however, the interpretation is based on the best reconciliation of the several data sets acquired.

Survey Design - To the extent of available space, the search followed the standard search pattern (Figure B-1) wherein there are two sets of three parallel lines, mutually perpendicular, and two diagonals, all centered on the marked drill location. Adjacent parallel line are approximately 4 feet apart, and each line is about 16 feet long. This array will image any through-going object, such as a pipe or conduit, or even an equant buried object, on several of the lines; consequently, the obstruction to drilling can be mapped accurately in the vicinity of the planned borehole. When any buried object is sensed, additional traversing with all applicable instruments is undertaken in positions best designed to image the object and enhance its position and identification in the vicinity of the planned drill location.

The radar system was manufactured by Geophysical Survey Systems Incorporated, and is a SIR 3 unit. The electromagnetic instruments were fabricated by Geonics Ltd., and are EM31 and EM61 devices. The magnetic gradiometer is a Schoenstedt GA-52C, and the line tracer is a Metrotech 9800.

Brief Description of the Geophysical Instruments Applied - The GPR instrument beams energy into the ground from its transducer/antenna, in the form of electromagnetic waves. A portion of this energy is reflected back to the antenna at any boundary in the subsurface across which there is an electrical contrast. The recorder continuously makes a record of the reflected energy as the antenna is traversed across the ground surface. The greater the electrical contrast, the higher the amplitude of the returned energy. The EM wave travels at a velocity unique to the material properties of the ground being investigated, and when these velocities are known, or closely estimated from ground conductivity values and other information, two-way travel times can be converted to depth. For this survey, the distance between adjacent horizontal timing lines on the records equals slightly more than 1.5 feet.

Penetration into the ground and resolution of the images produced are a function of ground electrical conductivity and dielectric constant. Images tend to be graphic, even at considerable depth, in dry sandy soils, but penetration and resolution may be limited in drastically more conductive clayey moist ground. Ground conditions were poor to good at each site; the records appear to be reasonably definitive, however.

The magnetometer, naturally, senses objectives having magnetic properties. The magnetic gradiometer has two flux gate magnetic fixed sensors that are passed closely to and over the ground. When not in close proximity to a magnetic object, that is, only in the earth's field, the instrument emits a sound signal at a low frequency. When the instrument passes over a buried iron or steel object, so that the field is significantly different at the two sensors, and locally there is a high magnetic gradient, the frequency of the emitted sound increases. Frequency is a function of the gradient between the two sensors. In this instance the gradiometer was used to determine the presence of rebar in the concrete slab, as well as aiding the locations of pipe at the exterior locations that were not on concrete slabs.

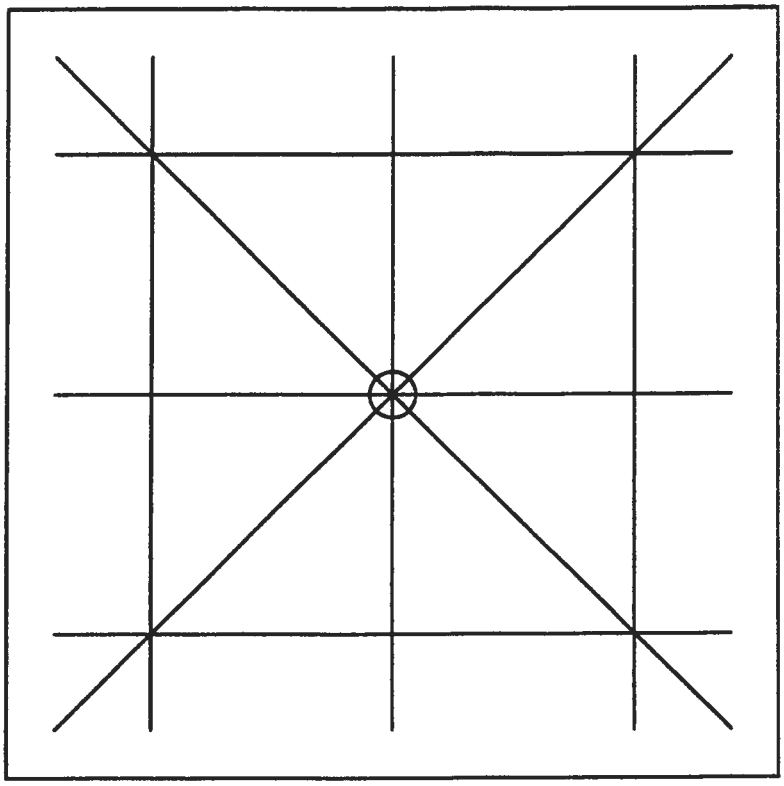
The EM61 time-domain device is a high resolution transient instrument designed to detect buried conductive objects. It consists of a powerful transmitter that generates a pulsed primary magnetic field, which induces eddy currents in nearby conductive materials. The decay of the eddy currents during the transmitter off cycle is measured by the transceiver coils. Two effects are measured, namely, the decay rate and the difference in amplitude in the two coils mounted concentrically, one above the other. By making the measurements at a relatively long time (measured in milliseconds) after termination of the primary pule, the response is nearly independent of the conductivity of the ground. Thus, the instrument is, in this mode, a super-sensitive metal detector. Due to its unique

coil arrangement, the response curve is a single well-defined positive peak directly over the causative body. This facilitates quick and accurate location of the target object. The depth of the object can usually be estimated by the anomaly half width and from the relative response in the two receiver coils.

Interpretation - Traversing with gradiometer and EM systems was carried out while continuously monitoring the meters. Thus, no hard data were captured with these instruments; the interpretation was undertaken in real time, as the survey progressed. The radar system always produces hard copy as its output; consequently, these records were captured. Representative radar records are illustrated, but it should be stressed that the interpretation is based on the output of all instruments.

As might be expected at plants with the engineering complexity of an electrical generating facility, many of the locations were complex in the subsurface. That is, there are many pipes, conduit, sumps, and other installations. Moreover, the above-ground installations are also complex, so that the marked locations are often in a position with limited space for surveying. And the installations in close proximity to marked drill location are sensed by the instruments, to varying degrees, so that target and non-target anomalies can significantly overlap. Finally, each of the plants are located in tidal wetlands so that muds (clays) are abundant, and the water is brackish. Consequently, painstaking work utilizing all applicable instruments was necessary at virtually all of the locations.

Conclusions - The picture that appears to emerge from the geophysical data, and some surface observations, is that there are underground installations at all sites investigated. Although the ground was somewhat unfavorable for geophysical imaging, and the subsurface was complex with cultural installations, the combined responses of the geophysical instruments appear to have found final locations that are free of subsurface obstructions. Several, however, had to be moved a short distance to increase the offset distance to existing installations.



STANDARD SEARCH PATTERN IN VICINITY OF PLANNED BOREHOLE - HUNTINGTON BEACH GENERATING STATION

Project No.: 974SB044	Date: APRIL 1998	Project: AES	Fig. B-1

MS I:\97\97SB044\AES-SSP.dwg R14.0 04/07/98 09:42

Woodward-Clyde

APPENDIX C

ANALYTICAL LABORATORY REPORTS, BORING LOGS, WELL PERMITS, AND CHAIN-OF-CUSTODY FORMS

Quanterra
Environmental Services

Quanterra Incorporated
1721 South Grand Avenue
Santa Ana, California 92705

714 258-8610 Telephone
714 258-0921 Fax

April 3, 1998

QUANTERRA INCORPORATED PROJECT NUMBER: 131262
PO/CONTRACT: 97SB044 (3100)

Partha Bora
Woodward-Clyde Consultants
2020 E. First Street
Santa Ana, CA 92705

Dear Mr. Bora,

This report contains the analytical results for the eleven samples received under chain of custody by Quanterra Incorporated on March 20, 1998. These samples are associated with your AES, Huntington Beach project.

The case narrative is an integral part of this report.

Preliminary results were sent via facsimile on March 31, 1998 for metals.

If you have any questions, please feel free to call me at (714) 258-8610.

Sincerely,

Sharon Meves
Project Manager

TABLE OF CONTENTS

QUANTERRA INCORPORATED PROJECT NUMBER 131262

Case Narrative

Quanterra's Quality Assurance Program

Chain of Custody Documentation

Sample Description Information

TEPH
Sample(s): 1-11
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

SVOCs
Sample(s): 1-11
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

Metals
Sample(s): 1-11
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

Moisture
Sample(s): 5-11
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

VOCs
Sample(s): 1-11
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

CASE NARRATIVE

QUANTERRA INCORPORATED PROJECT NUMBER 131262

All applicable internal quality control analyses including calibrations and calibration verifications, calibration (instrument) and method blanks, laboratory control samples (LCS), matrix spikes (MS) and matrix spike duplicates (MSD), and other QC met method-specified acceptance criteria. Any matrix-related anomalies are indicated using footnotes within the report. Any other anomalies are reported within the narrative.

General: MS/MSD analyses were performed on aqueous samples as designated on the COC (with the exception of TVPH and TEPH, for which no QC analyses were performed, as discussed with Woodward Clyde personnel). MS/MSD analyses for soil samples were performed as sample volume allowed. (Only 2 small sleeves were submitted to the laboratory. One sleeve was shipped to the Quanterra-North Canton facility for volatiles analysis, so only one sleeve was available for the remaining analyses. Volume concerns were discussed with Woodward Clyde personnel immediately after the first sample shipment arrived.) Where MS/MSD analyses could not be performed, duplicate laboratory control standards were reported.

TEPH: The response of continuing calibration check standards were slightly high (above the 15% critieria applied for this project). Since no detections were noted in the samples, no corrective action was taken.

SVOCs: The recoveries of several surrogates in sample 131262-0001 were low in the original analysis. The sample was reextracted and reanalyzed, and the recoveries were again low. No further corrective action was taken. Results from the original extraction/analysis were reported.

The recovery of pyrene in the MS analysis of MS Run 23 MAR 98-AA was slightly low. The recovery of this compound in the associated LCS was acceptable, therefore, no corrective action was taken.

Metals: All samples requiring ICP and ICP Trace analysis were analyzed by method 6010B, the newly promulgated version of the ICP method in SW846, rather than method 6010A, as specified in the PRG tables.

Sample HG10-02 was reported from a diluted analysis due to matrix interferences.

The recoveries of arsenic in MS Run 25 MAR 98-PA, and the recoveries of antimony, chromium, copper, nickel, vanadium and zinc in MS Run 25 MAR 98-BA were outside control limits. The recoveries of these metals in the associated LCSs were acceptable, therefore, matrix interference is suspected, and no corrective action was taken.

CASE NARRATIVE

QUANTERRA INCORPORATED PROJECT NUMBER 131262

VOCs: Analyses were performed by the Quanterra-North Canton facility. Please refer to the attached report.

Quanterra Environmental Services - Western Region

Quality Control Definitions

QC Parameter	Definition
QC Batch	A set of up to 20 field samples plus associated laboratory QC samples that are similar in composition (matrix) and that are processed within the same time period with the same reagent and standard lots.
Duplicate Control Sample (DCS)	Consist of a pair of LCSs analyzed within the same QC batch to monitor precision and accuracy independent of sample matrix effects. This QC is performed only if required by client or when insufficient sample is available to perform MS/MSD.
Duplicate Sample (DU)	A second aliquot of an environmental sample, taken from the same sample container when possible, that is processed independently with the first sample aliquot. The results are used to assess the effect of the sample matrix on the precision of the analytical process. The precision estimated using this sample is not necessarily representative of the precision for other samples in the batch.
Laboratory Control Sample (LCS)	A volume of reagent water for aqueous samples or a contaminant-free solid matrix (Ottawa sand) for soil and sediment samples which is spiked with known amounts of representative target analytes and required surrogates. An LCS is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects.
Matrix Spike and Matrix Spike Duplicate (MS/MSD)	A field sample fortified with known quantities of target analytes that are also added to the LCS. Matrix spike duplicate is a second matrix spike sample. MSs/MSDs are carried through the entire analytical process and are used to determine sample matrix effect on accuracy of the measurement system. The accuracy and precision estimated using MS/MSD is only representative of the precision of the sample that was spiked.
Method Blank (MB)	A sample composed of all the reagents (in the same quantities) in reagent water carried through the entire analytical process. The method blank is used to monitor the level of contamination introduced during sample preparation steps.
Surrogate Spike	Organic constituents not expected to be detected in environmental media and are added to every sample and QC at a known concentration. Surrogates are used to determine the efficiency of the sample preparation and the analytical process.

Source: Quanterra® Quality Control Program, Policy QA-003, Rev. 0, 8/19/96.

Woodward-Clyde Consultants

SHIPMENT NO.: 4

CHAIN OF CUSTODY RECORD

PAGE 1 OF ____

DATE 3/19/98

PROJECT NAME: AES (HUNTINGTON BEACH)

PROJECT NO.: 97SB044 3100

Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
HG18-10-W	18	WATER	PUMP	3 40 ML. VOA	ICE	HCL	VOCs
				1 500 ML. PLASTIC	"	NONE	METALS DISSOLVED
				1 1 LITER GLASS	"	"	TPH-d
				2 1 LITER GLASS	"	"	VOCs, SVOCs
HG18-11-W	18	"	"	3 40 ML. VOAS	"	HCL	VOCs
				1 500 ML. PLASTIC	"	NONE	METALS
				1 1 LITER GLASS	"	"	TPH-d
				2 1 LITER GLASS	"	"	VOCs, SVOCs
HG16-10-W	16	"	"	3 40 ML. VOAS	"	HCL	VOCs
				1 500 ML. PLASTIC	"	NONE	METALS
				1 1 LITER GLASS	"	"	TPH-d
				2 1 LITER GLASS	"	"	VOCs, SVOCs
HG16-10-MS/MSD	16	"	"	3 40 ML. VOA	"	"	VOCs
				1 500 ML. PLASTIC	"	"	METALS
				1 1 LITER GLASS	"	"	TPH-d
				2 1 LITER GLASS	"	"	VOCs, SVOCs
RBHG10-W	10	"	GRAB	3 40 ML. VOAS	"	HCL	VOCs
				1 500 ML PLASTIC	"	NONE	METALS
				1 1 LITER GLASS	"	"	TPH-d
				2 1 LITER GLASS	"	"	VOCs, SVOCs

all stuck ok per sm

Total Number of Samples Shipped: 35 | Sampler's Signature: Hector Reyes

Relinquished By:	Received By:	Date / Time
Signature: Hector Reyes Printed Name: HECTOR REYES Company: W.C.C. Reason: ANALYSIS	Signature: RBautista Printed Name: R BAUTISTA Company: C Courier	Date: 3/19/98 Time: 1745
Signature: RBautista Printed Name: R BAUTISTA Company: Reason:	Signature: [signature] Printed Name: Carlos Millan Company: Quanterra	Date: 3/19/98 Time: 1845
Signature: Printed Name: Company: Reason:	Signature: Printed Name: Company:	Date: / / Time:
Signature: Printed Name: Company: Reason:	Signature: Printed Name: Company:	Date: / / Time:

Special Shipment / Handling / Storage Requirements:

NOTE - FOR METAL ANALYSIS, FILTER AND ADD PRESERVATIVE

* Note – This does not constitute authorization to proceed with analysis

Woodward-Clyde Consultants

SHIPMENT NO.: 4

CHAIN OF CUSTODY RECORD

PAGE 2 OF ____

DATE 3/19/98

PROJECT NAME: AES (HUNTINGTON BEACH)

PROJECT NO.: 97SB044 (3100)

Sample Number	Location	Type of Sample		Type of Container	Type of Preservation		Analysis Required*
		Material	Method		Temp	Chemical	
HG18-01	18	SOIL	DRIVE	1" SS. TUBE	ICE	NONE	TPH-d, METALS
"	"	"	"	"	"	"	VOCs, SVOCs
HG18-02	"	"	"	"	"	"	TPH-d, METALS
"	"	"	"	"	"	"	VOCs, SVOCs
HG16-01	16	"	"	"	"	"	TPH-d, METALS
"	"	"	"	"	"	"	VOCs, SVOCs
HG16-02	"	"	"	"	"	"	VOCs, SVOCs
"	"	"	"	"	"	"	METALS, TPH-d
HG16-03	"	"	"	"	"	"	" "
"	"	"	"	"	"	"	VOCs, SVOCs
HG10-01	10	"	"	"	"	"	METALS, TPH-d
"	"	"	"	"	"	"	VOCs, SVOCs
HG10-02	"	"	"	"	"	"	METALS, TPH-d
"	"	"	"	"	"	"	VOCs, SVOCs

Total Number of Samples Shipped: 14 Sampler's Signature: Hector Reyes

Relinquished By:	Received By:	Date / Time
Signature: Hector Reyes Printed Name: HECTOR REYES Company: W.C.C. Reason: ANALYSIS	Signature: PBautista Printed Name: R.BAUTISTA Company: Q Conn	Date: 3/19/98 Time: 1745
Relinquished By: Signature: PBautista Printed Name: RBAUTISTA Company: Reason:	Received By: Signature: [signature] Printed Name: Carlos Millan Company: Quanterra	Date: 3/19/98 Time: 1845
Relinquished By: Signature: Printed Name: Company: Reason:	Received By: Signature: Printed Name: Company:	Date: / / Time:
Relinquished By: Signature: Printed Name: Company: Reason:	Received By: Signature: Printed Name: Company:	Date: / / Time:

Special Shipment / Handling / Storage Requirements:

* Note – This does not constitute authorization to proceed with analysis

SAMPLE DESCRIPTION INFORMATION
for
Woodward-Clyde Consultants

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
131262-0001-SA	HG18-10-W	WATER	19 MAR 98		19 MAR 98
131262-0002-SA	HG18-11-W	WATER	19 MAR 98		19 MAR 98
131262-0003-SA	HG16-10-W	WATER	19 MAR 98		19 MAR 98
131262-0003-MS	HG16-10-W	WATER	19 MAR 98		19 MAR 98
131262-0003-SD	HG16-10-W	WATER	19 MAR 98		19 MAR 98
131262-0004-SA	RBHG10-W	WATER	19 MAR 98		19 MAR 98
131262-0005-SA	HG18-01	SOIL	19 MAR 98		19 MAR 98
131262-0006-SA	HG18-02	SOIL	19 MAR 98		19 MAR 98
131262-0007-SA	HG16-01	SOIL	19 MAR 98		19 MAR 98
131262-0008-SA	HG16-02	SOIL	19 MAR 98		19 MAR 98
131262-0009-SA	HG16-03	SOIL	19 MAR 98		19 MAR 98
131262-0010-SA	HG10-01	SOIL	19 MAR 98		19 MAR 98
131262-0011-SA	HG10-02	SOIL	19 MAR 98		19 MAR 98

TEPH

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG18-10-W		
LAB ID:	131262-0001-SA		
Matrix:	WATER	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 23 MAR 98	Analyzed: 31 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	ND		1.0	mg/L
C20-<C25	ND		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG18-11-W		
LAB ID:	131262-0002-SA		
Matrix:	WATER	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 23 MAR 98	Analyzed: 31 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	ND		1.0	mg/L
C20-<C25	ND		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG16-10-W		
LAB ID:	131262-0003-SA		
Matrix:	WATER	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 23 MAR 98	Analyzed: 31 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	ND		1.0	mg/L
C20-<C25	ND		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	RBHG10-W		
LAB ID:	131262-0004-SA		
Matrix:	WATER	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 23 MAR 98	Analyzed: 01 APR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	ND		1.0	mg/L
C20-<C25	ND		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG18-01		
LAB ID:	131262-0005-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		11	mg/kg
C15-<C20	ND		11	mg/kg
C20-<C25	ND		11	mg/kg
C25-<C30	ND		11	mg/kg
C30-<C35	ND		11	mg/kg
C35-C40	ND		11	mg/kg

Percent moisture is 7.6%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG18-02		
LAB ID:	131262-0006-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		12	mg/kg
C15-<C20	ND		12	mg/kg
C20-<C25	ND		12	mg/kg
C25-<C30	ND		12	mg/kg
C30-<C35	ND		12	mg/kg
C35-C40	ND		12	mg/kg

Percent moisture is 16.0%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG16-01		
LAB ID:	131262-0007-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		11	mg/kg
C15-<C20	ND		11	mg/kg
C20-<C25	ND		11	mg/kg
C25-<C30	ND		11	mg/kg
C30-<C35	ND		11	mg/kg
C35-C40	ND		11	mg/kg

Percent moisture is 12.2%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG16-02		
LAB ID:	131262-0008-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		12	mg/kg
C15-<C20	ND		12	mg/kg
C20-<C25	ND		12	mg/kg
C25-<C30	ND		12	mg/kg
C30-<C35	ND		12	mg/kg
C35-C40	ND		12	mg/kg

Percent moisture is 15.9%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG16-03		
LAB ID:	131262-0009-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		12	mg/kg
C15-<C20	ND		12	mg/kg
C20-<C25	ND		12	mg/kg
C25-<C30	ND		12	mg/kg
C30-<C35	ND		12	mg/kg
C35-C40	ND		12	mg/kg

Percent moisture is 15.7%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG10-01		
LAB ID:	131262-0010-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		11	mg/kg
C15-<C20	ND		11	mg/kg
C20-<C25	ND		11	mg/kg
C25-<C30	ND		11	mg/kg
C30-<C35	ND		11	mg/kg
C35-C40	ND		11	mg/kg

Percent moisture is 12.3%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG10-02		
LAB ID:	131262-0011-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		14	mg/kg
C15-<C20	ND		14	mg/kg
C20-<C25	ND		14	mg/kg
C25-<C30	ND		14	mg/kg
C30-<C35	ND		14	mg/kg
C35-C40	ND		14	mg/kg

Percent moisture is 26.3%. All results and limits are reported on a dry weight basis.

ND = Not Detected

SVOCs

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG18-10-W
LAB ID: 131262-0001-SA
Matrix: WATER Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 27 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
2-Nitrophenol	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
3-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
4-Methylphenol	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Acenaphthene	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
Anthracene	ND		10	ug/L
Benzo(a)anthracene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	1.2	J	10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-butyl phthalate	1.1	J	10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethyl phthalate	ND		10	ug/L
Dimethyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG18-10-W
LAB ID: 131262-0001-SA
Matrix: WATER Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 27 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Fluorene	ND		10	ug/L
Hexachlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Naphthalene	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Pyrene	ND		10	ug/L
Phenol	ND		10	ug/L

Surrogate	Recovery		Acceptable Range	
2-Fluorophenol	13	%	21 - 100	I
Phenol-d5	11	%	10 - 94	
Nitrobenzene-d5	22	%	34 - 114	I
2-Fluorobiphenyl	20	%	43 - 116	I
2,4,6-Tribromophenol	14	%	10 - 123	
Terphenyl-d14	21	%	33 - 141	I

I = Surrogate recovery outside of limits due to sample matrix interference.
ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG18-11-W
LAB ID: 131262-0002-SA
Matrix: WATER Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
2-Nitrophenol	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
3-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
4-Methylphenol	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Acenaphthene	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
Anthracene	ND		10	ug/L
Benzo(a)anthracene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	1.4	J	10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-butyl phthalate	1.4	J	10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethyl phthalate	ND		10	ug/L
Dimethyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG18-11-W
LAB ID: 131262-0002-SA
Matrix: WATER Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Fluorene	ND		10	ug/L
Hexachlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Naphthalene	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Pyrene	ND		10	ug/L
Phenol	ND		10	ug/L

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	41	%	21 - 100
Phenol-d5	29	%	10 - 94
Nitrobenzene-d5	62	%	34 - 114
2-Fluorobiphenyl	60	%	43 - 116
2,4,6-Tribromophenol	60	%	10 - 123
Terphenyl-d14	60	%	33 - 141

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG16-10-W
LAB ID: 131262-0003-SA
Matrix: WATER Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
2-Nitrophenol	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
3-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
4-Methylphenol	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Acenaphthene	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
Anthracene	ND		10	ug/L
Benzo(a)anthracene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	1.1	J	10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-butyl phthalate	ND		10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethyl phthalate	ND		10	ug/L
Dimethyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG16-10-W
LAB ID: 131262-0003-SA
Matrix: WATER Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Fluorene	ND		10	ug/L
Hexachlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Naphthalene	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Pyrene	ND		10	ug/L
Phenol	ND		10	ug/L

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	50	%	21 - 100
Phenol-d5	33	%	10 - 94
Nitrobenzene-d5	72	%	34 - 114
2-Fluorobiphenyl	66	%	43 - 116
2,4,6-Tribromophenol	75	%	10 - 123
Terphenyl-d14	72	%	33 - 141

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: RBHG10-W
LAB ID: 131262-0004-SA
Matrix: WATER Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
2-Nitrophenol	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
3-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
4-Methylphenol	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Acenaphthene	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
Anthracene	ND		10	ug/L
Benzo(a)anthracene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	3.0	J	10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-butyl phthalate	ND		10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethyl phthalate	ND		10	ug/L
Dimethyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: RBHG10-W
LAB ID: 131262-0004-SA
Matrix: WATER Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Fluorene	ND		10	ug/L
Hexachlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Naphthalene	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Pyrene	ND		10	ug/L
Phenol	ND		10	ug/L

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	42	%	21 - 100
Phenol-d5	27	%	10 - 94
Nitrobenzene-d5	75	%	34 - 114
2-Fluorobiphenyl	80	%	43 - 116
2,4,6-Tribromophenol	86	%	10 - 123
Terphenyl-d14	91	%	33 - 141

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG18-01
LAB ID: 131262-0005-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1700	ug/kg
2,4,6-Trichlorophenol	ND		360	ug/kg
2,4-Dichlorophenol	ND		360	ug/kg
2,4-Dimethylphenol	ND		360	ug/kg
2,4-Dinitrophenol	ND		1700	ug/kg
2,4-Dinitrotoluene	ND		360	ug/kg
2,6-Dinitrotoluene	ND		360	ug/kg
2-Chloronaphthalene	ND		360	ug/kg
2-Chlorophenol	ND		360	ug/kg
2-Methylnaphthalene	ND		360	ug/kg
2-Methylphenol	ND		360	ug/kg
2-Nitroaniline	ND		1700	ug/kg
2-Nitrophenol	ND		360	ug/kg
3,3'-Dichlorobenzidine	ND		710	ug/kg
3-Nitroaniline	ND		1700	ug/kg
4,6-Dinitro-2-methylphenol	ND		1700	ug/kg
4-Bromophenyl phenyl ether	ND		360	ug/kg
4-Chloro-3-methylphenol	ND		700	ug/kg
4-Chloroaniline	ND		360	ug/kg
4-Chlorophenyl phenyl ether	ND		360	ug/kg
4-Methylphenol	ND		360	ug/kg
4-Nitroaniline	ND		1700	ug/kg
4-Nitrophenol	ND		1700	ug/kg
Acenaphthene	ND		360	ug/kg
Acenaphthylene	ND		360	ug/kg
Anthracene	ND		360	ug/kg
Benzo(a)anthracene	ND		360	ug/kg
Benzo(a)pyrene	ND		360	ug/kg
Benzo(b)fluoranthene	ND		360	ug/kg
Benzo(g,h,i)perylene	ND		360	ug/kg
Benzo(k)fluoranthene	ND		360	ug/kg
bis(2-Chloroethoxy)-methane	ND		360	ug/kg
bis(2-Chloroethyl) ether	ND		360	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		360	ug/kg
Butyl benzyl phthalate	ND		360	ug/kg
Carbazole	ND		360	ug/kg
Chrysene	ND		360	ug/kg
Di-n-butyl phthalate	ND		360	ug/kg
Di-n-octyl phthalate	ND		360	ug/kg
Dibenz(a,h)anthracene	ND		360	ug/kg
Dibenzofuran	ND		360	ug/kg
Diethyl phthalate	ND		360	ug/kg
Dimethyl phthalate	ND		360	ug/kg
Fluoranthene	ND		360	ug/kg
Fluorene	ND		360	ug/kg

Percent moisture is 7.6%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG18-01
LAB ID: 131262-0005-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		360	ug/kg
Hexachlorobutadiene	ND		360	ug/kg
Hexachlorocyclopentadiene	ND		1700	ug/kg
Hexachloroethane	ND		360	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		360	ug/kg
Isophorone	ND		360	ug/kg
N-Nitroso-di-n-propylamine	ND		360	ug/kg
N-Nitrosodiphenylamine	ND		360	ug/kg
Naphthalene	ND		360	ug/kg
Nitrobenzene	ND		360	ug/kg
Pentachlorophenol	ND		1700	ug/kg
Phenanthrene	ND		360	ug/kg
Pyrene	ND		360	ug/kg
Phenol	ND		360	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	75	%	25 - 121
Phenol-d5	73	%	24 - 113
Nitrobenzene-d5	71	%	23 - 120
2-Fluorobiphenyl	45	%	30 - 115
2,4,6-Tribromophenol	59	%	19 - 122
Terphenyl-d14	66	%	18 - 137

Percent moisture is 7.6%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG18-02
LAB ID: 131262-0006-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1900	ug/kg
2,4,6-Trichlorophenol	ND		390	ug/kg
2,4-Dichlorophenol	ND		390	ug/kg
2,4-Dimethylphenol	ND		390	ug/kg
2,4-Dinitrophenol	ND		1900	ug/kg
2,4-Dinitrotoluene	ND		390	ug/kg
2,6-Dinitrotoluene	ND		390	ug/kg
2-Chloronaphthalene	ND		390	ug/kg
2-Chlorophenol	ND		390	ug/kg
2-Methylnaphthalene	ND		390	ug/kg
2-Methylphenol	ND		390	ug/kg
2-Nitroaniline	ND		1900	ug/kg
2-Nitrophenol	ND		390	ug/kg
3,3'-Dichlorobenzidine	ND		790	ug/kg
3-Nitroaniline	ND		1900	ug/kg
4,6-Dinitro-2-methylphenol	ND		1900	ug/kg
4-Bromophenyl phenyl ether	ND		390	ug/kg
4-Chloro-3-methylphenol	ND		770	ug/kg
4-Chloroaniline	ND		390	ug/kg
4-Chlorophenyl phenyl ether	ND		390	ug/kg
4-Methylphenol	ND		390	ug/kg
4-Nitroaniline	ND		1900	ug/kg
4-Nitrophenol	ND		1900	ug/kg
Acenaphthene	ND		390	ug/kg
Acenaphthylene	ND		390	ug/kg
Anthracene	ND		390	ug/kg
Benzo(a)anthracene	ND		390	ug/kg
Benzo(a)pyrene	ND		390	ug/kg
Benzo(b)fluoranthene	ND		390	ug/kg
Benzo(g,h,i)perylene	ND		390	ug/kg
Benzo(k)fluoranthene	ND		390	ug/kg
bis(2-Chloroethoxy)-methane	ND		390	ug/kg
bis(2-Chloroethyl) ether	ND		390	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		390	ug/kg
Butyl benzyl phthalate	ND		390	ug/kg
Carbazole	ND		390	ug/kg
Chrysene	ND		390	ug/kg
Di-n-butyl phthalate	ND		390	ug/kg
Di-n-octyl phthalate	ND		390	ug/kg
Dibenz(a,h)anthracene	ND		390	ug/kg
Dibenzofuran	ND		390	ug/kg
Diethyl phthalate	ND		390	ug/kg
Dimethyl phthalate	ND		390	ug/kg
Fluoranthene	ND		390	ug/kg
Fluorene	ND		390	ug/kg

Percent moisture is 16.0%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG18-02
LAB ID: 131262-0006-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		390	ug/kg
Hexachlorobutadiene	ND		390	ug/kg
Hexachlorocyclopentadiene	ND		1900	ug/kg
Hexachloroethane	ND		390	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		390	ug/kg
Isophorone	ND		390	ug/kg
N-Nitroso-di-n-propylamine	ND		390	ug/kg
N-Nitrosodiphenylamine	ND		390	ug/kg
Naphthalene	ND		390	ug/kg
Nitrobenzene	ND		390	ug/kg
Pentachlorophenol	ND		1900	ug/kg
Phenanthrene	ND		390	ug/kg
Pyrene	ND		390	ug/kg
Phenol	ND		390	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	69	%	25 - 121
Phenol-d5	74	%	24 - 113
Nitrobenzene-d5	55	%	23 - 120
2-Fluorobiphenyl	55	%	30 - 115
2,4,6-Tribromophenol	62	%	19 - 122
Terphenyl-d14	60	%	18 - 137

Percent moisture is 16.0%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG16-01
LAB ID: 131262-0007-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1800	ug/kg
2,4,6-Trichlorophenol	ND		380	ug/kg
2,4-Dichlorophenol	ND		380	ug/kg
2,4-Dimethylphenol	ND		380	ug/kg
2,4-Dinitrophenol	ND		1800	ug/kg
2,4-Dinitrotoluene	ND		380	ug/kg
2,6-Dinitrotoluene	ND		380	ug/kg
2-Chloronaphthalene	ND		380	ug/kg
2-Chlorophenol	ND		380	ug/kg
2-Methylnaphthalene	ND		380	ug/kg
2-Methylphenol	ND		380	ug/kg
2-Nitroaniline	ND		1800	ug/kg
2-Nitrophenol	ND		380	ug/kg
3,3'-Dichlorobenzidine	ND		750	ug/kg
3-Nitroaniline	ND		1800	ug/kg
4,6-Dinitro-2-methylphenol	ND		1800	ug/kg
4-Bromophenyl phenyl ether	ND		380	ug/kg
4-Chloro-3-methylphenol	ND		740	ug/kg
4-Chloroaniline	ND		380	ug/kg
4-Chlorophenyl phenyl ether	ND		380	ug/kg
4-Methylphenol	ND		380	ug/kg
4-Nitroaniline	ND		1800	ug/kg
4-Nitrophenol	ND		1800	ug/kg
Acenaphthene	ND		380	ug/kg
Acenaphthylene	ND		380	ug/kg
Anthracene	ND		380	ug/kg
Benzo(a)anthracene	ND		380	ug/kg
Benzo(a)pyrene	ND		380	ug/kg
Benzo(b)fluoranthene	ND		380	ug/kg
Benzo(g,h,i)perylene	ND		380	ug/kg
Benzo(k)fluoranthene	ND		380	ug/kg
bis(2-Chloroethoxy)-methane	ND		380	ug/kg
bis(2-Chloroethyl) ether	ND		380	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		380	ug/kg
Butyl benzyl phthalate	ND		380	ug/kg
Carbazole	ND		380	ug/kg
Chrysene	ND		380	ug/kg
Di-n-butyl phthalate	ND		380	ug/kg
Di-n-octyl phthalate	ND		380	ug/kg
Dibenz(a,h)anthracene	ND		380	ug/kg
Dibenzofuran	ND		380	ug/kg
Diethyl phthalate	ND		380	ug/kg
Dimethyl phthalate	ND		380	ug/kg
Fluoranthene	ND		380	ug/kg
Fluorene	ND		380	ug/kg

Percent moisture is 12.2%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG16-01
LAB ID: 131262-0007-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		380	ug/kg
Hexachlorobutadiene	ND		380	ug/kg
Hexachlorocyclopentadiene	ND		1800	ug/kg
Hexachloroethane	ND		380	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		380	ug/kg
Isophorone	ND		380	ug/kg
N-Nitroso-di-n-propylamine	ND		380	ug/kg
N-Nitrosodiphenylamine	ND		380	ug/kg
Naphthalene	ND		380	ug/kg
Nitrobenzene	ND		380	ug/kg
Pentachlorophenol	ND		1800	ug/kg
Phenanthrene	ND		380	ug/kg
Pyrene	ND		380	ug/kg
Phenol	ND		380	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	47	%	25 - 121
Phenol-d5	52	%	24 - 113
Nitrobenzene-d5	44	%	23 - 120
2-Fluorobiphenyl	61	%	30 - 115
2,4,6-Tribromophenol	39	%	19 - 122
Terphenyl-d14	47	%	18 - 137

Percent moisture is 12.2%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG16-02
LAB ID: 131262-0008-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1900	ug/kg
2,4,6-Trichlorophenol	ND		390	ug/kg
2,4-Dichlorophenol	ND		390	ug/kg
2,4-Dimethylphenol	ND		390	ug/kg
2,4-Dinitrophenol	ND		1900	ug/kg
2,4-Dinitrotoluene	ND		390	ug/kg
2,6-Dinitrotoluene	ND		390	ug/kg
2-Chloronaphthalene	ND		390	ug/kg
2-Chlorophenol	ND		390	ug/kg
2-Methylnaphthalene	ND		390	ug/kg
2-Methylphenol	ND		390	ug/kg
2-Nitroaniline	ND		1900	ug/kg
2-Nitrophenol	ND		390	ug/kg
3,3'-Dichlorobenzidine	ND		780	ug/kg
3-Nitroaniline	ND		1900	ug/kg
4,6-Dinitro-2-methylphenol	ND		1900	ug/kg
4-Bromophenyl phenyl ether	ND		390	ug/kg
4-Chloro-3-methylphenol	ND		770	ug/kg
4-Chloroaniline	ND		390	ug/kg
4-Chlorophenyl phenyl ether	ND		390	ug/kg
4-Methylphenol	ND		390	ug/kg
4-Nitroaniline	ND		1900	ug/kg
4-Nitrophenol	ND		1900	ug/kg
Acenaphthene	ND		390	ug/kg
Acenaphthylene	ND		390	ug/kg
Anthracene	ND		390	ug/kg
Benzo(a)anthracene	ND		390	ug/kg
Benzo(a)pyrene	ND		390	ug/kg
Benzo(b)fluoranthene	ND		390	ug/kg
Benzo(g,h,i)perylene	ND		390	ug/kg
Benzo(k)fluoranthene	ND		390	ug/kg
bis(2-Chloroethoxy)-methane	ND		390	ug/kg
bis(2-Chloroethyl) ether	ND		390	ug/kg
bis(2-Ethylhexyl)-phthalate	130	J	390	ug/kg
Butyl benzyl phthalate	ND		390	ug/kg
Carbazole	ND		390	ug/kg
Chrysene	ND		390	ug/kg
Di-n-butyl phthalate	ND		390	ug/kg
Di-n-octyl phthalate	ND		390	ug/kg
Dibenz(a,h)anthracene	ND		390	ug/kg
Dibenzofuran	ND		390	ug/kg
Diethyl phthalate	ND		390	ug/kg
Dimethyl phthalate	ND		390	ug/kg
Fluoranthene	ND		390	ug/kg

Percent moisture is 15.9%. All results and limits are reported on a dry weight basis.

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG16-02
LAB ID: 131262-0008-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Fluorene	ND		390	ug/kg
Hexachlorobenzene	ND		390	ug/kg
Hexachlorobutadiene	ND		390	ug/kg
Hexachlorocyclopentadiene	ND		1900	ug/kg
Hexachloroethane	ND		390	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		390	ug/kg
Isophorone	ND		390	ug/kg
N-Nitroso-di-n-propylamine	ND		390	ug/kg
N-Nitrosodiphenylamine	ND		390	ug/kg
Naphthalene	ND		390	ug/kg
Nitrobenzene	ND		390	ug/kg
Pentachlorophenol	ND		1900	ug/kg
Phenanthrene	ND		390	ug/kg
Pyrene	ND		390	ug/kg
Phenol	ND		390	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	67	%	25 - 121
Phenol-d5	70	%	24 - 113
Nitrobenzene-d5	50	%	23 - 120
2-Fluorobiphenyl	74	%	30 - 115
2,4,6-Tribromophenol	91	%	19 - 122
Terphenyl-d14	99	%	18 - 137

Percent moisture is 15.9%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG16-03
LAB ID: 131262-0009-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1900	ug/kg
2,4,6-Trichlorophenol	ND		390	ug/kg
2,4-Dichlorophenol	ND		390	ug/kg
2,4-Dimethylphenol	ND		390	ug/kg
2,4-Dinitrophenol	ND		1900	ug/kg
2,4-Dinitrotoluene	ND		390	ug/kg
2,6-Dinitrotoluene	ND		390	ug/kg
2-Chloronaphthalene	ND		390	ug/kg
2-Chlorophenol	ND		390	ug/kg
2-Methylnaphthalene	ND		390	ug/kg
2-Methylphenol	ND		390	ug/kg
2-Nitroaniline	ND		1900	ug/kg
2-Nitrophenol	ND		390	ug/kg
3,3'-Dichlorobenzidine	ND		780	ug/kg
3-Nitroaniline	ND		1900	ug/kg
4,6-Dinitro-2-methylphenol	ND		1900	ug/kg
4-Bromophenyl phenyl ether	ND		390	ug/kg
4-Chloro-3-methylphenol	ND		770	ug/kg
4-Chloroaniline	ND		390	ug/kg
4-Chlorophenyl phenyl ether	ND		390	ug/kg
4-Methylphenol	ND		390	ug/kg
4-Nitroaniline	ND		1900	ug/kg
4-Nitrophenol	ND		1900	ug/kg
Acenaphthene	ND		390	ug/kg
Acenaphthylene	ND		390	ug/kg
Anthracene	ND		390	ug/kg
Benzo(a)anthracene	ND		390	ug/kg
Benzo(a)pyrene	ND		390	ug/kg
Benzo(b)fluoranthene	ND		390	ug/kg
Benzo(g,h,i)perylene	ND		390	ug/kg
Benzo(k)fluoranthene	ND		390	ug/kg
bis(2-Chloroethoxy)-methane	ND		390	ug/kg
bis(2-Chloroethyl) ether	ND		390	ug/kg
bis(2-Ethylhexyl)-phthalate	85	J	390	ug/kg
Butyl benzyl phthalate	ND		390	ug/kg
Carbazole	ND		390	ug/kg
Chrysene	ND		390	ug/kg
Di-n-butyl phthalate	ND		390	ug/kg
Di-n-octyl phthalate	ND		390	ug/kg
Dibenz(a,h)anthracene	ND		390	ug/kg
Dibenzofuran	ND		390	ug/kg
Diethyl phthalate	ND		390	ug/kg
Dimethyl phthalate	ND		390	ug/kg
Fluoranthene	ND		390	ug/kg

Percent moisture is 15.7%. All results and limits are reported on a dry weight basis.

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG16-03
LAB ID: 131262-0009-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Fluorene	ND		390	ug/kg
Hexachlorobenzene	ND		390	ug/kg
Hexachlorobutadiene	ND		390	ug/kg
Hexachlorocyclopentadiene	ND		1900	ug/kg
Hexachloroethane	ND		390	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		390	ug/kg
Isophorone	ND		390	ug/kg
N-Nitroso-di-n-propylamine	ND		390	ug/kg
N-Nitrosodiphenylamine	ND		390	ug/kg
Naphthalene	ND		390	ug/kg
Nitrobenzene	ND		390	ug/kg
Pentachlorophenol	ND		1900	ug/kg
Phenanthrene	ND		390	ug/kg
Pyrene	ND		390	ug/kg
Phenol	ND		390	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	66	%	25 - 121
Phenol-d5	63	%	24 - 113
Nitrobenzene-d5	62	%	23 - 120
2-Fluorobiphenyl	59	%	30 - 115
2,4,6-Tribromophenol	54	%	19 - 122
Terphenyl-d14	50	%	18 - 137

Percent moisture is 15.7%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG10-01
LAB ID: 131262-0010-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1800	ug/kg
2,4,6-Trichlorophenol	ND		380	ug/kg
2,4-Dichlorophenol	ND		380	ug/kg
2,4-Dimethylphenol	ND		380	ug/kg
2,4-Dinitrophenol	ND		1800	ug/kg
2,4-Dinitrotoluene	ND		380	ug/kg
2,6-Dinitrotoluene	ND		380	ug/kg
2-Chloronaphthalene	ND		380	ug/kg
2-Chlorophenol	ND		380	ug/kg
2-Methylnaphthalene	ND		380	ug/kg
2-Methylphenol	ND		380	ug/kg
2-Nitroaniline	ND		1800	ug/kg
2-Nitrophenol	ND		380	ug/kg
3,3'-Dichlorobenzidine	ND		750	ug/kg
3-Nitroaniline	ND		1800	ug/kg
4,6-Dinitro-2-methylphenol	ND		1800	ug/kg
4-Bromophenyl phenyl ether	ND		380	ug/kg
4-Chloro-3-methylphenol	ND		740	ug/kg
4-Chloroaniline	ND		380	ug/kg
4-Chlorophenyl phenyl ether	ND		380	ug/kg
4-Methylphenol	ND		380	ug/kg
4-Nitroaniline	ND		1800	ug/kg
4-Nitrophenol	ND		1800	ug/kg
Acenaphthene	ND		380	ug/kg
Acenaphthylene	ND		380	ug/kg
Anthracene	ND		380	ug/kg
Benzo(a)anthracene	ND		380	ug/kg
Benzo(a)pyrene	ND		380	ug/kg
Benzo(b)fluoranthene	ND		380	ug/kg
Benzo(g,h,i)perylene	ND		380	ug/kg
Benzo(k)fluoranthene	ND		380	ug/kg
bis(2-Chloroethoxy)-methane	ND		380	ug/kg
bis(2-Chloroethyl) ether	ND		380	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		380	ug/kg
Butyl benzyl phthalate	ND		380	ug/kg
Carbazole	ND		380	ug/kg
Chrysene	ND		380	ug/kg
Di-n-butyl phthalate	ND		380	ug/kg
Di-n-octyl phthalate	ND		380	ug/kg
Dibenz(a,h)anthracene	ND		380	ug/kg
Dibenzofuran	ND		380	ug/kg
Diethyl phthalate	ND		380	ug/kg
Dimethyl phthalate	ND		380	ug/kg
Fluoranthene	ND		380	ug/kg
Fluorene	ND		380	ug/kg

Percent moisture is 12.3%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG10-01
LAB ID: 131262-0010-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		380	ug/kg
Hexachlorobutadiene	ND		380	ug/kg
Hexachlorocyclopentadiene	ND		1800	ug/kg
Hexachloroethane	ND		380	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		380	ug/kg
Isophorone	ND		380	ug/kg
N-Nitroso-di-n-propylamine	ND		380	ug/kg
N-Nitrosodiphenylamine	ND		380	ug/kg
Naphthalene	ND		380	ug/kg
Nitrobenzene	ND		380	ug/kg
Pentachlorophenol	ND		1800	ug/kg
Phenanthrene	ND		380	ug/kg
Pyrene	ND		380	ug/kg
Phenol	ND		380	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	86	%	25 - 121
Phenol-d5	82	%	24 - 113
Nitrobenzene-d5	47	%	23 - 120
2-Fluorobiphenyl	61	%	30 - 115
2,4,6-Tribromophenol	100	%	19 - 122
Terphenyl-d14	120	%	18 - 137

Percent moisture is 12.3%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG10-02
LAB ID: 131262-0011-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		2200	ug/kg
2,4,6-Trichlorophenol	ND		450	ug/kg
2,4-Dichlorophenol	ND		450	ug/kg
2,4-Dimethylphenol	ND		450	ug/kg
2,4-Dinitrophenol	ND		2200	ug/kg
2,4-Dinitrotoluene	ND		450	ug/kg
2,6-Dinitrotoluene	ND		450	ug/kg
2-Chloronaphthalene	ND		450	ug/kg
2-Chlorophenol	ND		450	ug/kg
2-Methylnaphthalene	ND		450	ug/kg
2-Methylphenol	ND		450	ug/kg
2-Nitroaniline	ND		2200	ug/kg
2-Nitrophenol	ND		450	ug/kg
3,3'-Dichlorobenzidine	ND		900	ug/kg
3-Nitroaniline	ND		2200	ug/kg
4,6-Dinitro-2-methylphenol	ND		2200	ug/kg
4-Bromophenyl phenyl ether	ND		450	ug/kg
4-Chloro-3-methylphenol	ND		880	ug/kg
4-Chloroaniline	ND		450	ug/kg
4-Chlorophenyl phenyl ether	ND		450	ug/kg
4-Methylphenol	ND		450	ug/kg
4-Nitroaniline	ND		2200	ug/kg
4-Nitrophenol	ND		2200	ug/kg
Acenaphthene	ND		450	ug/kg
Acenaphthylene	ND		450	ug/kg
Anthracene	ND		450	ug/kg
Benzo(a)anthracene	ND		450	ug/kg
Benzo(a)pyrene	ND		450	ug/kg
Benzo(b)fluoranthene	ND		450	ug/kg
Benzo(g,h,i)perylene	ND		450	ug/kg
Benzo(k)fluoranthene	ND		450	ug/kg
bis(2-Chloroethoxy)-methane	ND		450	ug/kg
bis(2-Chloroethyl) ether	ND		450	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		450	ug/kg
Butyl benzyl phthalate	ND		450	ug/kg
Carbazole	ND		450	ug/kg
Chrysene	ND		450	ug/kg
Di-n-butyl phthalate	ND		450	ug/kg
Di-n-octyl phthalate	ND		450	ug/kg
Dibenz(a,h)anthracene	ND		450	ug/kg
Dibenzofuran	ND		450	ug/kg
Diethyl phthalate	ND		450	ug/kg
Dimethyl phthalate	ND		450	ug/kg
Fluoranthene	ND		450	ug/kg
Fluorene	ND		450	ug/kg

Percent moisture is 26.3%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG10-02
LAB ID: 131262-0011-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		450	ug/kg
Hexachlorobutadiene	ND		450	ug/kg
Hexachlorocyclopentadiene	ND		2200	ug/kg
Hexachloroethane	ND		450	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		450	ug/kg
Isophorone	ND		450	ug/kg
N-Nitroso-di-n-propylamine	ND		450	ug/kg
N-Nitrosodiphenylamine	ND		450	ug/kg
Naphthalene	ND		450	ug/kg
Nitrobenzene	ND		450	ug/kg
Pentachlorophenol	ND		2200	ug/kg
Phenanthrene	ND		450	ug/kg
Pyrene	ND		450	ug/kg
Phenol	ND		450	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	92	%	25 - 121
Phenol-d5	83	%	24 - 113
Nitrobenzene-d5	42	%	23 - 120
2-Fluorobiphenyl	53	%	30 - 115
2,4,6-Tribromophenol	98	%	19 - 122
Terphenyl-d14	108	%	18 - 137

Percent moisture is 26.3%. All results and limits are reported on a dry weight basis.

ND = Not Detected

QC LOT ASSIGNMENT REPORT - MS QC
Semivolatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
131262-0001-SA	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA
131262-0002-SA	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA
131262-0003-SA	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA
131262-0003-MS	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA
131262-0003-SD	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA
131262-0004-SA	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA
131262-0005-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131262-0005-MS	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131262-0005-SD	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131262-0006-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131262-0007-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131262-0008-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131262-0009-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131262-0010-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131262-0011-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA

METHOD BLANK REPORT
Semivolatile Organics by GC/MS
Project: 131262

Test: Q8270-TCL-3510-A Method SW8270B - TCL Semivolatile Organics
Matrix: AQUEOUS
QC Run: 23 MAR 98-AX Date Analyzed: 27 MAR 98

Analyte	Result	Units	Reporting Limit
2,4,5-Trichlorophenol	ND	ug/L	10
2,4,6-Trichlorophenol	ND	ug/L	10
2,4-Dichlorophenol	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
2-Methylphenol	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
2-Nitrophenol	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4,6-Dinitro-2-methylphenol	ND	ug/L	50
4-Bromophenyl phenyl ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
4-Chloroaniline	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
4-Methylphenol	ND	ug/L	10
4-Nitroaniline	ND	ug/L	50
4-Nitrophenol	ND	ug/L	50
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Anthracene	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
bis(2-Chloroethoxy)-methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Ethylhexyl)-phthalate	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
Carbazole	ND	ug/L	10
Chrysene	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	1.0
Hexachlorobutadiene	ND	ug/L	10

ND = Not Detected

METHOD BLANK REPORT (cont.)
Semivolatile Organics by GC/MS
Project: 131262

Test: Q8270-TCL-3510-A Method SW8270B - TCL Semivolatile Organics (cont.)
Matrix: AQUEOUS
QC Run: 23 MAR 98-AX Date Analyzed: 27 MAR 98

Analyte	Result	Units	Reporting Limit
Hexachlorocyclopentadiene	ND	ug/L	50
Hexachloroethane	ND	ug/L	10
Indeno(1,2,3-c,d)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
Naphthalene	ND	ug/L	10
Nitrobenzene	ND	ug/L	10
Pentachlorophenol	ND	ug/L	50
Phenanthrene	ND	ug/L	10
Pyrene	ND	ug/L	10
Phenol	ND	ug/L	10

Surrogate	Recovery	Acceptable Range
2-Fluorophenol	61	21 -100
Phenol-d5	41	10 -94
Nitrobenzene-d5	89	34 -114
2-Fluorobiphenyl	89	43 -116
2,4,6-Tribromophenol	90	10 -123
Terphenyl-d14	99	33 -141

ND = Not Detected

LABORATORY CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS
Project: 131262

Category: Q8270-S-A Acid, Base and Neutrals by GC/MS.
Matrix: AQUEOUS Date Analyzed: 27 MAR 98
QC Run: 23 MAR 98-AX
Concentration Units: ug/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Phenol	200	72.6	36	10-96
2-Chlorophenol	200	141	71	55-105
1,4-Dichlorobenzene	100	69.3	69	56-103
N-Nitroso-di-n-propylamine	100	80.9	81	58-109
1,2,4-Trichlorobenzene	100	72.9	73	55-106
4-Chloro-3-methylphenol	200	165	83	67-104
Acenaphthene	100	81.8	82	63-117
4-Nitrophenol	200	79.7	40	10-111
2,4-Dinitrotoluene	100	93.8	94	70-110
Pentachlorophenol	200	190	95	46-133
Pyrene	100	83.6	84	67-120

Surrogates	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
2-Fluorophenol	200	96.2	48	21-100
Phenol-d5	200	68.1	34	10-94
Nitrobenzene-d5	100	78.1	78	34-114
2-Fluorobiphenyl	100	77.1	77	43-116
2,4,6-Tribromophenol	200	169	85	10-123
Terphenyl-d14	100	77.5	78	33-141

Category: Q8270-S Method SW8270 - Acid, Base and Neutrals by GC/MS.
Matrix: SOLID Date Analyzed: 28 MAR 98
QC Run: 23 MAR 98-CX
Concentration Units: ug/kg

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Phenol	6670	4990	75	39-115
2-Chlorophenol	6670	5160	77	55-108
1,4-Dichlorobenzene	3330	2890	87	56-107
N-Nitroso-di-n-propylamine	3330	2800	84	14-110
1,2,4-Trichlorobenzene	3330	2710	81	54-104
4-Chloro-3-methylphenol	6670	4490	67	52-120
Acenaphthene	3330	2600	78	60-114
4-Nitrophenol	6670	4110	62	56-142
2,4-Dinitrotoluene	3330	2840	85	62-117
Pentachlorophenol	6670	6800	102	49-132
Pyrene	3330	2760	83	61-106

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS (cont.)
Project: 131262

Surrogates	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
2-Fluorophenol	6670	5910	89	25-121
Phenol-d5	6670	5310	80	24-113
Nitrobenzene-d5	3330	3100	93	23-120
2-Fluorobiphenyl	3330	2650	80	30-115
2,4,6-Tribromophenol	6670	4960	74	19-122
Terphenyl-d14	3330	2720	82	18-137

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT (cont.)
Semivolatile Organics by GC/MS
Project: 131262

Test: Q8270-TCL-L-S Method 8270B - TCL Semivolatile Organics
Matrix: SOLID
QC Run: 23 MAR 98-CX Date Analyzed: 28 MAR 98

Analyte	Result	Units	Reporting Limit
2,4,5-Trichlorophenol	ND	ug/kg	1600
2,4,6-Trichlorophenol	ND	ug/kg	330
2,4-Dichlorophenol	ND	ug/kg	330
2,4-Dimethylphenol	ND	ug/kg	330
2,4-Dinitrophenol	ND	ug/kg	1600
2,4-Dinitrotoluene	ND	ug/kg	330
2,6-Dinitrotoluene	ND	ug/kg	330
2-Chloronaphthalene	ND	ug/kg	330
2-Chlorophenol	ND	ug/kg	330
2-Methylnaphthalene	ND	ug/kg	330
2-Methylphenol	ND	ug/kg	330
2-Nitroaniline	ND	ug/kg	1600
2-Nitrophenol	ND	ug/kg	330
3,3'-Dichlorobenzidine	ND	ug/kg	660
3-Nitroaniline	ND	ug/kg	1600
4,6-Dinitro-2-methylphenol	ND	ug/kg	1600
4-Bromophenyl phenyl ether	ND	ug/kg	330
4-Chloro-3-methylphenol	ND	ug/kg	650
4-Chloroaniline	ND	ug/kg	330
4-Chlorophenyl phenyl ether	ND	ug/kg	330
4-Methylphenol	ND	ug/kg	330
4-Nitroaniline	ND	ug/kg	1600
4-Nitrophenol	ND	ug/kg	1600
Acenaphthene	ND	ug/kg	330
Acenaphthylene	ND	ug/kg	330
Anthracene	ND	ug/kg	330
Benzo(a)anthracene	ND	ug/kg	330
Benzo(a)pyrene	ND	ug/kg	330
Benzo(b)fluoranthene	ND	ug/kg	330
Benzo(g,h,i)perylene	ND	ug/kg	330
Benzo(k)fluoranthene	ND	ug/kg	330
bis(2-Chloroethoxy)-methane	ND	ug/kg	330
bis(2-Chloroethyl) ether	ND	ug/kg	330
bis(2-Ethylhexyl)-phthalate	ND	ug/kg	330
Butyl benzyl phthalate	ND	ug/kg	330
Carbazole	ND	ug/kg	330
Chrysene	ND	ug/kg	330
Di-n-butyl phthalate	ND	ug/kg	330
Di-n-octyl phthalate	ND	ug/kg	330
Dibenz(a,h)anthracene	ND	ug/kg	330
Dibenzofuran	ND	ug/kg	330
Diethyl phthalate	ND	ug/kg	330
Dimethyl phthalate	ND	ug/kg	330
Fluoranthene	ND	ug/kg	330
Fluorene	ND	ug/kg	330
Hexachlorobenzene	ND	ug/kg	330

ND = Not Detected

METHOD BLANK REPORT (cont.)
Semivolatile Organics by GC/MS
Project: 131262

Test: Q8270-TCL-L-S Method 8270B - TCL Semivolatile Organics (cont.)
Matrix: SOLID
QC Run: 23 MAR 98-CX Date Analyzed: 28 MAR 98

Analyte	Result	Units	Reporting Limit
Hexachlorobutadiene	ND	ug/kg	330
Hexachlorocyclopentadiene	ND	ug/kg	1600
Hexachloroethane	ND	ug/kg	330
Indeno(1,2,3-c,d)pyrene	ND	ug/kg	330
Isophorone	ND	ug/kg	330
N-Nitroso-di-n-propylamine	ND	ug/kg	330
N-Nitrosodiphenylamine	ND	ug/kg	330
Naphthalene	ND	ug/kg	330
Nitrobenzene	ND	ug/kg	330
Pentachlorophenol	ND	ug/kg	1600
Phenanthrene	ND	ug/kg	330
Pyrene	ND	ug/kg	330
Phenol	ND	ug/kg	330

Surrogate	Recovery	Acceptable Range
2-Fluorophenol	102	25 -121
Phenol-d5	85	24 -113
Nitrobenzene-d5	75	23 -120
2-Fluorobiphenyl	80	30 -115
2,4,6-Tribromophenol	75	19 -122
Terphenyl-d14	107	18 -137

ND = Not Detected

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Semivolatile Organics by GC/MS
Project: 131262

Category: Q8270-S-A Acid, Base and Neutrals by GC/MS.
Matrix: AQUEOUS
Sample: 131262-0003
MS Run: 23 MAR 98-AA
Units: ug/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Phenol	ND	64.3	69.2	200	32	35	7.3	10-96	57
2-Chlorophenol	ND	128	139	200	64	70	8.7	55-105	37
N-Nitroso-di-n-propylamine	ND	69.3	72.4	100	69	72	4.4	58-109	30
4-Chloro-3-methylphenol	ND	148	160	200	74	80	7.7	67-104	36
Acenaphthene	ND	65.6	67.3	100	66	67	2.5	63-117	23
4-Nitrophenol	ND	63.4	66.4	200	32	33	4.5	10-111	49
2,4-Dinitrotoluene	ND	82.0	85.1	100	82	85	3.7	70-110	30
Pentachlorophenol	ND	140	162	200	70	81	14	46-133	39
Pyrene	ND	62.9 n	69.1	100	63	69	9.4	67-120	34

Surrogates	Sample %Recovery	%Recovery MS	%Recovery MSD	Acceptance Limit Recovery
2-Fluorophenol	50	42	47	21-100
Phenol-d5	33	30	33	10-94
Nitrobenzene-d5	72	67	70	34-114
2-Fluorobiphenyl	66	60	63	43-116
2,4,6-Tribromophenol	75	62	72	10-123
Terphenyl-d14	72	58	64	33-141

Category: Q8270-S Method SW8270 - Acid, Base and Neutrals by GC/MS.
Matrix: SOLID
Sample: 131262-0005
MS Run: 23 MAR 98-CA
Units ug/kg Units Qualifier: Wet weight

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Phenol	ND	4580	5120	6670	69	77	11	39-115	39
2-Chlorophenol	ND	4240	4870	6670	64	73	14	55-108	38
N-Nitroso-di-n-propylamine	ND	2420	2660	3330	73	80	9.4	14-110	41
4-Chloro-3-methylphenol	ND	4150	4710	6670	62	71	13	52-120	23

n = Spiked analyte out of matrix spike acceptance limits; refer to lab control sample results.
ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Semivolatile Organics by GC/MS
Project: 131262 (cont.)

Category: Q8270-S Method SW8270 - Acid, Base and Neutrals by GC/MS. (cont.)
Matrix: SOLID
Sample: 131262-0005
MS Run: 23 MAR 98-CA (cont.)
Units ug/kg Units Qualifier: Wet weight

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
	Concentration								
Acenaphthene	ND	2530	2670	3330	76	80	5.4	60-114	20
4-Nitrophenol	ND	4820	4670	6670	72	70	3.2	56-142	42
2,4-Dinitrotoluene	ND	2910	2790	3330	87	84	4.2	62-117	25
Pentachlorophenol	ND	6520	6790	6670	98	102	4.1	49-132	37
Pyrene	ND	3290	2580	3330	99	77	24	61-106	32

Surrogates	Sample %Recovery	%Recovery MS	%Recovery MSD	Acceptance Limit Recovery
2-Fluorophenol	75	74	73	25-121
Phenol-d5	73	74	74	24-113
Nitrobenzene-d5	71	58	76	23-120
2-Fluorobiphenyl	45	58	68	30-115
2,4,6-Tribromophenol	59	78	70	19-122
Terphenyl-d14	66	86	73	18-137

ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

Metals

METALS
(Water - Dissolved)

Client Name: Woodward-Clyde Consultants
Client ID: HG18-10-W
LAB ID: 131262-0001-SA
Matrix: WATER — Sampled: 19 MAR 98 — Received: 19 MAR 98
Authorized: 20 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	ND		1.0	0.060	mg/L	6010A	26 MAR 98	27 MAR 98
Arsenic	0.058	J	1.0	0.30	mg/L	6010A	26 MAR 98	27 MAR 98
Barium	0.074	J	1.0	0.20	mg/L	6010A	26 MAR 98	27 MAR 98
Beryllium	0.0013	J	1.0	0.0050	mg/L	6010A	26 MAR 98	27 MAR 98
Cadmium	ND		1.0	0.0050	mg/L	6010A	26 MAR 98	27 MAR 98
Chromium	0.035		1.0	0.010	mg/L	6010A	26 MAR 98	27 MAR 98
Cobalt	0.0052	J	1.0	0.050	mg/L	6010A	26 MAR 98	27 MAR 98
Copper	0.017	J	1.0	0.025	mg/L	6010A	26 MAR 98	27 MAR 98
Lead	ND		1.0	0.10	mg/L	6010A	26 MAR 98	27 MAR 98
Mercury	ND		1.0	0.00020	mg/L	7470A	24 MAR 98	25 MAR 98
Molybdenum	0.032	J	1.0	0.040	mg/L	6010A	26 MAR 98	27 MAR 98
Nickel	0.013	J	1.0	0.040	mg/L	6010A	26 MAR 98	27 MAR 98
Selenium	ND		1.0	0.25	mg/L	6010A	26 MAR 98	27 MAR 98
Silver	ND		1.0	0.010	mg/L	6010A	26 MAR 98	27 MAR 98
Thallium	ND		1.0	2.0	mg/L	6010A	26 MAR 98	27 MAR 98
Vanadium	0.21		1.0	0.050	mg/L	6010A	26 MAR 98	27 MAR 98
Zinc	0.058		1.0	0.020	mg/L	6010A	26 MAR 98	27 MAR 98

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS
(Water - Dissolved)

Client Name: Woodward-Clyde Consultants
Client ID: HG18-11-W
LAB ID: 131262-0002-SA
Matrix: WATER
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	ND		1.0	0.060	mg/L	6010A	26 MAR 98	27 MAR 98
Arsenic	ND		1.0	0.30	mg/L	6010A	26 MAR 98	27 MAR 98
Barium	0.050	J	1.0	0.20	mg/L	6010A	26 MAR 98	27 MAR 98
Beryllium	ND		1.0	0.0050	mg/L	6010A	26 MAR 98	27 MAR 98
Cadmium	ND		1.0	0.0050	mg/L	6010A	26 MAR 98	27 MAR 98
Chromium	0.013		1.0	0.010	mg/L	6010A	26 MAR 98	27 MAR 98
Cobalt	ND		1.0	0.050	mg/L	6010A	26 MAR 98	27 MAR 98
Copper	0.0079	J	1.0	0.025	mg/L	6010A	26 MAR 98	27 MAR 98
Lead	ND		1.0	0.10	mg/L	6010A	26 MAR 98	27 MAR 98
Mercury	ND		1.0	0.00020	mg/L	7470A	24 MAR 98	25 MAR 98
Molybdenum	0.022	J	1.0	0.040	mg/L	6010A	26 MAR 98	27 MAR 98
Nickel	0.0063	J	1.0	0.040	mg/L	6010A	26 MAR 98	27 MAR 98
Selenium	ND		1.0	0.25	mg/L	6010A	26 MAR 98	27 MAR 98
Silver	ND		1.0	0.010	mg/L	6010A	26 MAR 98	27 MAR 98
Thallium	ND		1.0	2.0	mg/L	6010A	26 MAR 98	27 MAR 98
Vanadium	0.10		1.0	0.050	mg/L	6010A	26 MAR 98	27 MAR 98
Zinc	0.019	J	1.0	0.020	mg/L	6010A	26 MAR 98	27 MAR 98

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS
(Water - Dissolved)

Client Name: Woodward-Clyde Consultants
Client ID: HG16-10-W
LAB ID: 131262-0003-SA
Matrix: WATER
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	ND		1.0	0.060	mg/L	6010A	26 MAR 98	27 MAR 98
Arsenic	ND		1.0	0.30	mg/L	6010A	26 MAR 98	27 MAR 98
Barium	0.013	J	1.0	0.20	mg/L	6010A	26 MAR 98	27 MAR 98
Beryllium	ND		1.0	0.0050	mg/L	6010A	26 MAR 98	27 MAR 98
Cadmium	ND		1.0	0.0050	mg/L	6010A	26 MAR 98	27 MAR 98
Chromium	ND		1.0	0.010	mg/L	6010A	26 MAR 98	27 MAR 98
Cobalt	ND		1.0	0.050	mg/L	6010A	26 MAR 98	27 MAR 98
Copper	ND		1.0	0.025	mg/L	6010A	26 MAR 98	27 MAR 98
Lead	ND		1.0	0.10	mg/L	6010A	26 MAR 98	27 MAR 98
Mercury	ND		1.0	0.00020	mg/L	7470A	24 MAR 98	25 MAR 98
Molybdenum	0.015	J	1.0	0.040	mg/L	6010A	26 MAR 98	27 MAR 98
Nickel	ND		1.0	0.040	mg/L	6010A	26 MAR 98	27 MAR 98
Selenium	ND		1.0	0.25	mg/L	6010A	26 MAR 98	27 MAR 98
Silver	ND		1.0	0.010	mg/L	6010A	26 MAR 98	27 MAR 98
Thallium	ND		1.0	2.0	mg/L	6010A	26 MAR 98	27 MAR 98
Vanadium	0.016	J	1.0	0.050	mg/L	6010A	26 MAR 98	27 MAR 98
Zinc	ND		1.0	0.020	mg/L	6010A	26 MAR 98	27 MAR 98

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS
(Water - Dissolved)

Client Name: Woodward-Clyde Consultants
Client ID: RBHG10-W
LAB ID: 131262-0004-SA
Matrix: WATER
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	ND		1.0	0.060	mg/L	6010A	26 MAR 98	27 MAR 98
Arsenic	ND		1.0	0.30	mg/L	6010A	26 MAR 98	27 MAR 98
Barium	ND		1.0	0.20	mg/L	6010A	26 MAR 98	27 MAR 98
Beryllium	ND		1.0	0.0050	mg/L	6010A	26 MAR 98	27 MAR 98
Cadmium	ND		1.0	0.0050	mg/L	6010A	26 MAR 98	27 MAR 98
Chromium	ND		1.0	0.010	mg/L	6010A	26 MAR 98	27 MAR 98
Cobalt	ND		1.0	0.050	mg/L	6010A	26 MAR 98	27 MAR 98
Copper	ND		1.0	0.025	mg/L	6010A	26 MAR 98	27 MAR 98
Lead	ND		1.0	0.10	mg/L	6010A	26 MAR 98	27 MAR 98
Mercury	ND		1.0	0.00020	mg/L	7470A	24 MAR 98	25 MAR 98
Molybdenum	ND		1.0	0.040	mg/L	6010A	26 MAR 98	27 MAR 98
Nickel	ND		1.0	0.040	mg/L	6010A	26 MAR 98	27 MAR 98
Selenium	ND		1.0	0.25	mg/L	6010A	26 MAR 98	27 MAR 98
Silver	ND		1.0	0.010	mg/L	6010A	26 MAR 98	27 MAR 98
Thallium	ND		1.0	2.0	mg/L	6010A	26 MAR 98	27 MAR 98
Vanadium	ND		1.0	0.050	mg/L	6010A	26 MAR 98	27 MAR 98
Zinc	ND		1.0	0.020	mg/L	6010A	26 MAR 98	27 MAR 98

ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG18-01
LAB ID: 131262-0005-SA
Matrix: SOIL — Sampled: 19 MAR 98 — Received: 19 MAR 98
Authorized: 20 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.47	J	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	3.2	q	1.0	0.27	mg/kg	7060A	25 MAR 98	27 MAR 98
Barium	48.3	B	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.29		1.0	0.11	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.17	J	1.0	0.54	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	17.0		1.0	0.54	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	6.0		1.0	5.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	18.2		1.0	2.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	6.6		1.0	0.54	mg/kg	6010A	25 MAR 98	26 MAR 98
Mercury	ND		1.0	0.11	mg/kg	SW7471	25 MAR 98	25 MAR 98
Molybdenum	1.6	J	1.0	4.3	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	11.4		1.0	4.3	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.54	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.54	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	0.81	J	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	24.9		1.0	5.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	35.5		1.0	2.2	mg/kg	6010A	25 MAR 98	26 MAR 98

Percent moisture is 7.6%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
q = Post-digestion spike recovery fell between 40 and 85% due to matrix interference.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG18-02
LAB ID: 131262-0006-SA
Matrix: SOIL — Sampled: 19 MAR 98 — Received: 19 MAR 98
Authorized: 20 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.38	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	2.5	q	1.0	0.30	mg/kg	7060A	25 MAR 98	27 MAR 98
Barium	32.8	B	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.22		1.0	0.12	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.071	J	1.0	0.60	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	14.5		1.0	0.60	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	3.9	J	1.0	6.0	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	5.7		1.0	3.0	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	1.9		1.0	0.60	mg/kg	6010A	25 MAR 98	26 MAR 98
Mercury	0.037	J	1.0	0.12	mg/kg	SW7471	25 MAR 98	25 MAR 98
Molybdenum	1.2	J	1.0	4.8	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	8.4		1.0	4.8	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.60	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.60	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	0.95	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	20.5		1.0	6.0	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	30.1		1.0	2.4	mg/kg	6010A	25 MAR 98	26 MAR 98

Percent moisture is 16.0%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
q = Post-digestion spike recovery fell between 40 and 85% due to matrix interference.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG16-01
LAB ID: 131262-0007-SA
Matrix: SOIL — Sampled: 19 MAR 98 — Received: 19 MAR 98
Authorized: 20 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.59	J	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	3.0	q	1.0	0.28	mg/kg	7060A	25 MAR 98	27 MAR 98
Barium	55.1	B	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.49		1.0	0.11	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.20	J	1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	19.9		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	6.4		1.0	5.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	17.1		1.0	2.8	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	8.6		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Mercury	ND		1.0	0.11	mg/kg	SW7471	25 MAR 98	25 MAR 98
Molybdenum	2.9	J	1.0	4.6	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	13.3		1.0	4.6	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	1.0	J	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	33.7		1.0	5.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	58.3		1.0	2.3	mg/kg	6010A	25 MAR 98	26 MAR 98

Percent moisture is 12.2%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
q = Post-digestion spike recovery fell between 40 and 85% due to matrix interference.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG16-02
LAB ID: 131262-0008-SA
Matrix: SOIL — Sampled: 19 MAR 98 — Received: 19 MAR 98
Authorized: 20 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.44	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	3.1	q	1.0	0.30	mg/kg	7060A	25 MAR 98	27 MAR 98
Barium	34.3	B	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.25		1.0	0.12	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.099	J	1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	14.9		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	4.1	J	1.0	5.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	6.3		1.0	3.0	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	2.1		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Mercury	ND		1.0	0.12	mg/kg	SW7471	25 MAR 98	25 MAR 98
Molybdenum	1.1	J	1.0	4.8	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	9.1		1.0	4.8	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	0.74	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	24.1		1.0	5.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	32.5		1.0	2.4	mg/kg	6010A	25 MAR 98	26 MAR 98

Percent moisture is 15.9%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
q = Post-digestion spike recovery fell between 40 and 85% due to matrix interference.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG16-03
LAB ID: 131262-0009-SA
Matrix: SOIL — Sampled: 19 MAR 98 — Received: 19 MAR 98
Authorized: 20 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.45	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	3.8		1.0	0.30	mg/kg	7060A	25 MAR 98	27 MAR 98
Barium	37.4	B	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.31		1.0	0.12	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.14	J	1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	18.1		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	4.7	J	1.0	5.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	9.5		1.0	3.0	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	3.6		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Mercury	ND		1.0	0.12	mg/kg	SW7471	25 MAR 98	25 MAR 98
Molybdenum	1.3	J	1.0	4.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	13.9		1.0	4.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	1.0	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	29.9		1.0	5.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	37.7		1.0	2.4	mg/kg	6010A	25 MAR 98	26 MAR 98

Percent moisture is 15.7%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG10-01
LAB ID: 131262-0010-SA
Matrix: SOIL — Sampled: 19 MAR 98 — Received: 19 MAR 98
Authorized: 20 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.38	J	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	1.7	q	1.0	0.29	mg/kg	7060A	25 MAR 98	27 MAR 98
Barium	25.9	B	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.32		1.0	0.11	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.084	J	1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	15.4		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	4.1	J	1.0	5.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	4.3		1.0	2.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	2.2		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Mercury	ND		1.0	0.11	mg/kg	SW7471	25 MAR 98	25 MAR 98
Molybdenum	0.67	J	1.0	4.6	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	8.6		1.0	4.6	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	0.61	J	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	22.4		1.0	5.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	21.6		1.0	2.3	mg/kg	6010A	25 MAR 98	26 MAR 98

Percent moisture is 12.3%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
q = Post-digestion spike recovery fell between 40 and 85% due to matrix interference.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG10-02
LAB ID: 131262-0011-SA
Matrix: SOIL — Sampled: 19 MAR 98 — Received: 19 MAR 98
Authorized: 20 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	1.3	GJ	2.0	2.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	5.0		5.0	1.7	mg/kg	7060A	25 MAR 98	27 MAR 98
Barium	166	GB	2.0	2.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.99	G	2.0	0.27	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.48	GJ	2.0	1.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	40.7	G	2.0	1.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	15.1	G	2.0	13.6	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	42.5	G	2.0	6.8	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	13.5	G	2.0	1.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Mercury	0.037	J	1.0	0.14	mg/kg	SW7471	25 MAR 98	25 MAR 98
Molybdenum	1.8	GJ	2.0	10.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	27.5	G	2.0	10.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND	G	2.0	1.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND	G	2.0	1.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	ND	G	2.0	2.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	78.7	G	2.0	13.6	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	108	G	2.0	5.4	mg/kg	6010A	25 MAR 98	26 MAR 98

Percent moisture is 26.3%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
G = Reporting limit(s) raised due to matrix interference.
J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

QC LOT ASSIGNMENT REPORT - MS QC
Metals Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
131262-0001-SA	AQUEOUS	QICP-A		26 MAR 98-PTX	26 MAR 98-PA
131262-0002-SA	AQUEOUS	QICP-A		26 MAR 98-PTX	26 MAR 98-PA
131262-0003-SA	AQUEOUS	QICP-A		26 MAR 98-PTX	26 MAR 98-PA
131262-0003-MS	AQUEOUS	QICP-A		26 MAR 98-PTX	26 MAR 98-PA
131262-0003-SD	AQUEOUS	QICP-A		26 MAR 98-PTX	26 MAR 98-PA
131262-0004-SA	AQUEOUS	QICP-A		26 MAR 98-PTX	26 MAR 98-PA
131262-0001-SA	AQUEOUS	QHG-A		24 MAR 98-JX	24 MAR 98-JA
131262-0002-SA	AQUEOUS	QHG-A		24 MAR 98-JX	24 MAR 98-JA
131262-0003-SA	AQUEOUS	QHG-A		24 MAR 98-JX	24 MAR 98-JA
131262-0003-MS	AQUEOUS	QHG-A		24 MAR 98-JX	24 MAR 98-JA
131262-0003-SD	AQUEOUS	QHG-A		24 MAR 98-JX	24 MAR 98-JA
131262-0004-SA	AQUEOUS	QHG-A		24 MAR 98-JX	24 MAR 98-JA
131262-0005-SA	SOLID	QHG-S		25 MAR 98-HX	25 MAR 98-HA
131262-0006-SA	SOLID	QHG-S		25 MAR 98-HX	25 MAR 98-HA
131262-0007-SA	SOLID	QHG-S		25 MAR 98-HX	25 MAR 98-HA
131262-0008-SA	SOLID	QHG-S		25 MAR 98-HX	25 MAR 98-HA
131262-0009-SA	SOLID	QHG-S		25 MAR 98-HX	25 MAR 98-HA
131262-0010-SA	SOLID	QHG-S		25 MAR 98-HX	25 MAR 98-HA
131262-0011-SA	SOLID	QHG-S		25 MAR 98-HX	25 MAR 98-HA
131262-0005-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131262-0006-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131262-0007-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131262-0008-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131262-0009-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131262-0010-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131262-0011-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131262-0005-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131262-0006-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131262-0007-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131262-0008-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131262-0009-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131262-0010-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131262-0011-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA

METHOD BLANK REPORT
Metals Analysis and Preparation
Project: 131262

Test: Q-ICP-ADD Method 6010A - ICP Metals, Dissolved
Matrix: AQUEOUS
QC Run: 26 MAR 98-PTX Date Analyzed: 27 MAR 98

Analyte	Result	Units	Reporting Limit
Antimony	ND	mg/L	0.060
Arsenic	ND	mg/L	0.30
Barium	ND	mg/L	0.20
Beryllium	ND	mg/L	0.0050
Cadmium	ND	mg/L	0.0050
Chromium	ND	mg/L	0.010
Cobalt	ND	mg/L	0.050
Copper	ND	mg/L	0.025
Lead	ND	mg/L	0.10
Molybdenum	ND	mg/L	0.040
Nickel	ND	mg/L	0.040
Selenium	ND	mg/L	0.25
Silver	ND	mg/L	0.010
Thallium	ND	mg/L	2.0
Vanadium	ND	mg/L	0.050
Zinc	ND	mg/L	0.020

Test: Q-HG-CVAA-AD Method SW7470A - Mercury, Cold Vapor AA, Dissolved
Matrix: AQUEOUS
QC Run: 24 MAR 98-JX Date Analyzed: 25 MAR 98

Analyte	Result	Units	Reporting Limit
Mercury	ND	mg/L	0.00020

Test: Q-HG-CVAA-S Method SW7471A - Mercury, Cold Vapor AA
Matrix: SOLID
QC Run: 25 MAR 98-HX Date Analyzed: 25 MAR 98

Analyte	Result	Units	Reporting Limit
Mercury	ND	mg/kg	0.10

ND = Not Detected

METHOD BLANK REPORT (cont.)
Metals Analysis and Preparation
Project: 131262

Test: Q-AS-GFAA-S Method 7060A - Arsenic, Graphite Furnace AA
Matrix: SOLID
QC Run: 25 MAR 98-PX Date Analyzed: 26 MAR 98

Analyte	Result	Units	Reporting Limit
Arsenic	ND	mg/kg	0.25

Test: ICPT-CAM-S Method 6010A - CAM TTLC Metals
Matrix: SOLID
QC Run: 25 MAR 98-BX Date Analyzed: 26 MAR 98

Analyte	Result		Units	Reporting Limit
Antimony	ND		mg/kg	1.0
Barium	0.11	J	mg/kg	1.0
Beryllium	ND		mg/kg	0.10
Cadmium	ND		mg/kg	0.50
Chromium	ND		mg/kg	0.50
Cobalt	ND		mg/kg	5.0
Copper	ND		mg/kg	2.5
Lead	ND		mg/kg	0.50
Molybdenum	ND		mg/kg	4.0
Nickel	ND		mg/kg	4.0
Selenium	ND		mg/kg	0.50
Silver	ND		mg/kg	0.50
Thallium	ND		mg/kg	1.0
Vanadium	ND		mg/kg	5.0
Zinc	ND		mg/kg	2.0

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

LABORATORY CONTROL SAMPLE REPORT
Metals Analysis and Preparation
Project: 131262

Category: QICP-A Method 6010A - ICP Metals
Matrix: AQUEOUS Date Analyzed: 27 MAR 98
QC Run: 26 MAR 98-PTX
Concentration Units: mg/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Antimony	0.500	0.468	94	80-115
Arsenic	2.00	2.07	103	85-115
Barium	2.00	1.96	98	85-115
Beryllium	0.0500	0.0493	99	85-120
Cadmium	0.0500	0.0467	93	80-120
Chromium	0.200	0.198	99	80-115
Cobalt	0.500	0.491	98	85-120
Copper	0.250	0.248	99	85-115
Lead	0.500	0.463	93	85-120
Molybdenum	1.00	1.01	101	85-115
Nickel	0.500	0.503	101	85-115
Selenium	2.00	1.97	98	85-125
Silver	0.0500	0.0446	89	85-115
Thallium	2.00	1.80	90	85-120
Vanadium	0.500	0.500	100	85-120
Zinc	0.500	0.502	100	85-120

Category: QHG-A Mercury by CVAA
Matrix: AQUEOUS Date Analyzed: 25 MAR 98
QC Run: 24 MAR 98-JX
Concentration Units: mg/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Mercury	0.00500	0.00489	98	85-115

Category: QHG-S Mercury by CVAA
Matrix: SOLID Date Analyzed: 25 MAR 98
QC Run: 25 MAR 98-HX
Concentration Units: mg/kg

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Mercury	0.833	0.848	102	85-115

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE REPORT
Metals Analysis and Preparation (cont.)
Project: 131262

Category: QAS-GF-S Arsenic, Graphite Furnace AA
Matrix: SOLID Date Analyzed: 26 MAR 98
QC Run: 25 MAR 98-PX
Concentration Units: mg/kg

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Arsenic	4.00	3.89	97	80-120

Category: ICP-S ICP Metals
Matrix: SOLID Date Analyzed: 26 MAR 98
QC Run: 25 MAR 98-BX
Concentration Units: mg/kg

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Antimony	50.0	45.9	92	70-110
Barium	200	209	104	85-115
Beryllium	5.00	5.41	108	80-115
Cadmium	5.00	5.22	104	80-115
Chromium	20.0	21.5	107	85-120
Cobalt	50.0	51.0	102	85-120
Copper	25.0	25.4	101	85-115
Lead	50.0	50.5	101	80-110
Molybdenum	100	103	103	80-115
Nickel	50.0	52.5	105	85-115
Selenium	200	193	96	70-105
Silver	5.00	4.52	90	80-110
Thallium	200	193	97	80-110
Vanadium	50.0	52.2	104	85-115
Zinc	50.0	52.5	105	80-115

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Metals Analysis and Preparation
Project: 131262

Category: QICP-A Method 6010A - ICP Metals
Matrix: AQUEOUS
Sample: 131262-0003
MS Run: 26 MAR 98-PA
Units: mg/L

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
		Concentration							
Antimony	ND	0.493	0.486	0.500	99	97	1.4	80-115	20
Arsenic	ND	2.10	2.07	2.00	105	103	1.8	85-115	20
Barium	0.0132 J	1.99	1.97	2.00	99	98	1.1	85-115	20
Beryllium	ND	0.0510	0.0500	0.0500	102	100	2.1	85-120	20
Cadmium	ND	0.0477	0.0439	0.0500	95	88	8.3	80-120	20
Chromium	ND	0.203	0.200	0.200	102	100	1.5	80-115	20
Cobalt	ND	0.493	0.487	0.500	99	97	1.3	85-120	20
Copper	ND	0.254	0.251	0.250	102	100	1.2	85-115	20
Lead	ND	0.474	0.460	0.500	95	92	3.0	80-120	20
Molybdenum	0.0151 J	1.03	1.01	1.00	101	100	1.5	85-115	20
Nickel	ND	0.507	0.505	0.500	101	101	0.3	85-115	20
Selenium	ND	2.01	1.99	2.00	100	99	1.1	85-125	20
Silver	ND	0.0447	0.0460	0.0500	89	92	2.8	85-115	20
Thallium	ND	1.77	1.75	2.00	88	87	1.0	85-120	20
Vanadium	0.0163 J	0.522	0.512	0.500	101	99	1.9	85-120	20
Zinc	ND	0.502	0.496	0.500	100	99	1.1	85-120	20

Category: QHG-A Mercury by CVAA
Matrix: AQUEOUS
Sample: 131262-0003
MS Run: 24 MAR 98-JA
Units: mg/L

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
		Concentration							
Mercury	ND	0.00104	0.00104	0.00100	104	104	0.0	85-115	20

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Metals Analysis and Preparation
Project: 131262 (cont.)

Category: QHG-S Mercury by CVAA
Matrix: SOLID
Sample: 131212-0010
MS Run: 25 MAR 98-HA
Units mg/kg Units Qualifier: Wet weight

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
	Concentration								
Mercury	0.0393 J	0.218	0.215	0.167	107	105	1.4	85-115	20

Category: QAS-GF-S Arsenic, Graphite Furnace AA
Matrix: SOLID
Sample: 131259-0001
MS Run: 25 MAR 98-PA
Units mg/kg Units Qualifier: Wet weight

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
	Concentration								
Arsenic	2.92	4.56	4.46 n	2.00	82	77	2.2	80-120	20

Category: ICP-S ICP Metals
Matrix: SOLID
Sample: 131259-0001
MS Run: 25 MAR 98-BA
Units mg/kg Units Qualifier: Wet weight

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
	Concentration								
Antimony	0.470 J	5.47 n	4.63 n	25.0	20	17	17	70-110	20
Barium	52.0	141	139	100	89	87	1.6	85-115	20
Beryllium	0.406	2.79	2.75	2.50	95	94	1.2	80-115	20
Cadmium	0.208 J	2.51	2.50	2.50	92	92	0.5	80-115	20
Chromium	24.2	32.9	40.2 n	10.0	87	161	20	85-120	20
Cobalt	5.84	28.2	28.0	25.0	89	89	0.5	85-120	20
Copper	13.7	23.8 n	23.9 n	12.5	81	82	0.3	85-115	20
Lead	5.38	27.5	27.0	25.0	88	87	1.7	80-110	20
Molybdenum	1.34 J	46.3	45.8	50.0	90	89	1.2	80-115	20
Nickel	15.1	37.8	45.1 n	25.0	91	120	18	85-115	20

J = Result is detected below the reporting limit or is an estimated concentration.
n = Spiked analyte out of matrix spike acceptance limits; refer to lab control sample results.

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Metals Analysis and Preparation
Project: 131262 (cont.)

Category: ICP-S ICP Metals (cont.)
Matrix: SOLID
Sample: 131259-0001
MS Run: 25 MAR 98-BA (cont.)
Units mg/kg Units Qualifier: Wet weight

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
	Concentration								
Selenium	ND	90.1	89.2	100	90	89	1.0	70-105	20
Silver	ND	2.18	2.17	2.50	87	87	0.6	80-110	20
Thallium	0.819 J	88.0	86.9	100	87	86	1.2	80-110	20
Vanadium	32.6	52.9 n	55.4	25.0	81	91	4.7	85-115	20
Zinc	44.7	64.2 n	63.2 n	25.0	78	74	1.6	80-115	20

J = Result is detected below the reporting limit or is an estimated concentration.
n = Spiked analyte out of matrix spike acceptance limits; refer to lab control sample results.
ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

Moisture

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG18-01
LAB ID: 131262-0005-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	7.6		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG18-02
LAB ID: 131262-0006-SA
Matrix: SOIL — Sampled: 19 MAR 98 — Received: 19 MAR 98
Authorized: 20 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	16		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG16-01
LAB ID: 131262-0007-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	12		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG16-02
LAB ID: 131262-0008-SA
Matrix: SOIL
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	16		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG16-03
LAB ID: 131262-0009-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	16		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG10-01
LAB ID: 131262-0010-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	12		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG10-02
LAB ID: 131262-0011-SA
Matrix: SOIL
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	26		1.0	0.10	%	D2216	NA	24 MAR 98

QC LOT ASSIGNMENT REPORT - MS QC
GC/MS Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
131262-0005-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131262-0006-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131262-0007-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131262-0008-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131262-0009-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131262-0010-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131262-0011-SA	SOLID	MOISTURE-S			23 MAR 98-AA

MATRIX DUPLICATE QC REPORT
GC/MS Preparation
Project: 131262

Category: MOISTURE-S Method ASTM D2216 - Percent Moisture
Matrix: SOLID
Sample: 131262-0005
MS Run: 23 MAR 98-AA
Units: %

Analyte	Concentration Sample	Concentration Duplicate	%RPD SA-DU	Acceptance Limit
Percent Water	7.60	7.60	0.0	10

Calculations are performed before rounding to avoid round-off errors in calculated results.

VOCs

Quanterra Incorporated
4101 Shuffel Drive, NW
North Canton, Ohio 44720

330 497-9396 Telephone
330 497-0772 Fax

Quanterra
Environmental Services

ANALYTICAL REPORT

PROJECT NO. 131262

WWC/131262

Lot #: A8C260158

SHARON MEYERS

Quanterra Inc - Santa Ana CA L

QUANTERRA INCORPORATED

Alesia M. Danford
Project Manager

April 2, 1998

CASE NARRATIVE

The following report contains the analytical results for seven solid and four water samples submitted to Quanterra-North Canton by Quanterra-Santa Ana from the WWC/131262 Site, project number 131262. The samples were received March 25, 1998, according to documented sample acceptance procedures.

Quanterra-North Canton utilizes only USEPA approved methods and instrumentation in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

The samples were received at the laboratory at a temperature of 5.9° C.

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

Additional volume was received on March 27, 1998, for sample HG16-10-W 131262-0003 SA MS SD.

One 40ml Volatile vial for sample RG17-10-W 131277-0011 SA was received with headspace.

GC/MS VOLATILES

Sample(s) which contain results between the MDL and the RL are flagged with "J". There is the possibility of false positive or misidentification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation will be performed only down to the standard reporting limit (SRL). The acceptance criteria for quality control criteria may not be met at these quantitation levels.

Acid preservation causes 2-Chloroethyl vinyl ether to decompose. When detected, the concentration found will be reported; however, a true reporting limit cannot be reported when the compound is not detected.

ANALYTICAL METHODS SUMMARY

A8C260158

PARAMETER	ANALYTICAL METHOD
Total Residue as Percent Solids	MCAWW 160.3 MOD
Volatile Organics by GC/MS	SW846 8260A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A8C260158

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CG46V	001	HG18-10-W 131262-0001 SA	03/19/98	00:0
CG472	002	HG18-11-W 131262-0002 SA	03/19/98	00:0
CG474	003	HG16-10-W 131262-0003 SA	03/19/98	00:0
CG476	004	RBHG10-W 131262-0004 SA	03/19/98	00:0
CG478	005	HG18-01 131262-0005 SA	03/19/98	00:0
CG47C	006	HG18-02 131262-0006 SA	03/19/98	00:0
CG47D	007	HG16-01 131262-0007 SA	03/19/98	00:0
CG47E	008	HG16-02 131262-0008 SA	03/19/98	00:0
CG47G	009	HG16-03 131262-0009 SA	03/19/98	00:0
CG47H	010	HG10-01 131262-0010 SA	03/19/98	00:0
CG47K	011	HG10-02 131262-0011 SA	03/19/98	00:0

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG18-10-W 131262-0001 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-001 Work Order #...: CG46V101 Matrix.....: WATER
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/30/98 Analysis Date..: 03/30/98
Prep Batch #...: 8089213
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	ug/L	SW846 8260A
Benzene	ND	1.0	ug/L	SW846 8260A
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	ND	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	**0.26 J**	**1.0**	**ug/L**	**SW846 8260A**
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	1.0	ug/L	SW846 8260A
Chloromethane	**0.13 J**	**2.0**	**ug/L**	**SW846 8260A**
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	**4.8**	**0.50**	**ug/L**	**SW846 8260A**
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG18-10-W 131262-0001 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-001 Work Order #...: CG46V101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	0.20 J	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	ND	1.0	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	0.13 J	1.0	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	ND	2.0	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	0.50	ug/L	SW846 8260A
o-Xylene	ND	0.50	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	98	(69 - 127)
Toluene-d8	97	(90 - 112)
Bromofluorobenzene	97	(87 - 114)

NOTE(S):

J Estimated result. Result is less than RL.

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG18-11-W 131262-0002 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-002 Work Order #...: CG472101 Matrix.....: WATER
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/30/98 Analysis Date..: 03/30/98
Prep Batch #...: 8089213
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	ug/L	SW846 8260A
Benzene	**0.17 J**	**1.0**	**ug/L**	**SW846 8260A**
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	ND	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	ND	1.0	ug/L	SW846 8260A
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	1.0	ug/L	SW846 8260A
Chloromethane	ND	2.0	ug/L	SW846 8260A
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	**5.0**	**0.50**	**ug/L**	**SW846 8260A**
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG18-11-W 131262-0002 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-002 Work Order #...: CG472101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	0.19 J	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	ND	1.0	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	0.12 J	1.0	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	ND	2.0	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	0.50	ug/L	SW846 8260A
o-Xylene	ND	0.50	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	94	(69 - 127)
Toluene-d8	95	(90 - 112)
Bromofluorobenzene	97	(87 - 114)

NOTE(S):

J Estimated result. Result is less than RL.

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG16-10-W 131262-0003 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-003 Work Order #...: CG474101 Matrix.....: WATER
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/30/98 Analysis Date..: 03/30/98
Prep Batch #...: 8089213
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	ug/L	SW846 8260A
Benzene	ND	1.0	ug/L	SW846 8260A
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	ND	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	ND	1.0	ug/L	SW846 8260A
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	1.0	ug/L	SW846 8260A
Chloromethane	ND	2.0	ug/L	SW846 8260A
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	0.26 J	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	0.56	0.50	ug/L	SW846 8260A
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG16-10-W 131262-0003 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-003 Work Order #...: CG474101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	ND	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	ND	1.0	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	0.10 J	1.0	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	ND	2.0	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	0.50	ug/L	SW846 8260A
o-Xylene	ND	0.50	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	96	(69 - 127)
Toluene-d8	94	(90 - 112)
Bromofluorobenzene	100	(87 - 114)

NOTE(S):

J Estimated result. Result is less than RL.

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: RBHG10-W 131262-0004 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-004 Work Order #...: CG476101 Matrix.....: WATER
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/30/98 Analysis Date..: 03/30/98
Prep Batch #...: 8089160
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	ug/L	SW846 8260A
Benzene	ND	1.0	ug/L	SW846 8260A
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	ND	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	ND	1.0	ug/L	SW846 8260A
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	1.0	ug/L	SW846 8260A
Chloromethane	ND	2.0	ug/L	SW846 8260A
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: RBHG10-W 131262-0004 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-004 Work Order #...: CG476101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	0.14 J	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	ND	1.0	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	ND	2.0	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	0.50	ug/L	SW846 8260A
o-Xylene	ND	0.50	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	89	(69 - 127)
Toluene-d8	98	(90 - 112)
Bromofluorobenzene	96	(87 - 114)

NOTE(S):

J Estimated result. Result is less than RL.

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG18-01 131262-0005 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-005 Work Order #...: CG478102 Matrix.....: SOLID
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/28/98 Analysis Date..: 03/28/98
Prep Batch #...: 8088132
Dilution Factor: 1
% Moisture.....: 7.8

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG18-01 131262-0005 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-005 Work Order #...: CG478102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	96	(61 - 115)
Toluene-d8	99	(82 - 129)
Bromofluorobenzene	94	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG18-02 131262-0006 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-006 Work Order #...: CG47C102 Matrix.....: SOLID
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/28/98 Analysis Date..: 03/28/98
Prep Batch #...: 8088132
Dilution Factor: 1
% Moisture.....: 18

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG18-02 131262-0006 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-006 Work Order #...: CG47C102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	102	(61 - 115)
Toluene-d8	100	(82 - 129)
Bromofluorobenzene	93	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG16-01 131262-0007 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-007 Work Order #...: CG47D102 Matrix.....: SOLID
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/28/98 Analysis Date..: 03/28/98
Prep Batch #...: 8088132
Dilution Factor: 1
% Moisture.....: 5.5

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG16-01 131262-0007 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-007 Work Order #...: CG47D102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	105	(61 - 115)
Toluene-d8	93	(82 - 129)
Bromofluorobenzene	82	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: BG16-02 131262-0008 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-008 Work Order #...: CG47E102 Matrix.....: SOLID
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/28/98 Analysis Date..: 03/28/98
Prep Batch #...: 8088132
Dilution Factor: 1
% Moisture.....: 16

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG16-02 131262-0008 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-008 Work Order #...: CG47E102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	102	(61 - 115)
Toluene-d8	97	(82 - 129)
Bromofluorobenzene	92	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG16-03 131262-0009 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-009 Work Order #...: CG47G102 Matrix.....: SOLID
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/28/98 Analysis Date..: 03/28/98
Prep Batch #...: 8088132
Dilution Factor: 1
% Moisture.....: 14

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG16-03 131262-0009 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-009 Work Order #...: CG47G102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	102	(61 - 115)
Toluene-d8	98	(82 - 129)
Bromofluorobenzene	95	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG10-01 131262-0010 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-010 Work Order #...: CG47H102 Matrix.....: SOLID
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/29/98 Analysis Date..: 03/29/98
Prep Batch #...: 8089140
Dilution Factor: 1
% Moisture.....: 14

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG10-01 131262-0010 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-010 Work Order #...: CG47H102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	90	(61 - 115)
Toluene-d8	99	(82 - 129)
Bromofluorobenzene	94	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG10-02 131262-0011 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-011 Work Order #...: CG47K102 Matrix.....: SOLID
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/28/98 Analysis Date..: 03/28/98
Prep Batch #...: 8088132
Dilution Factor: 1
% Moisture.....: 25

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG10-02 131262-0011 SA

GC/MS Volatiles

Lot-Sample #...: A8C260158-011 Work Order #...: CG47K102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	2.0 J	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	103	(61 - 115)
Toluene-d8	97	(82 - 129)
Bromofluorobenzene	89	(64 - 112)

NOTE(S):

J Estimated result. Result is less than RL.

QUALITY CONTROL SECTION

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

Quanterra® Incorporated conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. Quanterra requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). Failure of the RPDs to fall within the laboratory-generated acceptance windows requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the MS/MSD RPDs are within acceptance criteria, the batch is acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except for the common laboratory contaminants indicated below.

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals
Methylene chloride	Phthalate Esters	Copper
Acetone		Iron
2-Butanone		Zinc
		Lead*

** for analyses run on TJA Trace ICP or GFAA only*

QUALITY CONTROL ELEMENTS OF SW-846 METHODS (continued)

METHOD BLANK (continued)
The listed volatile and semivolatile compounds may be present in concentrations up to 5 times the reporting limits. The listed metals may be present in concentrations up to 2 times the reporting limit or must be twenty fold less than the results of the environmental samples. Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. When these values fail to meet acceptance criteria, the data is reviewed to determine the cause. If, in the analyst's judgment, sample matrix effects are indicated, no corrective action is performed. Otherwise, the MS/MSD and the environmental sample used to prepare them are reprepared and reanalyzed.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch.

SURROGATE COMPOUNDS
In addition to these batch-related QC indicators, each organic environmental and QC sample are spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

The acceptance criteria do not apply to samples that are diluted. If the dilution is more than 5X, the recoveries will be reported as diluted out. All other surrogate recoveries will be reported. If the LCS, LCSD, or the Method Blank surrogates fail to meet recovery criteria (exception for dilutions), the entire batch of samples is reprepared and reanalyzed.

If the surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank and the associated sample(s) are ND, the batch is acceptable. If the surrogate recoveries are outside criteria for environmental or MS/MSD samples, the batch may be acceptable based on the analyst's judgment that sample matrix effects are indicated.

For the GC/MS BNA methods, the surrogate criteria is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide/PCB, PAH, TPH, and Herbicide methods, the surrogate criteria is that one of two surrogate compounds meet acceptance criteria.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C260158 Work Order #...: CG5MD102 Matrix.....: SOLID
LCS Lot-Sample#: A8C290000-132
Prep Date.....: 03/28/98 Analysis Date..: 03/28/98
Prep Batch #...: 8088132
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	97	(60 - 119)	SW846 8260A
Trichloroethene	97	(74 - 115)	SW846 8260A
Chlorobenzene	98	(85 - 116)	SW846 8260A
Toluene	97	(87 - 118)	SW846 8260A
Benzene	99	(83 - 118)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	94	(61 - 115)
Toluene-d8	98	(82 - 129)
Bromofluorobenzene	95	(64 - 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C260158 Work Order #...: CG5PV102 Matrix.....: SOLID
LCS Lot-Sample#: A8C300000-140
Prep Date.....: 03/29/98 Analysis Date..: 03/29/98
Prep Batch #...: 8089140
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	108	(60 - 119)	SW846 8260A
Trichloroethene	101	(74 - 115)	SW846 8260A
Chlorobenzene	101	(85 - 116)	SW846 8260A
Toluene	100	(87 - 118)	SW846 8260A
Benzene	105	(83 - 118)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	87	(61 - 115)
Toluene-d8	100	(82 - 129)
Bromofluorobenzene	94	(64 - 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C260158 Work Order #...: CG5QM102 Matrix.....: WATER
LCS Lot-Sample#: A8C300000-160
Prep Date.....: 03/29/98 Analysis Date..: 03/29/98
Prep Batch #...: 8089160
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	108	(87 - 113)	SW846 8260A
Trichloroethene	100	(89 - 115)	SW846 8260A
Chlorobenzene	95	(89 - 119)	SW846 8260A
Toluene	94	(81 - 117)	SW846 8260A
Benzene	99	(77 - 126)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	88	(69 - 127)
Toluene-d8	98	(90 - 112)
Bromofluorobenzene	97	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C260158 Work Order #...: CG5XD102 Matrix.....: WATER
LCS Lot-Sample#: A8C300000-213
Prep Date.....: 03/30/98 Analysis Date..: 03/30/98
Prep Batch #...: 8089213
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	112	(87 - 113)	SW846 8260A
Trichloroethene	100	(89 - 115)	SW846 8260A
Chlorobenzene	96	(89 - 119)	SW846 8260A
Toluene	94	(81 - 117)	SW846 8260A
Benzene	99	(77 - 126)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	89	(69 - 127)
Toluene-d8	98	(90 - 112)
Bromofluorobenzene	96	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C260158 **Work Order #...:** CG5MD101 **Matrix.....:** SOLID
MB Lot-Sample #: A8C290000-132
Prep Date.....: 03/28/98
Analysis Date..: 03/28/98 **Prep Batch #...:** 8088132
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C260158 Work Order #...: CG5MD101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	93	(61 - 115)
Toluene-d8	97	(82 - 129)
Bromofluorobenzene	94	(64 - 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C260158 Work Order #...: CG5PV101 Matrix.....: SOLID
MB Lot-Sample #: A8C300000-140

Prep Date.....: 03/29/98
Analysis Date..: 03/29/98 Prep Batch #...: 8089140
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C260158 Work Order #...: CG5PV101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	88	(61 - 115)
Toluene-d8	98	(82 - 129)
Bromofluorobenzene	92	(64 - 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C260158 Work Order #...: CG5QM101 Matrix.....: WATER
MB Lot-Sample #: A8C300000-160
Prep Date.....: 03/29/98
Analysis Date..: 03/29/98 Prep Batch #...: 8089160
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	ug/L	SW846 8260A
Benzene	ND	1.0	ug/L	SW846 8260A
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	ND	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	ND	1.0	ug/L	SW846 8260A
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	1.0	ug/L	SW846 8260A
Chloromethane	ND	2.0	ug/L	SW846 8260A
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A

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GC/MS Volatiles

Client Lot #...: A8C260158 Work Order #...: CG5QM101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	ND	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	ND	1.0	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	ND	2.0	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	0.50	ug/L	SW846 8260A
o-Xylene	ND	0.50	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	87	(69 - 127)
Toluene-d8	97	(90 - 112)
Bromofluorobenzene	97	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C260158 Work Order #...: CG5XD101 Matrix.....: WATER
MB Lot-Sample #: A8C300000-213
Prep Date.....: 03/30/98
Analysis Date..: 03/30/98 Prep Batch #...: 8089213
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	ug/L	SW846 8260A
Benzene	ND	1.0	ug/L	SW846 8260A
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	ND	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	ND	1.0	ug/L	SW846 8260A
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	1.0	ug/L	SW846 8260A
Chloromethane	ND	2.0	ug/L	SW846 8260A
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A

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GC/MS Volatiles

Client Lot #...: A8C260158 Work Order #...: CG5XD101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	ND	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	ND	1.0	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	ND	2.0	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	0.50	ug/L	SW846 8260A
o-Xylene	ND	0.50	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	89	(69 - 127)
Toluene-d8	97	(90 - 112)
Bromofluorobenzene	96	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C260158 Work Order #...: CG474102-MS Matrix.....: WATER
MS Lot-Sample #: A8C260158-003 CG474103-MSD
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/30/98 Analysis Date..: 03/30/98
Prep Batch #...: 8089213
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	99	(78 - 117)			SW846 8260A
	100	(78 - 117)	0.81	(0-17)	SW846 8260A
Chlorobenzene	93	(81 - 115)			SW846 8260A
	95	(81 - 115)	1.9	(0-18)	SW846 8260A
1,1-Dichloroethene	110	(75 - 113)			SW846 8260A
	111	(75 - 113)	0.63	(0-20)	SW846 8260A
Toluene	92	(78 - 126)			SW846 8260A
	88	(78 - 126)	4.4	(0-24)	SW846 8260A
Trichloroethene	100	(71 - 110)			SW846 8260A
	101	(71 - 110)	0.79	(0-22)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	90	(69 - 127)
	103	(69 - 127)
Toluene-d8	95	(90 - 112)
	94	(90 - 112)
Bromofluorobenzene	95	(87 - 114)
	97	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C260158 Work Order #...: CG478103-MS Matrix.....: SOLID
MS Lot-Sample #: A8C260158-005 CG478104-MSD
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/28/98 Analysis Date..: 03/28/98
Prep Batch #...: 8088132
Dilution Factor: 1 % Moisture.....: 7.8

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	96	(78 - 117)			SW846 8260A
	111	(78 - 117)	15	(0-17)	SW846 8260A
Chlorobenzene	94	(81 - 115)			SW846 8260A
	111	(81 - 115)	17	(0-18)	SW846 8260A
1,1-Dichloroethene	95	(75 - 113)			SW846 8260A
	113	(75 - 113)	17	(0-20)	SW846 8260A
Toluene	94	(78 - 126)			SW846 8260A
	109	(78 - 126)	14	(0-24)	SW846 8260A
Trichloroethene	94	(71 - 110)			SW846 8260A
	110	(71 - 110)	16	(0-22)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	98	(61 - 115)
	98	(61 - 115)
Toluene-d8	100	(82 - 129)
	100	(82 - 129)
Bromofluorobenzene	96	(64 - 112)
	96	(64 - 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C260158 Work Order #...: CG3ET103-MS Matrix.....: SOLID
MS Lot-Sample #: A8C250186-004 CG3ET104-MSD
Date Sampled...: 03/23/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/29/98 Analysis Date..: 03/29/98
Prep Batch #...: 8089140
Dilution Factor: 1 % Moisture.....: 4.0

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	96	(75 - 113)			SW846 8260A
	86	(75 - 113)	11	(0-20)	SW846 8260A
Trichloroethene	96	(71 - 110)			SW846 8260A
	83	(71 - 110)	15	(0-22)	SW846 8260A
Chlorobenzene	96	(81 - 115)			SW846 8260A
	84	(81 - 115)	13	(0-18)	SW846 8260A
Toluene	97	(78 - 126)			SW846 8260A
	85	(78 - 126)	13	(0-24)	SW846 8260A
Benzene	98	(78 - 117)			SW846 8260A
	88	(78 - 117)	11	(0-17)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	102	(61 - 115)
	101	(61 - 115)
Toluene-d8	100	(82 - 129)
	100	(82 - 129)
Bromofluorobenzene	93	(64 - 112)
	93	(64 - 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C260158 **Work Order #...:** CG132102-MS **Matrix.....:** WATER
MS Lot-Sample #: A8C220104-010 CG132103-MSD
Date Sampled...: 03/18/98 00:00 **Date Received..:** 03/21/98
Prep Date.....: 03/30/98 **Analysis Date..:** 03/30/98
Prep Batch #...: 8089160
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	106	(75 - 113)			SW846 8260A
	109	(75 - 113)	3.5	(0-20)	SW846 8260A
Trichloroethene	100	(71 - 110)			SW846 8260A
	101	(71 - 110)	0.82	(0-22)	SW846 8260A
Chlorobenzene	91	(81 - 115)			SW846 8260A
	93	(81 - 115)	1.7	(0-18)	SW846 8260A
Toluene	88	(78 - 126)			SW846 8260A
	89	(78 - 126)	1.4	(0-24)	SW846 8260A
Benzene	98	(78 - 117)			SW846 8260A
	100	(78 - 117)	1.3	(0-17)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	99	(69 - 127)
	99	(69 - 127)
Toluene-d8	94	(90 - 112)
	93	(90 - 112)
Bromofluorobenzene	95	(87 - 114)
	96	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

CHAIN-OF-CUSTODY

PROJECT NAME: WWC
PO NUMBER: 131262
PROJECT MANAGER: Sharon Meves

QUANTERRA ENVIRONMENTAL SERVICES
1721 South Grand Avenue
Santa Ana, CA 92705
Phone #: (714) 258-8610

DUE: 01 APR 98
TO: QES, NORTH CANTON
4101 Shuffel Drive N.W.
North Canton, OH 44720

SAMPLE DESCRIPTION	LAB ID	DATE	TIME	MATRIX	CONTAINERS	ANALYSES: 8260 (SW8260A)									REMARKS/ SPCL INSTR
HG18-10-W	131262-0001 SA	19 MAR 98		WATER		X									
HG18-11-W	131262-0002 SA	19 MAR 98		WATER		X									
HG16-10-W	131262-0003 SA	19 MAR 98		WATER		X									
HG16-10-W	131262-0003 MS	19 MAR 98		WATER		X									
HG16-10-W	131262-0003 SD	19 MAR 98		WATER		X									
RBHG10-W	131262-0004 SA	19 MAR 98		WATER		X									
HG18-01	131262-0005 SA	19 MAR 98		SOIL		X									
HG18-02	131262-0006 SA	19 MAR 98		SOIL		X									
HG16-01	131262-0007 SA	19 MAR 98		SOIL		X									
HG16-02	131262-0008 SA	19 MAR 98		SOIL		X									
HG16-03	131262-0009 SA	19 MAR 98		SOIL		X									
HG10-01	131262-0010 SA	19 MAR 98		SOIL		X									
HG10-02	131262-0011 SA	19 MAR 98		SOIL		X									

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
Relinquished by:	[signature]	Steve Sharer	Quanterra	3/24/98	1600
Received by:	[signature]	Kim Hutchins	QES N.C.	3/25/98	10:00
Relinquished by:					
Received by:					

Comments:

QA373 4/96 CMD

CHAIN-OF-CUSTODY

PROJECT NAME:

PO NUMBER: 131262

PROJECT MANAGER: Sharon Meves

QUANTERRA ENVIRONMENTAL SERVICES
1721 South Grand Avenue
Santa Ana, CA 92705

Phone #: (714) 258-8610

DUE: 01 APR 98
TO: QES, NORTH CANTON
4101 Shuffel Drive N.W.
North Canton, OH 44720

SAMPLE DESCRIPTION	LAB ID	DATE	TIME	MATRIX	CONTAINERS	ANALYSES: 8260									REMARKS/ SPCL INSTR
HG16-10-W	131262-0003 SA	19 MAR 98		WATER		X									
HG16-10-W	131262-0003 MS	19 MAR 98		WATER		X									
HG16-10-W	131262-0003 SD	19 MAR 98		WATER		X									

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
Relinquished by:	C. Millan	Carlos Millan	Quanterra ST.SA	3.26.98	1050
Received by:	Doris Herren	DORIS HERREN	QUANTERRA NC	3.27.98	1000
Relinquished by:					
Received by:					

Comments:

QA373 4/96 CMD

Quanterra Environmental Services

Quanterra Incorporated
1721 South Grand Avenue
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April 2, 1998

QUANTERRA INCORPORATED PROJECT NUMBER: 131259
PO/CONTRACT: 97SB044 (3100)

Partha Bora
Woodward-Clyde Consultants
2020 E. First Street
Santa Ana, CA 92705

Dear Mr. Bora,

This report contains the analytical results for the fourteen samples received under chain of custody by Quanterra Incorporated on March 19, 1998. These samples are associated with your AES, Huntington Beach project.

The case narrative is an integral part of this report.

Preliminary results were sent via facsimile on March 31, 1998 for metals.

If you have any questions, please feel free to call me at (714) 258-8610.

Sincerely,

Sharon Meves
Project Manager

TABLE OF CONTENTS

QUANTERRA INCORPORATED PROJECT NUMBER 131259

Case Narrative

Quanterra's Quality Assurance Program

Chain of Custody Documentation

Sample Description Information

TEPH
Sample(s): 1-14
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

PCBs
Sample(s): 3-6, 13, 14
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

SVOCs
Sample(s): 1-14
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

Metals
Sample(s): 1, 2, 7-12, 14
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

Moisture
Sample(s): 1-11
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

VOCs
Sample(s): 1, 2, 7-12, 14
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

CASE NARRATIVE

QUANTERRA INCORPORATED PROJECT NUMBER 131259

All applicable internal quality control analyses including calibrations and calibration verifications, calibration (instrument) and method blanks, laboratory control samples (LCS), matrix spikes (MS) and matrix spike duplicates (MSD), and other QC met method-specified acceptance criteria. Any matrix-related anomalies are indicated using footnotes within the report. Any other anomalies are reported within the narrative.

General: MS/MSD analyses were performed on aqueous samples as designated on the COC (with the exception of TVPH and TEPH, for which no QC analyses were performed, as discussed with Woodward Clyde personnel). MS/MSD analyses for soil samples were performed as sample volume allowed. (Only 2 small sleeves were submitted to the laboratory. One sleeve was shipped to the Quanterra-North Canton facility for volatiles analysis, so only one sleeve was available for the remaining analyses. Volume concerns were discussed with Woodward Clyde personnel immediately after the first sample shipment arrived.) Where MS/MSD analyses could not be performed, duplicate laboratory control standards were reported.

PCBs: The recovery of decachlorobiphenyl was low, outside control limits in sample HG06B-10-W. The recovery of tetrachloro-m-xylene in this sample, meeting method requirements, therefore, no corrective action was taken.

SVOCs: The recovery of pyrene in the MS analysis of MS Run 23 MAR 98-AA was slightly low. The recovery of this compound in the associated LCS was acceptable, therefore, no corrective action was taken.

Metals: All samples requiring ICP and ICPT analysis were analyzed by method 6010B, the newly promulgated version of the ICP method in SW846, rather than method 6010A, as specified in the PRG tables.

Sample HG08-02 was reported from a diluted analysis due to matrix interferences.

The recoveries of arsenic in MS Run 25 MAR 98-PA, and the recoveries of antimony, chromium, copper, nickel, vanadium and zinc in MS Run 25 MAR 98-BA were outside control limits. The recoveries of these metals in the associated LCSs were acceptable, therefore, matrix interference is suspected, and no corrective action was taken.

VOCs: Analyses were performed by the Quanterra-North Canton facility. Please refer to the attached report.

Quanterra Environmental Services - Western Region

Quality Control Definitions

QC Parameter	Definition
QC Batch	A set of up to 20 field samples plus associated laboratory QC samples that are similar in composition (matrix) and that are processed within the same time period with the same reagent and standard lots.
Duplicate Control Sample (DCS)	Consist of a pair of LCSs analyzed within the same QC batch to monitor precision and accuracy independent of sample matrix effects. This QC is performed only if required by client or when insufficient sample is available to perform MS/MSD.
Duplicate Sample (DU)	A second aliquot of an environmental sample, taken from the same sample container when possible, that is processed independently with the first sample aliquot. The results are used to assess the effect of the sample matrix on the precision of the analytical process. The precision estimated using this sample is not necessarily representative of the precision for other samples in the batch.
Laboratory Control Sample (LCS)	A volume of reagent water for aqueous samples or a contaminant-free solid matrix (Ottawa sand) for soil and sediment samples which is spiked with known amounts of representative target analytes and required surrogates. An LCS is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects.
Matrix Spike and Matrix Spike Duplicate (MS/MSD)	A field sample fortified with known quantities of target analytes that are also added to the LCS. Matrix spike duplicate is a second matrix spike sample. MSs/MSDs are carried through the entire analytical process and are used to determine sample matrix effect on accuracy of the measurement system. The accuracy and precision estimated using MS/MSD is only representative of the precision of the sample that was spiked.
Method Blank (MB)	A sample composed of all the reagents (in the same quantities) in reagent water carried through the entire analytical process. The method blank is used to monitor the level of contamination introduced during sample preparation steps.
Surrogate Spike	Organic constituents not expected to be detected in environmental media and are added to every sample and QC at a known concentration. Surrogates are used to determine the efficiency of the sample preparation and the analytical process.

Source: Quanterra® Quality Control Program, Policy QA-003, Rev. 0, 8/19/96.

Woodward-Clyde Consultants

SHIPMENT NO.: 4

PAGE ____ OF ____

DATE 3/19/98

CHAIN OF CUSTODY RECORD

PROJECT NAME: AES

PROJECT NO.: 97Sb044

	Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
1	HGC9-01	B-9	SOIL	PUSH	2 ss liners	ICED	NONE	METALS
			"	"	~~E~~ ~~EAIL~~	"	"	TPH-d
			"	"	~~E~~ ~~E~~	"	"	VOCs
			"	"	~~E~~ ~~E~~	"	"	SVOCs
2	HGC9-02	B-9	SOIL	PUSH	2 ss liners	ICED	NONE	METALS
			"	"	~~E~~ ~~E~~	"	"	TPH-d
			"	"	~~E~~ ~~E~~	"	"	VOCs
			"	"	~~E~~ ~~E~~	"	"	SVOCs
3	HGC16B-01	B-16B	SOIL	PUSH	2 ss liners	ICED	NONE	TPH-d
			"	"	~~E~~ ~~E~~	"	"	SVOCs
			"	"	~~E~~ ~~E~~	"	"	PCBs
4	HGC16B-02	B-16B	SOIL	PUSH	2 ss liners	ICED	NONE	TPH-d
			"	"	~~E~~ ~~E~~	"	"	SVOCs
			"	"	~~E~~ ~~E~~	"	"	PCBs
5	HGC16A-01	B-16A	SOIL	PUSH	2 ss liners	ICED	NONE	TPH-d
			"	"	~~E~~ ~~E~~	"	"	SVOCs
			"	"	~~E~~ ~~E~~	"	"	PCBs
6	HGC16B-02	B-16A	SOIL	PUSH	2 ss liners	ICED	NONE	TPH-d
			"	"	~~E~~ ~~E~~	"	"	SVOCs
			"	"	~~E~~ ~~E~~	"	"	PCBs

Total Number of Samples Shipped: 6 | Sampler's Signature: [signature]

Relinquished By:	Received By:	Date / Time
Signature: [signature] Printed Name: Autumn King Company: Woodward-Clyde Reason: Ship to Lab for Analysis	Signature: [signature] Printed Name: R BAUTISTA Company: Q Concern	Date: 3/19/98 Time: 1748
Relinquished By: [signature] Signature: [signature] Printed Name: R BAUTISTA Company: Reason:	Received By: [signature] Signature: Printed Name: Carlos Millan Company: Avon Lane	Date: 3/19/98 Time: 1845
Relinquished By: Signature: Printed Name: Company: Reason:	Received By: Signature: Printed Name: Company:	Date: / / Time:
Relinquished By: Signature: Printed Name: Company: Reason:	Received By: Signature: Printed Name: Company:	Date: / / Time:

Special Shipment / Handling / Storage Requirements:

* Note – This does not constitute authorization to proceed with analysis

Woodward-Clyde Consultants

SHIPMENT NO.: 4

CHAIN OF CUSTODY RECORD

PAGE ____ OF ____

DATE 3/19/98

PROJECT NAME: AES

PROJECT NO.: 9756044

	Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
7	HG05-01	B-5	SOIL	PUSH	2 ss liners	ICED	NONE	METALS
						"		TPH-d
						"		VOCs
						"		SVOCs
8	HG05-02	B-5	SOIL	PUSH	2 ss liners	ICED	NONE	METALS
						"		TPH-d
						"		VOCs
						"		SVOCs
9	HG08-01	B-8	SOIL	PUSH	2 ss liners	ICED	NONE	METALS
						"		TPH-d
						"		VOCs
						"		SVOCs
10	HG08-02	B-8	SOIL	PUSH	2 ss liners	ICED	NONE	METALS
						"		TPH-d
						"		VOCs
						"		SVOCs
11	HG08-03	B-8	SOIL	PUSH	2 ss liners	ICED	NONE	METALS
						"		TPH-d
						"		VOCs
						"		SVOCs

Total Number of Samples Shipped: 5 AM Sampler's Signature: Autumn King

Relinquished By:	Received By:	Date / Time
Signature: Autumn King Printed Name: AUTUMN KING Company: WOODWARD-Clyde Reason: Ship to Lab for analysis	Signature: R Bautista Printed Name: R BAUTISTA Company: S. Conrad	Date: 3/19/98 Time: 1740
Signature: R Bautista Printed Name: R BAUTISTA Company: Reason:	Signature: C Mill Printed Name: Carlos Millan Company: Quanterra	Date: 3/19/98 Time: 1845
Signature: Printed Name: Company: Reason:	Signature: Printed Name: Company:	Date: / / Time:
Signature: Printed Name: Company: Reason:	Signature: Printed Name: Company:	Date: / / Time:

Special Shipment / Handling / Storage Requirements:

* Note — This does not constitute authorization to proceed with analysis

Contact Parma @714-835-6886

Woodward-Clyde Consultants

CHAIN OF CUSTODY RECORD

SHIPMENT NO.: 4

PAGE ____ OF ____

DATE 3/19/98

PROJECT NAME: AES

PROJECT NO.: 97sb044

	Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
1	HG-09-10-W	B-9	H_2O	GRAB	1500 ml poly	ICED	NONE	METALS
					1L amber glass	ICED	NONE	TPH-d
					3(40ml) vials	ICED	HCL	VOCs
					2(1L) amber glass	ICED	NONE	SVOCs
2	HG-01B-10-W	B-6	H_2O	GRAB	1L amber glass	ICED	NONE	TPH-d
					2(1L) amber glass	ICED	NONE	SVOCs
					1 L amber glass	ICED	NONE	PCBs
3	FB0319	FB	H_2O	GRAB	1500ml poly	ICED	NONE	METAL
					1L amber glass	ICED	NONE	TPH-d
					3(40ml) vials	ICED	HCL	VOCS
					2(1L) amber glass	ICED	NONE	SVOCs
					1 L amber glass	ICED	NONE	PCBs

END OF RECORD

Total Number of Samples Shipped: 3

Sampler's Signature: [signature]

Relinquished By	Received By	Date / Time
Signature: [signature] Printed Name: Allison King Company: Woodward-Clyde Reason: Trip to Lab for analysis	Signature: PBautista Printed Name: RBAUTISTA Company: Courier	Date: 3/19/98 Time: 1740
Signature: PBautista Printed Name: RBAUTISTA Company: Reason:	Signature: C Mill Printed Name: Carlos Millan Company: Quantera	Date: 3/19/98 Time: 1845
Signature: Printed Name: Company: Reason:	Signature: Printed Name: Company:	Date: / / Time:
Signature: Printed Name: Company: Reason:	Signature: Printed Name: Company:	Date: / / Time:

Special Shipment / Handling / Storage Requirements:

* for metal analysis do filter and then preserve

* Note – This does not constitute authorization to proceed with analysis

SAMPLE DESCRIPTION INFORMATION
for
Woodward-Clyde Consultants

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
131259-0001-SA	HG09-01	SOIL	19 MAR 98		19 MAR 98
131259-0002-SA	HG09-02	SOIL	19 MAR 98		19 MAR 98
131259-0003-SA	HG06B-01	SOIL	19 MAR 98		19 MAR 98
131259-0004-SA	HG06B-02	SOIL	19 MAR 98		19 MAR 98
131259-0005-SA	HG06A-01	SOIL	19 MAR 98		19 MAR 98
131259-0006-SA	HG06A-02	SOIL	19 MAR 98		19 MAR 98
131259-0007-SA	HG05-01	SOIL	19 MAR 98		19 MAR 98
131259-0008-SA	HG05-02	SOIL	19 MAR 98		19 MAR 98
131259-0009-SA	HG08-01	SOIL	19 MAR 98		19 MAR 98
131259-0010-SA	HG08-02	SOIL	19 MAR 98		19 MAR 98
131259-0011-SA	HG08-03	SOIL	19 MAR 98		19 MAR 98
131259-0012-SA	HG09-10-W	WATER	19 MAR 98		19 MAR 98
131259-0013-SA	HG06B-10-W	WATER	19 MAR 98		19 MAR 98
131259-0014-FB	FB0319	WATER	19 MAR 98		19 MAR 98

TEPH

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG09-01		
LAB ID:	131259-0001-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		11	mg/kg
C15-<C20	ND		11	mg/kg
C20-<C25	ND		11	mg/kg
C25-<C30	ND		11	mg/kg
C30-<C35	ND		11	mg/kg
C35-C40	ND		11	mg/kg

Percent moisture is 7.9%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG09-02		
LAB ID:	131259-0002-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		12	mg/kg
C15-<C20	ND		12	mg/kg
C20-<C25	ND		12	mg/kg
C25-<C30	ND		12	mg/kg
C30-<C35	ND		12	mg/kg
C35-C40	ND		12	mg/kg

Percent moisture is 13.8%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG06B-01		
LAB ID:	131259-0003-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		12	mg/kg
C15-<C20	ND		12	mg/kg
C20-<C25	ND		12	mg/kg
C25-<C30	ND		12	mg/kg
C30-<C35	ND		12	mg/kg
C35-C40	ND		12	mg/kg

Percent moisture is 17.3%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG06B-02		
LAB ID:	131259-0004-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		12	mg/kg
C15-<C20	ND		12	mg/kg
C20-<C25	ND		12	mg/kg
C25-<C30	ND		12	mg/kg
C30-<C35	ND		12	mg/kg
C35-C40	ND		12	mg/kg

Percent moisture is 15.7%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG06A-01		
LAB ID:	131259-0005-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		12	mg/kg
C15-<C20	ND		12	mg/kg
C20-<C25	ND		12	mg/kg
C25-<C30	ND		12	mg/kg
C30-<C35	ND		12	mg/kg
C35-C40	ND		12	mg/kg

Percent moisture is 17.1%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG06A-02		
LAB ID:	131259-0006-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		11	mg/kg
C15-<C20	ND		11	mg/kg
C20-<C25	ND		11	mg/kg
C25-<C30	ND		11	mg/kg
C30-<C35	ND		11	mg/kg
C35-C40	ND		11	mg/kg

Percent moisture is 11.1%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG05-01		
LAB ID:	131259-0007-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		12	mg/kg
C15-<C20	ND		12	mg/kg
C20-<C25	ND		12	mg/kg
C25-<C30	ND		12	mg/kg
C30-<C35	ND		12	mg/kg
C35-C40	ND		12	mg/kg

Percent moisture is 14.5%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG05-02		
LAB ID:	131259-0008-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		11	mg/kg
C15-<C20	ND		11	mg/kg
C20-<C25	ND		11	mg/kg
C25-<C30	ND		11	mg/kg
C30-<C35	ND		11	mg/kg
C35-C40	ND		11	mg/kg

Percent moisture is 13.0%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG08-01		
LAB ID:	131259-0009-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		12	mg/kg
C15-<C20	ND		12	mg/kg
C20-<C25	ND		12	mg/kg
C25-<C30	ND		12	mg/kg
C30-<C35	ND		12	mg/kg
C35-C40	ND		12	mg/kg

Percent moisture is 15.5%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG08-02		
LAB ID:	131259-0010-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		11	mg/kg
C15-<C20	ND		11	mg/kg
C20-<C25	ND		11	mg/kg
C25-<C30	ND		11	mg/kg
C30-<C35	ND		11	mg/kg
C35-C40	ND		11	mg/kg

Percent moisture is 12.2%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG08-03		
LAB ID:	131259-0011-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		12	mg/kg
C15-<C20	ND		12	mg/kg
C20-<C25	ND		12	mg/kg
C25-<C30	ND		12	mg/kg
C30-<C35	ND		12	mg/kg
C35-C40	ND		12	mg/kg

Percent moisture is 15.4%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG09-10-W		
LAB ID:	131259-0012-SA		
Matrix:	WATER	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 23 MAR 98	Analyzed: 30 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	ND		1.0	mg/L
C20-<C25	ND		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG06B-10-W		
LAB ID:	131259-0013-SA		
Matrix:	WATER	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 23 MAR 98	Analyzed: 31 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	ND		1.0	mg/L
C20-<C25	ND		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	FB0319		
LAB ID:	131259-0014-FB		
Matrix:	WATER	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 23 MAR 98	Analyzed: 31 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	ND		1.0	mg/L
C20-<C25	ND		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

PCBs

Polychlorinated Biphenyls
Method 8081

Client Name: Woodward-Clyde Consultants
Client ID: HG06B-01
LAB ID: 131259-0003-SA
Matrix: SOIL
Authorized: 20 MAR 98
Instrument: GC/ECD-PXA

Sampled: 19 MAR 98
Prepared: 23 MAR 98
Dilution: 1.0

Received: 19 MAR 98
Analyzed: 25 MAR 98

Parameter	Result	Qualifier	RL	Units
Aroclor 1016	ND		40	ug/kg
Aroclor 1221	ND		40	ug/kg
Aroclor 1232	ND		40	ug/kg
Aroclor 1242	ND		40	ug/kg
Aroclor 1248	ND		40	ug/kg
Aroclor 1254	ND		40	ug/kg
Aroclor 1260	ND		40	ug/kg

Surrogate	Recovery		Acceptable Range
2,4,5,6-Tetrachloro-m-xylene	90	%	60 - 150
Decachlorobiphenyl	111	%	60 - 150

Percent moisture is 17.3%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Polychlorinated Biphenyls
Method 8081

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG06B-02		
LAB ID:	131259-0004-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 23 MAR 98	Analyzed: 25 MAR 98
Instrument:	GC/ECD-PXA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Aroclor 1016	ND		39	ug/kg
Aroclor 1221	ND		39	ug/kg
Aroclor 1232	ND		39	ug/kg
Aroclor 1242	ND		39	ug/kg
Aroclor 1248	ND		39	ug/kg
Aroclor 1254	ND		39	ug/kg
Aroclor 1260	ND		39	ug/kg

Surrogate	Recovery		Acceptable Range
2,4,5,6-Tetrachloro-m-xylene	79	%	60 - 150
Decachlorobiphenyl	110	%	60 - 150

Percent moisture is 15.7%. All results and limits are reported on a dry weight basis.

ND = Not Detected

5

Polychlorinated Biphenyls
Method 8081

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG06A-01		
LAB ID:	131259-0005-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 23 MAR 98	Analyzed: 25 MAR 98
Instrument:	GC/ECD-PXA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Aroclor 1016	ND		40	ug/kg
Aroclor 1221	ND		40	ug/kg
Aroclor 1232	ND		40	ug/kg
Aroclor 1242	ND		40	ug/kg
Aroclor 1248	ND		40	ug/kg
Aroclor 1254	ND		40	ug/kg
Aroclor 1260	ND		40	ug/kg

Surrogate	Recovery		Acceptable Range
2,4,5,6-Tetrachloro-m-xylene	86	%	60 - 150
Decachlorobiphenyl	111	%	60 - 150

Percent moisture is 17.1%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Polychlorinated Biphenyls
Method 8081

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG06A-02		
LAB ID:	131259-0006-SA		
Matrix:	SOIL	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 23 MAR 98	Analyzed: 26 MAR 98
Instrument:	GC/ECD-PXA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Aroclor 1016	ND		37	ug/kg
Aroclor 1221	ND		37	ug/kg
Aroclor 1232	ND		37	ug/kg
Aroclor 1242	ND		37	ug/kg
Aroclor 1248	ND		37	ug/kg
Aroclor 1254	ND		37	ug/kg
Aroclor 1260	ND		37	ug/kg

Surrogate	Recovery		Acceptable Range
2,4,5,6-Tetrachloro-m-xylene	94	%	60 - 150
Decachlorobiphenyl	119	%	60 - 150

Percent moisture is 11.1%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Polychlorinated Biphenyls
Method 8081

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG06B-10-W		
LAB ID:	131259-0013-SA		
Matrix:	WATER	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 25 MAR 98
Instrument:	GC/ECD-PXA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Aroclor 1016	ND		1.0	ug/L
Aroclor 1221	ND		1.0	ug/L
Aroclor 1232	ND		1.0	ug/L
Aroclor 1242	ND		1.0	ug/L
Aroclor 1248	ND		1.0	ug/L
Aroclor 1254	ND		1.0	ug/L
Aroclor 1260	ND		1.0	ug/L

Surrogate	Recovery		Acceptable Range	
2,4,5,6-Tetrachloro-m-xylene	84	%	60 - 150	
Decachlorobiphenyl	36	%	60 - 150	I

I = Surrogate recovery outside of limits due to sample matrix interference.
ND = Not Detected

Polychlorinated Biphenyls
Method 8081

Client Name:	Woodward-Clyde Consultants		
Client ID:	FB0319		
LAB ID:	131259-0014-FB		
Matrix:	WATER	Sampled: 19 MAR 98	Received: 19 MAR 98
Authorized:	20 MAR 98	Prepared: 24 MAR 98	Analyzed: 25 MAR 98
Instrument:	GC/ECD-PXA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Aroclor 1016	ND		1.0	ug/L
Aroclor 1221	ND		1.0	ug/L
Aroclor 1232	ND		1.0	ug/L
Aroclor 1242	ND		1.0	ug/L
Aroclor 1248	ND		1.0	ug/L
Aroclor 1254	ND		1.0	ug/L
Aroclor 1260	ND		1.0	ug/L

Surrogate	Recovery		Acceptable Range
2,4,5,6-Tetrachloro-m-xylene	97	%	60 - 150
Decachlorobiphenyl	72	%	60 - 150

ND = Not Detected

QC LOT ASSIGNMENT REPORT - MS QC
Semivolatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
131259-0003-SA	SOLID	PCB-PAC-S		23 MAR 98-CX	23 MAR 98-CA
131259-0004-SA	SOLID	PCB-PAC-S		23 MAR 98-CX	23 MAR 98-CA
131259-0005-SA	SOLID	PCB-PAC-S		23 MAR 98-CX	23 MAR 98-CA
131259-0006-SA	SOLID	PCB-PAC-S		23 MAR 98-CX	23 MAR 98-CA
131259-0013-SA	AQUEOUS	PCB1PAC10A	24 MAR 98-B	24 MAR 98-B	
131259-0014-FB	AQUEOUS	PCB1PAC10A	24 MAR 98-B	24 MAR 98-B	

METHOD BLANK REPORT
Semivolatile Organics by GC
Project: 131259

Test: 8081-PCB-PACDIV-S Method 8081- PCBs
Matrix: SOLID
QC Run: 23 MAR 98-CX

Date Analyzed: 25 MAR 98

Analyte	Result	Units	Reporting Limit
Aroclor 1016	ND	ug/kg	33
Aroclor 1221	ND	ug/kg	33
Aroclor 1232	ND	ug/kg	33
Aroclor 1242	ND	ug/kg	33
Aroclor 1248	ND	ug/kg	33
Aroclor 1254	ND	ug/kg	33
Aroclor 1260	ND	ug/kg	33

Surrogate	Recovery	Acceptable Range
2,4,5,6-Tetrachloro-m-xylene	109	60 -150
Decachlorobiphenyl	124	60 -150

Test: 8081-PCB-3510-PAC-A Method 8081 - PCBs
Matrix: AQUEOUS
QC Run: 24 MAR 98-B

Date Analyzed: 25 MAR 98

Analyte	Result	Units	Reporting Limit
Aroclor 1016	ND	ug/L	1.0
Aroclor 1221	ND	ug/L	1.0
Aroclor 1232	ND	ug/L	1.0
Aroclor 1242	ND	ug/L	1.0
Aroclor 1248	ND	ug/L	1.0
Aroclor 1254	ND	ug/L	1.0
Aroclor 1260	ND	ug/L	1.0

Surrogate	Recovery	Acceptable Range
2,4,5,6-Tetrachloro-m-xylene	120	60 -150
Decachlorobiphenyl	136	60 -150

ND = Not Detected

DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC
Project: 131259

Category: PCB1PAC10A Method 8081 - PCBs
Matrix: AQUEOUS
QC Lot: 24 MAR 98-B
Concentration Units: ug/L

Date Analyzed: 25 MAR 98

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	%Recovery DCS1	%Recovery DCS2	RPD	Acceptance Limits Recov.	Acceptance Limits RPD
Aroclor 1016	5.00	5.09	5.40	102	108	5.9	50-114	30
Aroclor 1260	5.00	5.20	5.53	104	111	6.2	8-127	30

Surrogate	Concentration Spiked	Measured DCS1	Measured DCS2	%Recovery DCS1	%Recovery DCS2	Acceptance Limits Recovery
2,4,5,6-Tetrachloro-m-xylene	0.200	0.224	0.240	112	120	60-150
Decachlorobiphenyl	0.200	0.260	0.272	130	136	60-150

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE REPORT
Semivolatile Organics by GC
Project: 131259

Category: PCB-PAC-S Method 8081 - PCBs
Matrix: SOLID
QC Run: 23 MAR 98-CX
Concentration Units: ug/kg

Date Analyzed: 25 MAR 98

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Aroclor 1016	167	172	103	50-114
Aroclor 1260	167	177	106	8-127

Surrogates	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
2,4,5,6-Tetrachloro-m-xylene	6.67	7.52	113	60-150
Decachlorobiphenyl	6.67	8.41	126	60-150

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Semivolatile Organics by GC
Project: 131259

Category: PCB-PAC-S Method 8081 - PCBs
Matrix: SOLID
Sample: 131259-0004
MS Run: 23 MAR 98-CA
Units ug/kg Units Qualifier: Wet weight

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
	Concentration								
Aroclor 1016	ND	151	145	167	90	87	4.1	50-114	30
Aroclor 1260	ND	158	152	167	95	91	3.9	8-127	30

Surrogates	Sample %Recovery	%Recovery MS	%Recovery MSD	Acceptance Limit Recovery
2,4,5,6-Tetrachloro-m-xylene	79	82	89	60-150
Decachlorobiphenyl	110	108	111	60-150

ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

SVOCs

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG09-01
LAB ID: 131259-0001-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 27 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1700	ug/kg
2,4,6-Trichlorophenol	ND		360	ug/kg
2,4-Dichlorophenol	ND		360	ug/kg
2,4-Dimethylphenol	ND		360	ug/kg
2,4-Dinitrophenol	ND		1700	ug/kg
2,4-Dinitrotoluene	ND		360	ug/kg
2,6-Dinitrotoluene	ND		360	ug/kg
2-Chloronaphthalene	ND		360	ug/kg
2-Chlorophenol	ND		360	ug/kg
2-Methylnaphthalene	ND		360	ug/kg
2-Methylphenol	ND		360	ug/kg
2-Nitroaniline	ND		1700	ug/kg
2-Nitrophenol	ND		360	ug/kg
3,3'-Dichlorobenzidine	ND		720	ug/kg
3-Nitroaniline	ND		1700	ug/kg
4,6-Dinitro-2-methylphenol	ND		1700	ug/kg
4-Bromophenyl phenyl ether	ND		360	ug/kg
4-Chloro-3-methylphenol	ND		710	ug/kg
4-Chloroaniline	ND		360	ug/kg
4-Chlorophenyl phenyl ether	ND		360	ug/kg
4-Methylphenol	ND		360	ug/kg
4-Nitroaniline	ND		1700	ug/kg
4-Nitrophenol	ND		1700	ug/kg
Acenaphthene	ND		360	ug/kg
Acenaphthylene	ND		360	ug/kg
Anthracene	ND		360	ug/kg
Benzo(a)anthracene	ND		360	ug/kg
Benzo(a)pyrene	ND		360	ug/kg
Benzo(b)fluoranthene	ND		360	ug/kg
Benzo(g,h,i)perylene	ND		360	ug/kg
Benzo(k)fluoranthene	ND		360	ug/kg
bis(2-Chloroethoxy)-methane	ND		360	ug/kg
bis(2-Chloroethyl) ether	ND		360	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		360	ug/kg
Butyl benzyl phthalate	ND		360	ug/kg
Carbazole	ND		360	ug/kg
Chrysene	ND		360	ug/kg
Di-n-butyl phthalate	ND		360	ug/kg
Di-n-octyl phthalate	ND		360	ug/kg
Dibenz(a,h)anthracene	ND		360	ug/kg
Dibenzofuran	ND		360	ug/kg
Diethyl phthalate	ND		360	ug/kg
Dimethyl phthalate	ND		360	ug/kg
Fluoranthene	ND		360	ug/kg
Fluorene	ND		360	ug/kg

Percent moisture is 7.9%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG09-01
LAB ID: 131259-0001-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 27 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		360	ug/kg
Hexachlorobutadiene	ND		360	ug/kg
Hexachlorocyclopentadiene	ND		1700	ug/kg
Hexachloroethane	ND		360	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		360	ug/kg
Isophorone	ND		360	ug/kg
N-Nitroso-di-n-propylamine	ND		360	ug/kg
N-Nitrosodiphenylamine	ND		360	ug/kg
Naphthalene	ND		360	ug/kg
Nitrobenzene	ND		360	ug/kg
Pentachlorophenol	ND		1700	ug/kg
Phenanthrene	ND		360	ug/kg
Pyrene	ND		360	ug/kg
Phenol	ND		360	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	67	%	25 - 121
Phenol-d5	73	%	24 - 113
Nitrobenzene-d5	70	%	23 - 120
2-Fluorobiphenyl	79	%	30 - 115
2,4,6-Tribromophenol	70	%	19 - 122
Terphenyl-d14	73	%	18 - 137

Percent moisture is 7.9%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG09-02
LAB ID: 131259-0002-SA
Matrix: SOIL
Authorized: 20 MAR 98
Instrument: GC/MS-MA

Sampled: 19 MAR 98
Prepared: 23 MAR 98
Dilution: 1.0

Received: 19 MAR 98
Analyzed: 27 MAR 98

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1900	ug/kg
2,4,6-Trichlorophenol	ND		380	ug/kg
2,4-Dichlorophenol	ND		380	ug/kg
2,4-Dimethylphenol	ND		380	ug/kg
2,4-Dinitrophenol	ND		1900	ug/kg
2,4-Dinitrotoluene	ND		380	ug/kg
2,6-Dinitrotoluene	ND		380	ug/kg
2-Chloronaphthalene	ND		380	ug/kg
2-Chlorophenol	ND		380	ug/kg
2-Methylnaphthalene	ND		380	ug/kg
2-Methylphenol	ND		380	ug/kg
2-Nitroaniline	ND		1900	ug/kg
2-Nitrophenol	ND		380	ug/kg
3,3'-Dichlorobenzidine	ND		770	ug/kg
3-Nitroaniline	ND		1900	ug/kg
4,6-Dinitro-2-methylphenol	ND		1900	ug/kg
4-Bromophenyl phenyl ether	ND		380	ug/kg
4-Chloro-3-methylphenol	ND		750	ug/kg
4-Chloroaniline	ND		380	ug/kg
4-Chlorophenyl phenyl ether	ND		380	ug/kg
4-Methylphenol	ND		380	ug/kg
4-Nitroaniline	ND		1900	ug/kg
4-Nitrophenol	ND		1900	ug/kg
Acenaphthene	ND		380	ug/kg
Acenaphthylene	ND		380	ug/kg
Anthracene	ND		380	ug/kg
Benzo(a)anthracene	ND		380	ug/kg
Benzo(a)pyrene	ND		380	ug/kg
Benzo(b)fluoranthene	ND		380	ug/kg
Benzo(g,h,i)perylene	ND		380	ug/kg
Benzo(k)fluoranthene	ND		380	ug/kg
bis(2-Chloroethoxy)-methane	ND		380	ug/kg
bis(2-Chloroethyl) ether	ND		380	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		380	ug/kg
Butyl benzyl phthalate	ND		380	ug/kg
Carbazole	ND		380	ug/kg
Chrysene	ND		380	ug/kg
Di-n-butyl phthalate	ND		380	ug/kg
Di-n-octyl phthalate	ND		380	ug/kg
Dibenz(a,h)anthracene	ND		380	ug/kg
Dibenzofuran	ND		380	ug/kg
Diethyl phthalate	ND		380	ug/kg
Dimethyl phthalate	ND		380	ug/kg
Fluoranthene	ND		380	ug/kg
Fluorene	ND		380	ug/kg

Percent moisture is 13.8%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG09-02
LAB ID: 131259-0002-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 27 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		380	ug/kg
Hexachlorobutadiene	ND		380	ug/kg
Hexachlorocyclopentadiene	ND		1900	ug/kg
Hexachloroethane	ND		380	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		380	ug/kg
Isophorone	ND		380	ug/kg
N-Nitroso-di-n-propylamine	ND		380	ug/kg
N-Nitrosodiphenylamine	ND		380	ug/kg
Naphthalene	ND		380	ug/kg
Nitrobenzene	ND		380	ug/kg
Pentachlorophenol	ND		1900	ug/kg
Phenanthrene	ND		380	ug/kg
Pyrene	ND		380	ug/kg
Phenol	ND		380	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	56	%	25 - 121
Phenol-d5	70	%	24 - 113
Nitrobenzene-d5	35	%	23 - 120
2-Fluorobiphenyl	53	%	30 - 115
2,4,6-Tribromophenol	85	%	19 - 122
Terphenyl-d14	105	%	18 - 137

Percent moisture is 13.8%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG06B-01
LAB ID: 131259-0003-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 27 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1900	ug/kg
2,4,6-Trichlorophenol	ND		400	ug/kg
2,4-Dichlorophenol	ND		400	ug/kg
2,4-Dimethylphenol	ND		400	ug/kg
2,4-Dinitrophenol	ND		1900	ug/kg
2,4-Dinitrotoluene	ND		400	ug/kg
2,6-Dinitrotoluene	ND		400	ug/kg
2-Chloronaphthalene	ND		400	ug/kg
2-Chlorophenol	ND		400	ug/kg
2-Methylnaphthalene	ND		400	ug/kg
2-Methylphenol	ND		400	ug/kg
2-Nitroaniline	ND		1900	ug/kg
2-Nitrophenol	ND		400	ug/kg
3,3'-Dichlorobenzidine	ND		800	ug/kg
3-Nitroaniline	ND		1900	ug/kg
4,6-Dinitro-2-methylphenol	ND		1900	ug/kg
4-Bromophenyl phenyl ether	ND		400	ug/kg
4-Chloro-3-methylphenol	ND		790	ug/kg
4-Chloroaniline	ND		400	ug/kg
4-Chlorophenyl phenyl ether	ND		400	ug/kg
4-Methylphenol	ND		400	ug/kg
4-Nitroaniline	ND		1900	ug/kg
4-Nitrophenol	ND		1900	ug/kg
Acenaphthene	ND		400	ug/kg
Acenaphthylene	ND		400	ug/kg
Anthracene	ND		400	ug/kg
Benzo(a)anthracene	ND		400	ug/kg
Benzo(a)pyrene	ND		400	ug/kg
Benzo(b)fluoranthene	ND		400	ug/kg
Benzo(g,h,i)perylene	ND		400	ug/kg
Benzo(k)fluoranthene	ND		400	ug/kg
bis(2-Chloroethoxy)-methane	ND		400	ug/kg
bis(2-Chloroethyl) ether	ND		400	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		400	ug/kg
Butyl benzyl phthalate	ND		400	ug/kg
Carbazole	ND		400	ug/kg
Chrysene	ND		400	ug/kg
Di-n-butyl phthalate	ND		400	ug/kg
Di-n-octyl phthalate	ND		400	ug/kg
Dibenz(a,h)anthracene	ND		400	ug/kg
Dibenzofuran	ND		400	ug/kg
Diethyl phthalate	ND		400	ug/kg
Dimethyl phthalate	ND		400	ug/kg
Fluoranthene	ND		400	ug/kg
Fluorene	ND		400	ug/kg

Percent moisture is 17.3%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

(cont.)

Client Name: Woodward-Clyde Consultants
Client ID: HG06B-01
LAB ID: 131259-0003-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 27 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		400	ug/kg
Hexachlorobutadiene	ND		400	ug/kg
Hexachlorocyclopentadiene	ND		1900	ug/kg
Hexachloroethane	ND		400	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		400	ug/kg
Isophorone	ND		400	ug/kg
N-Nitroso-di-n-propylamine	ND		400	ug/kg
N-Nitrosodiphenylamine	ND		400	ug/kg
Naphthalene	ND		400	ug/kg
Nitrobenzene	ND		400	ug/kg
Pentachlorophenol	ND		1900	ug/kg
Phenanthrene	ND		400	ug/kg
Pyrene	ND		400	ug/kg
Phenol	ND		400	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	78	%	25 - 121
Phenol-d5	66	%	24 - 113
Nitrobenzene-d5	42	%	23 - 120
2-Fluorobiphenyl	55	%	30 - 115
2,4,6-Tribromophenol	94	%	19 - 122
Terphenyl-d14	102	%	18 - 137

Percent moisture is 17.3%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG06B-02
LAB ID: 131259-0004-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1900	ug/kg
2,4,6-Trichlorophenol	ND		390	ug/kg
2,4-Dichlorophenol	ND		390	ug/kg
2,4-Dimethylphenol	ND		390	ug/kg
2,4-Dinitrophenol	ND		1900	ug/kg
2,4-Dinitrotoluene	ND		390	ug/kg
2,6-Dinitrotoluene	ND		390	ug/kg
2-Chloronaphthalene	ND		390	ug/kg
2-Chlorophenol	ND		390	ug/kg
2-Methylnaphthalene	ND		390	ug/kg
2-Methylphenol	ND		390	ug/kg
2-Nitroaniline	ND		1900	ug/kg
2-Nitrophenol	ND		390	ug/kg
3,3'-Dichlorobenzidine	ND		780	ug/kg
3-Nitroaniline	ND		1900	ug/kg
4,6-Dinitro-2-methylphenol	ND		1900	ug/kg
4-Bromophenyl phenyl ether	ND		390	ug/kg
4-Chloro-3-methylphenol	ND		770	ug/kg
4-Chloroaniline	ND		390	ug/kg
4-Chlorophenyl phenyl ether	ND		390	ug/kg
4-Methylphenol	ND		390	ug/kg
4-Nitroaniline	ND		1900	ug/kg
4-Nitrophenol	ND		1900	ug/kg
Acenaphthene	ND		390	ug/kg
Acenaphthylene	ND		390	ug/kg
Anthracene	ND		390	ug/kg
Benzo(a)anthracene	ND		390	ug/kg
Benzo(a)pyrene	ND		390	ug/kg
Benzo(b)fluoranthene	ND		390	ug/kg
Benzo(g,h,i)perylene	ND		390	ug/kg
Benzo(k)fluoranthene	ND		390	ug/kg
bis(2-Chloroethoxy)-methane	ND		390	ug/kg
bis(2-Chloroethyl) ether	ND		390	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		390	ug/kg
Butyl benzyl phthalate	ND		390	ug/kg
Carbazole	ND		390	ug/kg
Chrysene	ND		390	ug/kg
Di-n-butyl phthalate	ND		390	ug/kg
Di-n-octyl phthalate	ND		390	ug/kg
Dibenz(a,h)anthracene	ND		390	ug/kg
Dibenzofuran	ND		390	ug/kg
Diethyl phthalate	ND		390	ug/kg
Dimethyl phthalate	ND		390	ug/kg
Fluoranthene	ND		390	ug/kg
Fluorene	ND		390	ug/kg

Percent moisture is 15.7%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG06B-02
LAB ID: 131259-0004-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		390	ug/kg
Hexachlorobutadiene	ND		390	ug/kg
Hexachlorocyclopentadiene	ND		1900	ug/kg
Hexachloroethane	ND		390	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		390	ug/kg
Isophorone	ND		390	ug/kg
N-Nitroso-di-n-propylamine	ND		390	ug/kg
N-Nitrosodiphenylamine	ND		390	ug/kg
Naphthalene	ND		390	ug/kg
Nitrobenzene	ND		390	ug/kg
Pentachlorophenol	ND		1900	ug/kg
Phenanthrene	ND		390	ug/kg
Pyrene	ND		390	ug/kg
Phenol	ND		390	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	89	%	25 - 121
Phenol-d5	78	%	24 - 113
Nitrobenzene-d5	48	%	23 - 120
2-Fluorobiphenyl	53	%	30 - 115
2,4,6-Tribromophenol	75	%	19 - 122
Terphenyl-d14	87	%	18 - 137

Percent moisture is 15.7%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG06A-01
LAB ID: 131259-0005-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1900	ug/kg
2,4,6-Trichlorophenol	ND		400	ug/kg
2,4-Dichlorophenol	ND		400	ug/kg
2,4-Dimethylphenol	ND		400	ug/kg
2,4-Dinitrophenol	ND		1900	ug/kg
2,4-Dinitrotoluene	ND		400	ug/kg
2,6-Dinitrotoluene	ND		400	ug/kg
2-Chloronaphthalene	ND		400	ug/kg
2-Chlorophenol	ND		400	ug/kg
2-Methylnaphthalene	ND		400	ug/kg
2-Methylphenol	ND		400	ug/kg
2-Nitroaniline	ND		1900	ug/kg
2-Nitrophenol	ND		400	ug/kg
3,3'-Dichlorobenzidine	ND		800	ug/kg
3-Nitroaniline	ND		1900	ug/kg
4,6-Dinitro-2-methylphenol	ND		1900	ug/kg
4-Bromophenyl phenyl ether	ND		400	ug/kg
4-Chloro-3-methylphenol	ND		780	ug/kg
4-Chloroaniline	ND		400	ug/kg
4-Chlorophenyl phenyl ether	ND		400	ug/kg
4-Methylphenol	ND		400	ug/kg
4-Nitroaniline	ND		1900	ug/kg
4-Nitrophenol	ND		1900	ug/kg
Acenaphthene	ND		400	ug/kg
Acenaphthylene	ND		400	ug/kg
Anthracene	ND		400	ug/kg
Benzo(a)anthracene	ND		400	ug/kg
Benzo(a)pyrene	ND		400	ug/kg
Benzo(b)fluoranthene	ND		400	ug/kg
Benzo(g,h,i)perylene	ND		400	ug/kg
Benzo(k)fluoranthene	ND		400	ug/kg
bis(2-Chloroethoxy)-methane	ND		400	ug/kg
bis(2-Chloroethyl) ether	ND		400	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		400	ug/kg
Butyl benzyl phthalate	ND		400	ug/kg
Carbazole	ND		400	ug/kg
Chrysene	ND		400	ug/kg
Di-n-butyl phthalate	ND		400	ug/kg
Di-n-octyl phthalate	ND		400	ug/kg
Dibenz(a,h)anthracene	ND		400	ug/kg
Dibenzofuran	ND		400	ug/kg
Diethyl phthalate	ND		400	ug/kg
Dimethyl phthalate	ND		400	ug/kg
Fluoranthene	ND		400	ug/kg
Fluorene	ND		400	ug/kg

Percent moisture is 17.1%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG06A-01
LAB ID: 131259-0005-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		400	ug/kg
Hexachlorobutadiene	ND		400	ug/kg
Hexachlorocyclopentadiene	ND		1900	ug/kg
Hexachloroethane	ND		400	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		400	ug/kg
Isophorone	ND		400	ug/kg
N-Nitroso-di-n-propylamine	ND		400	ug/kg
N-Nitrosodiphenylamine	ND		400	ug/kg
Naphthalene	ND		400	ug/kg
Nitrobenzene	ND		400	ug/kg
Pentachlorophenol	ND		1900	ug/kg
Phenanthrene	ND		400	ug/kg
Pyrene	ND		400	ug/kg
Phenol	ND		400	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	67	%	25 - 121
Phenol-d5	65	%	24 - 113
Nitrobenzene-d5	58	%	23 - 120
2-Fluorobiphenyl	52	%	30 - 115
2,4,6-Tribromophenol	59	%	19 - 122
Terphenyl-d14	66	%	18 - 137

Percent moisture is 17.1%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG06A-02
LAB ID: 131259-0006-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1800	ug/kg
2,4,6-Trichlorophenol	ND		370	ug/kg
2,4-Dichlorophenol	ND		370	ug/kg
2,4-Dimethylphenol	ND		370	ug/kg
2,4-Dinitrophenol	ND		1800	ug/kg
2,4-Dinitrotoluene	ND		370	ug/kg
2,6-Dinitrotoluene	ND		370	ug/kg
2-Chloronaphthalene	ND		370	ug/kg
2-Chlorophenol	ND		370	ug/kg
2-Methylnaphthalene	ND		370	ug/kg
2-Methylphenol	ND		370	ug/kg
2-Nitroaniline	ND		1800	ug/kg
2-Nitrophenol	ND		370	ug/kg
3,3'-Dichlorobenzidine	ND		740	ug/kg
3-Nitroaniline	ND		1800	ug/kg
4,6-Dinitro-2-methylphenol	ND		1800	ug/kg
4-Bromophenyl phenyl ether	ND		370	ug/kg
4-Chloro-3-methylphenol	ND		730	ug/kg
4-Chloroaniline	ND		370	ug/kg
4-Chlorophenyl phenyl ether	ND		370	ug/kg
4-Methylphenol	ND		370	ug/kg
4-Nitroaniline	ND		1800	ug/kg
4-Nitrophenol	ND		1800	ug/kg
Acenaphthene	ND		370	ug/kg
Acenaphthylene	ND		370	ug/kg
Anthracene	ND		370	ug/kg
Benzo(a)anthracene	ND		370	ug/kg
Benzo(a)pyrene	ND		370	ug/kg
Benzo(b)fluoranthene	ND		370	ug/kg
Benzo(g,h,i)perylene	ND		370	ug/kg
Benzo(k)fluoranthene	ND		370	ug/kg
bis(2-Chloroethoxy)-methane	ND		370	ug/kg
bis(2-Chloroethyl) ether	ND		370	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		370	ug/kg
Butyl benzyl phthalate	ND		370	ug/kg
Carbazole	ND		370	ug/kg
Chrysene	ND		370	ug/kg
Di-n-butyl phthalate	ND		370	ug/kg
Di-n-octyl phthalate	ND		370	ug/kg
Dibenz(a,h)anthracene	ND		370	ug/kg
Dibenzofuran	ND		370	ug/kg
Diethyl phthalate	ND		370	ug/kg
Dimethyl phthalate	ND		370	ug/kg
Fluoranthene	ND		370	ug/kg
Fluorene	ND		370	ug/kg

Percent moisture is 11.1%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG06A-02
LAB ID: 131259-0006-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		370	ug/kg
Hexachlorobutadiene	ND		370	ug/kg
Hexachlorocyclopentadiene	ND		1800	ug/kg
Hexachloroethane	ND		370	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		370	ug/kg
Isophorone	ND		370	ug/kg
N-Nitroso-di-n-propylamine	ND		370	ug/kg
N-Nitrosodiphenylamine	ND		370	ug/kg
Naphthalene	ND		370	ug/kg
Nitrobenzene	ND		370	ug/kg
Pentachlorophenol	ND		1800	ug/kg
Phenanthrene	ND		370	ug/kg
Pyrene	ND		370	ug/kg
Phenol	ND		370	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	69	%	25 - 121
Phenol-d5	72	%	24 - 113
Nitrobenzene-d5	67	%	23 - 120
2-Fluorobiphenyl	58	%	30 - 115
2,4,6-Tribromophenol	68	%	19 - 122
Terphenyl-d14	61	%	18 - 137

Percent moisture is 11.1%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG05-01
LAB ID: 131259-0007-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1900	ug/kg
2,4,6-Trichlorophenol	ND		390	ug/kg
2,4-Dichlorophenol	ND		390	ug/kg
2,4-Dimethylphenol	ND		390	ug/kg
2,4-Dinitrophenol	ND		1900	ug/kg
2,4-Dinitrotoluene	ND		390	ug/kg
2,6-Dinitrotoluene	ND		390	ug/kg
2-Chloronaphthalene	ND		390	ug/kg
2-Chlorophenol	ND		390	ug/kg
2-Methylnaphthalene	ND		390	ug/kg
2-Methylphenol	ND		390	ug/kg
2-Nitroaniline	ND		1900	ug/kg
2-Nitrophenol	ND		390	ug/kg
3,3'-Dichlorobenzidine	ND		770	ug/kg
3-Nitroaniline	ND		1900	ug/kg
4,6-Dinitro-2-methylphenol	ND		1900	ug/kg
4-Bromophenyl phenyl ether	ND		390	ug/kg
4-Chloro-3-methylphenol	ND		760	ug/kg
4-Chloroaniline	ND		390	ug/kg
4-Chlorophenyl phenyl ether	ND		390	ug/kg
4-Methylphenol	ND		390	ug/kg
4-Nitroaniline	ND		1900	ug/kg
4-Nitrophenol	ND		1900	ug/kg
Acenaphthene	ND		390	ug/kg
Acenaphthylene	ND		390	ug/kg
Anthracene	ND		390	ug/kg
Benzo(a)anthracene	ND		390	ug/kg
Benzo(a)pyrene	ND		390	ug/kg
Benzo(b)fluoranthene	ND		390	ug/kg
Benzo(g,h,i)perylene	ND		390	ug/kg
Benzo(k)fluoranthene	ND		390	ug/kg
bis(2-Chloroethoxy)-methane	ND		390	ug/kg
bis(2-Chloroethyl) ether	ND		390	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		390	ug/kg
Butyl benzyl phthalate	ND		390	ug/kg
Carbazole	ND		390	ug/kg
Chrysene	ND		390	ug/kg
Di-n-butyl phthalate	ND		390	ug/kg
Di-n-octyl phthalate	ND		390	ug/kg
Dibenz(a,h)anthracene	ND		390	ug/kg
Dibenzofuran	ND		390	ug/kg
Diethyl phthalate	ND		390	ug/kg
Dimethyl phthalate	ND		390	ug/kg
Fluoranthene	ND		390	ug/kg
Fluorene	ND		390	ug/kg

Percent moisture is 14.5%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

(cont.)

Client Name: Woodward-Clyde Consultants
Client ID: HG05-01
LAB ID: 131259-0007-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		390	ug/kg
Hexachlorobutadiene	ND		390	ug/kg
Hexachlorocyclopentadiene	ND		1900	ug/kg
Hexachloroethane	ND		390	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		390	ug/kg
Isophorone	ND		390	ug/kg
N-Nitroso-di-n-propylamine	ND		390	ug/kg
N-Nitrosodiphenylamine	ND		390	ug/kg
Naphthalene	ND		390	ug/kg
Nitrobenzene	ND		390	ug/kg
Pentachlorophenol	ND		1900	ug/kg
Phenanthrene	ND		390	ug/kg
Pyrene	ND		390	ug/kg
Phenol	ND		390	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	61	%	25 - 121
Phenol-d5	72	%	24 - 113
Nitrobenzene-d5	63	%	23 - 120
2-Fluorobiphenyl	71	%	30 - 115
2,4,6-Tribromophenol	84	%	19 - 122
Terphenyl-d14	75	%	18 - 137

Percent moisture is 14.5%. All results and limits are reported on a dry weight basis.

ND = Not Detected

5

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG05-02
LAB ID: 131259-0008-SA
Matrix: SOIL
Authorized: 20 MAR 98
Instrument: GC/MS-MA

Sampled: 19 MAR 98
Prepared: 23 MAR 98
Dilution: 1.0

Received: 19 MAR 98
Analyzed: 28 MAR 98

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1800	ug/kg
2,4,6-Trichlorophenol	ND		380	ug/kg
2,4-Dichlorophenol	ND		380	ug/kg
2,4-Dimethylphenol	ND		380	ug/kg
2,4-Dinitrophenol	ND		1800	ug/kg
2,4-Dinitrotoluene	ND		380	ug/kg
2,6-Dinitrotoluene	ND		380	ug/kg
2-Chloronaphthalene	ND		380	ug/kg
2-Chlorophenol	ND		380	ug/kg
2-Methylnaphthalene	ND		380	ug/kg
2-Methylphenol	ND		380	ug/kg
2-Nitroaniline	ND		1800	ug/kg
2-Nitrophenol	ND		380	ug/kg
3,3'-Dichlorobenzidine	ND		760	ug/kg
3-Nitroaniline	ND		1800	ug/kg
4,6-Dinitro-2-methylphenol	ND		1800	ug/kg
4-Bromophenyl phenyl ether	ND		380	ug/kg
4-Chloro-3-methylphenol	ND		750	ug/kg
4-Chloroaniline	ND		380	ug/kg
4-Chlorophenyl phenyl ether	ND		380	ug/kg
4-Methylphenol	ND		380	ug/kg
4-Nitroaniline	ND		1800	ug/kg
4-Nitrophenol	ND		1800	ug/kg
Acenaphthene	ND		380	ug/kg
Acenaphthylene	ND		380	ug/kg
Anthracene	ND		380	ug/kg
Benzo(a)anthracene	ND		380	ug/kg
Benzo(a)pyrene	ND		380	ug/kg
Benzo(b)fluoranthene	ND		380	ug/kg
Benzo(g,h,i)perylene	ND		380	ug/kg
Benzo(k)fluoranthene	ND		380	ug/kg
bis(2-Chloroethoxy)-methane	ND		380	ug/kg
bis(2-Chloroethyl) ether	ND		380	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		380	ug/kg
Butyl benzyl phthalate	ND		380	ug/kg
Carbazole	ND		380	ug/kg
Chrysene	ND		380	ug/kg
Di-n-butyl phthalate	ND		380	ug/kg
Di-n-octyl phthalate	ND		380	ug/kg
Dibenz(a,h)anthracene	ND		380	ug/kg
Dibenzofuran	ND		380	ug/kg
Diethyl phthalate	ND		380	ug/kg
Dimethyl phthalate	ND		380	ug/kg
Fluoranthene	ND		380	ug/kg
Fluorene	ND		380	ug/kg

Percent moisture is 13.0%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG05-02
LAB ID: 131259-0008-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		380	ug/kg
Hexachlorobutadiene	ND		380	ug/kg
Hexachlorocyclopentadiene	ND		1800	ug/kg
Hexachloroethane	ND		380	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		380	ug/kg
Isophorone	ND		380	ug/kg
N-Nitroso-di-n-propylamine	ND		380	ug/kg
N-Nitrosodiphenylamine	ND		380	ug/kg
Naphthalene	ND		380	ug/kg
Nitrobenzene	ND		380	ug/kg
Pentachlorophenol	ND		1800	ug/kg
Phenanthrene	ND		380	ug/kg
Pyrene	ND		380	ug/kg
Phenol	ND		380	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	78	%	25 - 121
Phenol-d5	85	%	24 - 113
Nitrobenzene-d5	51	%	23 - 120
2-Fluorobiphenyl	76	%	30 - 115
2,4,6-Tribromophenol	93	%	19 - 122
Terphenyl-d14	98	%	18 - 137

Percent moisture is 13.0%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG08-01
LAB ID: 131259-0009-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1900	ug/kg
2,4,6-Trichlorophenol	ND		390	ug/kg
2,4-Dichlorophenol	ND		390	ug/kg
2,4-Dimethylphenol	ND		390	ug/kg
2,4-Dinitrophenol	ND		1900	ug/kg
2,4-Dinitrotoluene	ND		390	ug/kg
2,6-Dinitrotoluene	ND		390	ug/kg
2-Chloronaphthalene	ND		390	ug/kg
2-Chlorophenol	ND		390	ug/kg
2-Methylnaphthalene	ND		390	ug/kg
2-Methylphenol	ND		390	ug/kg
2-Nitroaniline	ND		1900	ug/kg
2-Nitrophenol	ND		390	ug/kg
3,3'-Dichlorobenzidine	ND		780	ug/kg
3-Nitroaniline	ND		1900	ug/kg
4,6-Dinitro-2-methylphenol	ND		1900	ug/kg
4-Bromophenyl phenyl ether	ND		390	ug/kg
4-Chloro-3-methylphenol	ND		770	ug/kg
4-Chloroaniline	ND		390	ug/kg
4-Chlorophenyl phenyl ether	ND		390	ug/kg
4-Methylphenol	ND		390	ug/kg
4-Nitroaniline	ND		1900	ug/kg
4-Nitrophenol	ND		1900	ug/kg
Acenaphthene	ND		390	ug/kg
Acenaphthylene	ND		390	ug/kg
Anthracene	ND		390	ug/kg
Benzo(a)anthracene	ND		390	ug/kg
Benzo(a)pyrene	ND		390	ug/kg
Benzo(b)fluoranthene	ND		390	ug/kg
Benzo(g,h,i)perylene	ND		390	ug/kg
Benzo(k)fluoranthene	ND		390	ug/kg
bis(2-Chloroethoxy)-methane	ND		390	ug/kg
bis(2-Chloroethyl) ether	ND		390	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		390	ug/kg
Butyl benzyl phthalate	ND		390	ug/kg
Carbazole	ND		390	ug/kg
Chrysene	ND		390	ug/kg
Di-n-butyl phthalate	ND		390	ug/kg
Di-n-octyl phthalate	ND		390	ug/kg
Dibenz(a,h)anthracene	ND		390	ug/kg
Dibenzofuran	ND		390	ug/kg
Diethyl phthalate	ND		390	ug/kg
Dimethyl phthalate	ND		390	ug/kg
Fluoranthene	ND		390	ug/kg
Fluorene	ND		390	ug/kg

Percent moisture is 15.5%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG08-01
LAB ID: 131259-0009-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		390	ug/kg
Hexachlorobutadiene	ND		390	ug/kg
Hexachlorocyclopentadiene	ND		1900	ug/kg
Hexachloroethane	ND		390	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		390	ug/kg
Isophorone	ND		390	ug/kg
N-Nitroso-di-n-propylamine	ND		390	ug/kg
N-Nitrosodiphenylamine	ND		390	ug/kg
Naphthalene	ND		390	ug/kg
Nitrobenzene	ND		390	ug/kg
Pentachlorophenol	ND		1900	ug/kg
Phenanthrene	ND		390	ug/kg
Pyrene	ND		390	ug/kg
Phenol	ND		390	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	96	%	25 - 121
Phenol-d5	82	%	24 - 113
Nitrobenzene-d5	73	%	23 - 120
2-Fluorobiphenyl	66	%	30 - 115
2,4,6-Tribromophenol	66	%	19 - 122
Terphenyl-d14	78	%	18 - 137

Percent moisture is 15.5%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG08-02
LAB ID: 131259-0010-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1800	ug/kg
2,4,6-Trichlorophenol	ND		380	ug/kg
2,4-Dichlorophenol	ND		380	ug/kg
2,4-Dimethylphenol	ND		380	ug/kg
2,4-Dinitrophenol	ND		1800	ug/kg
2,4-Dinitrotoluene	ND		380	ug/kg
2,6-Dinitrotoluene	ND		380	ug/kg
2-Chloronaphthalene	ND		380	ug/kg
2-Chlorophenol	ND		380	ug/kg
2-Methylnaphthalene	ND		380	ug/kg
2-Methylphenol	ND		380	ug/kg
2-Nitroaniline	ND		1800	ug/kg
2-Nitrophenol	ND		380	ug/kg
3,3'-Dichlorobenzidine	ND		750	ug/kg
3-Nitroaniline	ND		1800	ug/kg
4,6-Dinitro-2-methylphenol	ND		1800	ug/kg
4-Bromophenyl phenyl ether	ND		380	ug/kg
4-Chloro-3-methylphenol	ND		740	ug/kg
4-Chloroaniline	ND		380	ug/kg
4-Chlorophenyl phenyl ether	ND		380	ug/kg
4-Methylphenol	ND		380	ug/kg
4-Nitroaniline	ND		1800	ug/kg
4-Nitrophenol	ND		1800	ug/kg
Acenaphthene	ND		380	ug/kg
Acenaphthylene	ND		380	ug/kg
Anthracene	ND		380	ug/kg
Benzo(a)anthracene	ND		380	ug/kg
Benzo(a)pyrene	ND		380	ug/kg
Benzo(b)fluoranthene	ND		380	ug/kg
Benzo(g,h,i)perylene	ND		380	ug/kg
Benzo(k)fluoranthene	ND		380	ug/kg
bis(2-Chloroethoxy)-methane	ND		380	ug/kg
bis(2-Chloroethyl) ether	ND		380	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		380	ug/kg
Butyl benzyl phthalate	ND		380	ug/kg
Carbazole	ND		380	ug/kg
Chrysene	ND		380	ug/kg
Di-n-butyl phthalate	ND		380	ug/kg
Di-n-octyl phthalate	ND		380	ug/kg
Dibenz(a,h)anthracene	ND		380	ug/kg
Dibenzofuran	ND		380	ug/kg
Diethyl phthalate	ND		380	ug/kg
Dimethyl phthalate	ND		380	ug/kg
Fluoranthene	ND		380	ug/kg
Fluorene	ND		380	ug/kg

Percent moisture is 12.2%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG08-02
LAB ID: 131259-0010-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		380	ug/kg
Hexachlorobutadiene	ND		380	ug/kg
Hexachlorocyclopentadiene	ND		1800	ug/kg
Hexachloroethane	ND		380	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		380	ug/kg
Isophorone	ND		380	ug/kg
N-Nitroso-di-n-propylamine	ND		380	ug/kg
N-Nitrosodiphenylamine	ND		380	ug/kg
Naphthalene	ND		380	ug/kg
Nitrobenzene	ND		380	ug/kg
Pentachlorophenol	ND		1800	ug/kg
Phenanthrene	ND		380	ug/kg
Pyrene	ND		380	ug/kg
Phenol	ND		380	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	82	%	25 - 121
Phenol-d5	73	%	24 - 113
Nitrobenzene-d5	45	%	23 - 120
2-Fluorobiphenyl	57	%	30 - 115
2,4,6-Tribromophenol	72	%	19 - 122
Terphenyl-d14	89	%	18 - 137

Percent moisture is 12.2%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG08-03
LAB ID: 131259-0011-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1900	ug/kg
2,4,6-Trichlorophenol	ND		390	ug/kg
2,4-Dichlorophenol	ND		390	ug/kg
2,4-Dimethylphenol	ND		390	ug/kg
2,4-Dinitrophenol	ND		1900	ug/kg
2,4-Dinitrotoluene	ND		390	ug/kg
2,6-Dinitrotoluene	ND		390	ug/kg
2-Chloronaphthalene	ND		390	ug/kg
2-Chlorophenol	ND		390	ug/kg
2-Methylnaphthalene	ND		390	ug/kg
2-Methylphenol	ND		390	ug/kg
2-Nitroaniline	ND		1900	ug/kg
2-Nitrophenol	ND		390	ug/kg
3,3'-Dichlorobenzidine	ND		780	ug/kg
3-Nitroaniline	ND		1900	ug/kg
4,6-Dinitro-2-methylphenol	ND		1900	ug/kg
4-Bromophenyl phenyl ether	ND		390	ug/kg
4-Chloro-3-methylphenol	ND		770	ug/kg
4-Chloroaniline	ND		390	ug/kg
4-Chlorophenyl phenyl ether	ND		390	ug/kg
4-Methylphenol	ND		390	ug/kg
4-Nitroaniline	ND		1900	ug/kg
4-Nitrophenol	ND		1900	ug/kg
Acenaphthene	ND		390	ug/kg
Acenaphthylene	ND		390	ug/kg
Anthracene	ND		390	ug/kg
Benzo(a)anthracene	ND		390	ug/kg
Benzo(a)pyrene	ND		390	ug/kg
Benzo(b)fluoranthene	ND		390	ug/kg
Benzo(g,h,i)perylene	ND		390	ug/kg
Benzo(k)fluoranthene	ND		390	ug/kg
bis(2-Chloroethoxy)-methane	ND		390	ug/kg
bis(2-Chloroethyl) ether	ND		390	ug/kg
bis(2-Ethylhexyl)-phthalate	330	J	390	ug/kg
Butyl benzyl phthalate	ND		390	ug/kg
Carbazole	ND		390	ug/kg
Chrysene	ND		390	ug/kg
Di-n-butyl phthalate	ND		390	ug/kg
Di-n-octyl phthalate	ND		390	ug/kg
Dibenz(a,h)anthracene	ND		390	ug/kg
Dibenzofuran	ND		390	ug/kg
Diethyl phthalate	ND		390	ug/kg
Dimethyl phthalate	ND		390	ug/kg
Fluoranthene	ND		390	ug/kg

Percent moisture is 15.4%. All results and limits are reported on a dry weight basis.

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

(cont.)

Client Name: Woodward-Clyde Consultants
Client ID: HG08-03
LAB ID: 131259-0011-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-MA Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Fluorene	ND		390	ug/kg
Hexachlorobenzene	ND		390	ug/kg
Hexachlorobutadiene	ND		390	ug/kg
Hexachlorocyclopentadiene	ND		1900	ug/kg
Hexachloroethane	ND		390	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		390	ug/kg
Isophorone	ND		390	ug/kg
N-Nitroso-di-n-propylamine	ND		390	ug/kg
N-Nitrosodiphenylamine	ND		390	ug/kg
Naphthalene	ND		390	ug/kg
Nitrobenzene	ND		390	ug/kg
Pentachlorophenol	ND		1900	ug/kg
Phenanthrene	ND		390	ug/kg
Pyrene	ND		390	ug/kg
Phenol	ND		390	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	95	%	25 - 121
Phenol-d5	78	%	24 - 113
Nitrobenzene-d5	60	%	23 - 120
2-Fluorobiphenyl	56	%	30 - 115
2,4,6-Tribromophenol	65	%	19 - 122
Terphenyl-d14	93	%	18 - 137

Percent moisture is 15.4%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG09-10-W
LAB ID: 131259-0012-SA
Matrix: WATER Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
2-Nitrophenol	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
3-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
4-Chloro-3-methylphenol	2.5	J	10	ug/L
4-Chloroaniline	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
4-Methylphenol	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Acenaphthene	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
Anthracene	ND		10	ug/L
Benzo(a)anthracene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	1.0	J	10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-butyl phthalate	ND		10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethyl phthalate	3.2	J	10	ug/L
Dimethyl phthalate	1.2	J	10	ug/L
Fluoranthene	ND		10	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG09-10-W
LAB ID: 131259-0012-SA
Matrix: WATER Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Fluorene	ND		10	ug/L
Hexachlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Naphthalene	1.1	J	10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Pyrene	ND		10	ug/L
Phenol	ND		10	ug/L

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	42	%	21 - 100
Phenol-d5	28	%	10 - 94
Nitrobenzene-d5	68	%	34 - 114
2-Fluorobiphenyl	71	%	43 - 116
2,4,6-Tribromophenol	78	%	10 - 123
Terphenyl-d14	75	%	33 - 141

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG06B-10-W
LAB ID: 131259-0013-SA
Matrix: WATER Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
2-Nitrophenol	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
3-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
4-Methylphenol	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Acenaphthene	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
Anthracene	ND		10	ug/L
Benzo(a)anthracene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	ND		10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-butyl phthalate	ND		10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethyl phthalate	ND		10	ug/L
Dimethyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L
Fluorene	ND		10	ug/L

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG06B-10-W
LAB ID: 131259-0013-SA
Matrix: WATER Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Naphthalene	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Pyrene	ND		10	ug/L
Phenol	ND		10	ug/L

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	39	%	21 - 100
Phenol-d5	26	%	10 - 94
Nitrobenzene-d5	70	%	34 - 114
2-Fluorobiphenyl	71	%	43 - 116
2,4,6-Tribromophenol	80	%	10 - 123
Terphenyl-d14	79	%	33 - 141

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: FB0319
LAB ID: 131259-0014-FB
Matrix: WATER Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
2-Nitrophenol	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
3-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
4-Methylphenol	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Acenaphthene	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
Anthracene	ND		10	ug/L
Benzo(a)anthracene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	1.2	J	10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-butyl phthalate	ND		10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethyl phthalate	ND		10	ug/L
Dimethyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: FB0319
LAB ID: 131259-0014-FB
Matrix: WATER Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Fluorene	ND		10	ug/L
Hexachlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Naphthalene	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Pyrene	ND		10	ug/L
Phenol	ND		10	ug/L

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	42	%	21 - 100
Phenol-d5	27	%	10 - 94
Nitrobenzene-d5	69	%	34 - 114
2-Fluorobiphenyl	74	%	43 - 116
2,4,6-Tribromophenol	77	%	10 - 123
Terphenyl-d14	82	%	33 - 141

ND = Not Detected

QC LOT ASSIGNMENT REPORT - MS QC
Semivolatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
131259-0001-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131259-0002-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131259-0003-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131259-0004-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131259-0005-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131259-0006-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131259-0007-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131259-0008-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131259-0009-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131259-0010-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131259-0011-SA	SOLID	Q8270-S		23 MAR 98-CX	23 MAR 98-CA
131259-0012-SA	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA
131259-0013-SA	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA
131259-0014-FB	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA

METHOD BLANK REPORT
Semivolatile Organics by GC/MS
Project: 131259

Test: Q8270-TCL-L-S Method 8270B - TCL Semivolatile Organics
Matrix: SOLID
QC Run: 23 MAR 98-CX

Date Analyzed: 28 MAR 98

Analyte	Result	Units	Reporting Limit
2,4,5-Trichlorophenol	ND	ug/kg	1600
2,4,6-Trichlorophenol	ND	ug/kg	330
2,4-Dichlorophenol	ND	ug/kg	330
2,4-Dimethylphenol	ND	ug/kg	330
2,4-Dinitrophenol	ND	ug/kg	1600
2,4-Dinitrotoluene	ND	ug/kg	330
2,6-Dinitrotoluene	ND	ug/kg	330
2-Chloronaphthalene	ND	ug/kg	330
2-Chlorophenol	ND	ug/kg	330
2-Methylnaphthalene	ND	ug/kg	330
2-Methylphenol	ND	ug/kg	330
2-Nitroaniline	ND	ug/kg	1600
2-Nitrophenol	ND	ug/kg	330
3,3'-Dichlorobenzidine	ND	ug/kg	660
3-Nitroaniline	ND	ug/kg	1600
4,6-Dinitro-2-methylphenol	ND	ug/kg	1600
4-Bromophenyl phenyl ether	ND	ug/kg	330
4-Chloro-3-methylphenol	ND	ug/kg	650
4-Chloroaniline	ND	ug/kg	330
4-Chlorophenyl phenyl ether	ND	ug/kg	330
4-Methylphenol	ND	ug/kg	330
4-Nitroaniline	ND	ug/kg	1600
4-Nitrophenol	ND	ug/kg	1600
Acenaphthene	ND	ug/kg	330
Acenaphthylene	ND	ug/kg	330
Anthracene	ND	ug/kg	330
Benzo(a)anthracene	ND	ug/kg	330
Benzo(a)pyrene	ND	ug/kg	330
Benzo(b)fluoranthene	ND	ug/kg	330
Benzo(g,h,i)perylene	ND	ug/kg	330
Benzo(k)fluoranthene	ND	ug/kg	330
bis(2-Chloroethoxy)-methane	ND	ug/kg	330
bis(2-Chloroethyl) ether	ND	ug/kg	330
bis(2-Ethylhexyl)-phthalate	ND	ug/kg	330
Butyl benzyl phthalate	ND	ug/kg	330
Carbazole	ND	ug/kg	330
Chrysene	ND	ug/kg	330
Di-n-butyl phthalate	ND	ug/kg	330
Di-n-octyl phthalate	ND	ug/kg	330
Dibenz(a,h)anthracene	ND	ug/kg	330
Dibenzofuran	ND	ug/kg	330
Diethyl phthalate	ND	ug/kg	330
Dimethyl phthalate	ND	ug/kg	330
Fluoranthene	ND	ug/kg	330
Fluorene	ND	ug/kg	330
Hexachlorobenzene	ND	ug/kg	330
Hexachlorobutadiene	ND	ug/kg	330

ND = Not Detected

METHOD BLANK REPORT (cont.)
Semivolatile Organics by GC/MS
Project: 131259

Test: Q8270-TCL-L-S Method 8270B - TCL Semivolatile Organics (cont.)
Matrix: SOLID
QC Run: 23 MAR 98-CX

Date Analyzed: 28 MAR 98

Analyte	Result	Units	Reporting Limit
Hexachlorocyclopentadiene	ND	ug/kg	1600
Hexachloroethane	ND	ug/kg	330
Indeno(1,2,3-c,d)pyrene	ND	ug/kg	330
Isophorone	ND	ug/kg	330
N-Nitroso-di-n-propylamine	ND	ug/kg	330
N-Nitrosodiphenylamine	ND	ug/kg	330
Naphthalene	ND	ug/kg	330
Nitrobenzene	ND	ug/kg	330
Pentachlorophenol	ND	ug/kg	1600
Phenanthrene	ND	ug/kg	330
Pyrene	ND	ug/kg	330
Phenol	ND	ug/kg	330

Surrogate	Recovery	Acceptable Range
2-Fluorophenol	102	25 -121
Phenol-d5	85	24 -113
Nitrobenzene-d5	75	23 -120
2-Fluorobiphenyl	80	30 -115
2,4,6-Tribromophenol	75	19 -122
Terphenyl-d14	107	18 -137

ND = Not Detected

METHOD BLANK REPORT (cont.)
Semivolatile Organics by GC/MS
Project: 131259

Test: Q8270-TCL-3510-A Method SW8270B - TCL Semivolatile Organics
Matrix: AQUEOUS
QC Run: 23 MAR 98-AX

Date Analyzed: 27 MAR 98

Analyte	Result	Units	Reporting Limit
2,4,5-Trichlorophenol	ND	ug/L	10
2,4,6-Trichlorophenol	ND	ug/L	10
2,4-Dichlorophenol	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
2-Methylphenol	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
2-Nitrophenol	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4,6-Dinitro-2-methylphenol	ND	ug/L	50
4-Bromophenyl phenyl ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
4-Chloroaniline	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
4-Methylphenol	ND	ug/L	10
4-Nitroaniline	ND	ug/L	50
4-Nitrophenol	ND	ug/L	50
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Anthracene	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
bis(2-Chloroethoxy)-methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Ethylhexyl)-phthalate	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
Carbazole	ND	ug/L	10
Chrysene	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	1.0

ND = Not Detected

METHOD BLANK REPORT (cont.)
Semivolatile Organics by GC/MS
Project: 131259

Test: Q8270-TCL-3510-A Method SW8270B - TCL Semivolatile Organics (cont.)
Matrix: AQUEOUS
QC Run: 23 MAR 98-AX

Date Analyzed: 27 MAR 98

Analyte	Result	Units	Reporting Limit
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	50
Hexachloroethane	ND	ug/L	10
Indeno(1,2,3-c,d)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
Naphthalene	ND	ug/L	10
Nitrobenzene	ND	ug/L	10
Pentachlorophenol	ND	ug/L	50
Phenanthrene	ND	ug/L	10
Pyrene	ND	ug/L	10
Phenol	ND	ug/L	10

Surrogate	Recovery	Acceptable Range
2-Fluorophenol	61	21 -100
Phenol-d5	41	10 -94
Nitrobenzene-d5	89	34 -114
2-Fluorobiphenyl	89	43 -116
2,4,6-Tribromophenol	90	10 -123
Terphenyl-d14	99	33 -141

ND = Not Detected

LABORATORY CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS
Project: 131259

Category: Q8270-S Method SW8270 - Acid, Base and Neutrals by GC/MS.
Matrix: SOLID Date Analyzed: 28 MAR 98
QC Run: 23 MAR 98-CX
Concentration Units: ug/kg

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Phenol	6670	4990	75	39-115
2-Chlorophenol	6670	5160	77	55-108
1,4-Dichlorobenzene	3330	2890	87	56-107
N-Nitroso-di-n-propylamine	3330	2800	84	14-110
1,2,4-Trichlorobenzene	3330	2710	81	54-104
4-Chloro-3-methylphenol	6670	4490	67	52-120
Acenaphthene	3330	2600	78	60-114
4-Nitrophenol	6670	4110	62	56-142
2,4-Dinitrotoluene	3330	2840	85	62-117
Pentachlorophenol	6670	6800	102	49-132
Pyrene	3330	2760	83	61-106

Surrogates	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
2-Fluorophenol	6670	5910	89	25-121
Phenol-d5	6670	5310	80	24-113
Nitrobenzene-d5	3330	3100	93	23-120
2-Fluorobiphenyl	3330	2650	80	30-115
2,4,6-Tribromophenol	6670	4960	74	19-122
Terphenyl-d14	3330	2720	82	18-137

Category: Q8270-S-A Acid, Base and Neutrals by GC/MS.
Matrix: AQUEOUS Date Analyzed: 27 MAR 98
QC Run: 23 MAR 98-AX
Concentration Units: ug/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Phenol	200	72.6	36	10-96
2-Chlorophenol	200	141	71	55-105
1,4-Dichlorobenzene	100	69.3	69	56-103
N-Nitroso-di-n-propylamine	100	80.9	81	58-109
1,2,4-Trichlorobenzene	100	72.9	73	55-106
4-Chloro-3-methylphenol	200	165	83	67-104
Acenaphthene	100	81.8	82	63-117
4-Nitrophenol	200	79.7	40	10-111
2,4-Dinitrotoluene	100	93.8	94	70-110
Pentachlorophenol	200	190	95	46-133
Pyrene	100	83.6	84	67-120

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS (cont.)
Project: 131259

Surrogates	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
2-Fluorophenol	200	96.2	48	21-100
Phenol-d5	200	68.1	34	10-94
Nitrobenzene-d5	100	78.1	78	34-114
2-Fluorobiphenyl	100	77.1	77	43-116
2,4,6-Tribromophenol	200	169	85	10-123
Terphenyl-d14	100	77.5	78	33-141

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Semivolatile Organics by GC/MS
Project: 131259

Category: Q8270-S Method SW8270 - Acid, Base and Neutrals by GC/MS.
Matrix: SOLID
Sample: 131262-0005
MS Run: 23 MAR 98-CA
Units ug/kg Units Qualifier: Wet weight

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Phenol	ND	4580	5120	6670	69	77	11	39-115	39
2-Chlorophenol	ND	4240	4870	6670	64	73	14	55-108	38
N-Nitroso-di-n-propylamine	ND	2420	2660	3330	73	80	9.4	14-110	41
4-Chloro-3-methylphenol	ND	4150	4710	6670	62	71	13	52-120	23
Acenaphthene	ND	2530	2670	3330	76	80	5.4	60-114	20
4-Nitrophenol	ND	4820	4670	6670	72	70	3.2	56-142	42
2,4-Dinitrotoluene	ND	2910	2790	3330	87	84	4.2	62-117	25
Pentachlorophenol	ND	6520	6790	6670	98	102	4.1	49-132	37
Pyrene	ND	3290	2580	3330	99	77	24	61-106	32

Surrogates	Sample %Recovery	%Recovery MS	%Recovery MSD	Acceptance Limit Recovery
2-Fluorophenol	75	74	73	25-121
Phenol-d5	73	74	74	24-113
Nitrobenzene-d5	71	58	76	23-120
2-Fluorobiphenyl	45	58	68	30-115
2,4,6-Tribromophenol	59	78	70	19-122
Terphenyl-d14	66	86	73	18-137

Category: Q8270-S-A Acid, Base and Neutrals by GC/MS.
Matrix: AQUEOUS
Sample: 131262-0003
MS Run: 23 MAR 98-AA
Units: ug/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Phenol	ND	64.3	69.2	200	32	35	7.3	10-96	57
2-Chlorophenol	ND	128	139	200	64	70	8.7	55-105	37
N-Nitroso-di-n-propylamine	ND	69.3	72.4	100	69	72	4.4	58-109	30
4-Chloro-3-methylphenol	ND	148	160	200	74	80	7.7	67-104	36
Acenaphthene	ND	65.6	67.3	100	66	67	2.5	63-117	23

ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Semivolatile Organics by GC/MS
Project: 131259 (cont.)

Category: Q8270-S-A Acid, Base and Neutrals by GC/MS. (cont.)
Matrix: AQUEOUS
Sample: 131262-0003
MS Run: 23 MAR 98-AA (cont.)
Units: ug/L

Analyte	Sample Result	Concentration MS Result		Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
4-Nitrophenol	ND	63.4		66.4	200	32	33	4.5	10-111	49
2,4-Dinitrotoluene	ND	82.0		85.1	100	82	85	3.7	70-110	30
Pentachlorophenol	ND	140		162	200	70	81	14	46-133	39
Pyrene	ND	62.9	n	69.1	100	63	69	9.4	67-120	34

Surrogates	Sample %Recovery	%Recovery MS	%Recovery MSD	Acceptance Limi Recovery
2-Fluorophenol	50	42	47	21-100
Phenol-d5	33	30	33	10-94
Nitrobenzene-d5	72	67	70	34-114
2-Fluorobiphenyl	66	60	63	43-116
2,4,6-Tribromophenol	75	62	72	10-123
Terphenyl-d14	72	58	64	33-141

n = Spiked analyte out of matrix spike acceptance limits; refer to lab control sample results.
ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

Metals

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG09-01
LAB ID: 131259-0001-SA
Matrix: SOIL — Sampled: 19 MAR 98 — Received: 19 MAR 98
Authorized: 20 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.51	J	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	3.2	q	1.0	0.27	mg/kg	7060A	25 MAR 98	26 MAR 98
Barium	56.4	B	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.44		1.0	0.11	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.23	J	1.0	0.54	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	26.2		1.0	0.54	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	6.3		1.0	5.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	14.8		1.0	2.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	5.8		1.0	0.54	mg/kg	6010A	25 MAR 98	26 MAR 98
Mercury	ND		1.0	0.11	mg/kg	SW7471	27 MAR 98	30 MAR 98
Molybdenum	1.5	J	1.0	4.3	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	16.4		1.0	4.3	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.54	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.54	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	0.89	J	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	35.4		1.0	5.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	48.5		1.0	2.2	mg/kg	6010A	25 MAR 98	26 MAR 98

Percent moisture is 7.9%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
q = Post-digestion spike recovery fell between 40 and 85% due to matrix interference.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG09-02
LAB ID: 131259-0002-SA
Matrix: SOIL — Sampled: 19 MAR 98 — Received: 19 MAR 98
Authorized: 20 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.47	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	2.8	q	1.0	0.29	mg/kg	7060A	25 MAR 98	27 MAR 98
Barium	42.0	B	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.31		1.0	0.12	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.28	J	1.0	0.58	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	19.0		1.0	0.58	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	4.7	J	1.0	5.8	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	10.4		1.0	2.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	3.9		1.0	0.58	mg/kg	6010A	25 MAR 98	26 MAR 98
Mercury	ND		1.0	0.12	mg/kg	SW7471	27 MAR 98	30 MAR 98
Molybdenum	1.0	J	1.0	4.6	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	12.1		1.0	4.6	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.58	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.58	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	0.99	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	26.5		1.0	5.8	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	36.0		1.0	2.3	mg/kg	6010A	25 MAR 98	26 MAR 98

Percent moisture is 13.8%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
q = Post-digestion spike recovery fell between 40 and 85% due to matrix interference.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG05-01
LAB ID: 131259-0007-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.40	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	2.8	q	1.0	0.29	mg/kg	7060A	25 MAR 98	26 MAR 98
Barium	36.8	B	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.30		1.0	0.12	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.10	J	1.0	0.58	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	19.0		1.0	0.58	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	4.1	J	1.0	5.8	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	8.8		1.0	2.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	3.9		1.0	0.58	mg/kg	6010A	25 MAR 98	26 MAR 98
Mercury	ND		1.0	0.12	mg/kg	SW7471	27 MAR 98	30 MAR 98
Molybdenum	1.2	J	1.0	4.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	11.1		1.0	4.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.58	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.58	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	0.77	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	23.3		1.0	5.8	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	34.7		1.0	2.3	mg/kg	6010A	25 MAR 98	26 MAR 98

Percent moisture is 14.5%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
q = Post-digestion spike recovery fell between 40 and 85% due to matrix interference.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG05-02
LAB ID: 131259-0008-SA
Matrix: SOIL
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.40	J	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	2.4		1.0	0.29	mg/kg	7060A	25 MAR 98	26 MAR 98
Barium	12.1	B	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.10	J	1.0	0.11	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	ND		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	34.4		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	1.6	J	1.0	5.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	2.7	J	1.0	2.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	0.89		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Mercury	ND		1.0	0.11	mg/kg	SW7471	27 MAR 98	30 MAR 98
Molybdenum	1.2	J	1.0	4.6	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	17.3		1.0	4.6	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	ND		1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	10.7		1.0	5.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	10.8		1.0	2.3	mg/kg	6010A	25 MAR 98	26 MAR 98

Percent moisture is 13.0%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG08-01
LAB ID: 131259-0009-SA
Matrix: SOIL
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.40	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	1.4		1.0	0.30	mg/kg	7060A	25 MAR 98	26 MAR 98
Barium	35.7	B	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.27		1.0	0.12	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.066	J	1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	21.8		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	3.7	J	1.0	5.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	4.5		1.0	3.0	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	2.2		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Mercury	ND		1.0	0.12	mg/kg	SW7471	27 MAR 98	30 MAR 98
Molybdenum	0.50	J	1.0	4.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	12.2		1.0	4.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	ND		1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	20.6		1.0	5.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	21.1		1.0	2.4	mg/kg	6010A	25 MAR 98	26 MAR 98

Percent moisture is 15.5%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG08-02
LAB ID: 131259-0010-SA
Matrix: SOIL
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.73	GJ	2.0	2.3	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	3.4	p	5.0	1.4	mg/kg	7060A	25 MAR 98	27 MAR 98
Barium	90.7	GB	2.0	2.3	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.45	G	2.0	0.23	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	ND	G	2.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	22.7	G	2.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	8.4	GJ	2.0	11.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	15.6	G	2.0	5.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	4.3	G	2.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Mercury	ND		1.0	0.11	mg/kg	SW7471	27 MAR 98	30 MAR 98
Molybdenum	0.87	GJ	2.0	9.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	14.8	G	2.0	9.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND	G	2.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND	G	2.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	1.4	GJ	2.0	2.3	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	42.7	G	2.0	11.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	58.5	G	2.0	4.6	mg/kg	6010A	25 MAR 98	26 MAR 98

Percent moisture is 12.2%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
G = Reporting limit(s) raised due to matrix interference.
J = Result is detected below the reporting limit or is an estimated concentration.
p = Reporting limit was raised due to a dilution necessitated by initial post-digestion spike recovery of less than 40% due to matrix interference.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG08-03
LAB ID: 131259-0011-SA
Matrix: SOIL
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.42	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	1.3		1.0	0.30	mg/kg	7060A	25 MAR 98	26 MAR 98
Barium	28.8	B	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.20		1.0	0.12	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	ND		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	20.0		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	2.7	J	1.0	5.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	3.8		1.0	3.0	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	1.3		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Mercury	ND		1.0	0.12	mg/kg	SW7471	27 MAR 98	30 MAR 98
Molybdenum	0.52	J	1.0	4.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	10.6		1.0	4.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	ND		1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	17.2		1.0	5.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	18.6		1.0	2.4	mg/kg	6010A	25 MAR 98	26 MAR 98

Percent moisture is 15.4%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS
(Water - Dissolved)

Client Name: Woodward-Clyde Consultants
Client ID: HG09-10-W
LAB ID: 131259-0012-SA
Matrix: WATER — Sampled: 19 MAR 98 — Received: 19 MAR 98
Authorized: 20 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	ND		1.0	0.060	mg/L	6010A	26 MAR 98	27 MAR 98
Arsenic	0.022	J	1.0	0.30	mg/L	6010A	26 MAR 98	27 MAR 98
Barium	0.045	J	1.0	0.20	mg/L	6010A	26 MAR 98	27 MAR 98
Beryllium	ND		1.0	0.0050	mg/L	6010A	26 MAR 98	27 MAR 98
Cadmium	ND		1.0	0.0050	mg/L	6010A	26 MAR 98	27 MAR 98
Chromium	ND		1.0	0.010	mg/L	6010A	26 MAR 98	27 MAR 98
Cobalt	0.0068	J	1.0	0.050	mg/L	6010A	26 MAR 98	27 MAR 98
Copper	0.0065	J	1.0	0.025	mg/L	6010A	26 MAR 98	27 MAR 98
Lead	ND		1.0	0.10	mg/L	6010A	26 MAR 98	27 MAR 98
Mercury	ND		1.0	0.00020	mg/L	7470A	24 MAR 98	25 MAR 98
Molybdenum	0.033	J	1.0	0.040	mg/L	6010A	26 MAR 98	27 MAR 98
Nickel	0.028	J	1.0	0.040	mg/L	6010A	26 MAR 98	27 MAR 98
Selenium	ND		1.0	0.25	mg/L	6010A	26 MAR 98	27 MAR 98
Silver	ND		1.0	0.010	mg/L	6010A	26 MAR 98	27 MAR 98
Thallium	0.084	J	1.0	2.0	mg/L	6010A	26 MAR 98	27 MAR 98
Vanadium	ND		1.0	0.050	mg/L	6010A	26 MAR 98	27 MAR 98
Zinc	0.0093	J	1.0	0.020	mg/L	6010A	26 MAR 98	27 MAR 98

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS
(Water - Dissolved)

Client Name: Woodward-Clyde Consultants
Client ID: FB0319
LAB ID: 131259-0014-FB
Matrix: WATER
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	ND		1.0	0.060	mg/L	6010A	26 MAR 98	27 MAR 98
Arsenic	ND		1.0	0.30	mg/L	6010A	26 MAR 98	27 MAR 98
Barium	ND		1.0	0.20	mg/L	6010A	26 MAR 98	27 MAR 98
Beryllium	ND		1.0	0.0050	mg/L	6010A	26 MAR 98	27 MAR 98
Cadmium	ND		1.0	0.0050	mg/L	6010A	26 MAR 98	27 MAR 98
Chromium	ND		1.0	0.010	mg/L	6010A	26 MAR 98	27 MAR 98
Cobalt	ND		1.0	0.050	mg/L	6010A	26 MAR 98	27 MAR 98
Copper	ND		1.0	0.025	mg/L	6010A	26 MAR 98	27 MAR 98
Lead	ND		1.0	0.10	mg/L	6010A	26 MAR 98	27 MAR 98
Mercury	ND		1.0	0.00020	mg/L	7470A	24 MAR 98	25 MAR 98
Molybdenum	ND		1.0	0.040	mg/L	6010A	26 MAR 98	27 MAR 98
Nickel	0.0052	J	1.0	0.040	mg/L	6010A	26 MAR 98	27 MAR 98
Selenium	ND		1.0	0.25	mg/L	6010A	26 MAR 98	27 MAR 98
Silver	ND		1.0	0.010	mg/L	6010A	26 MAR 98	27 MAR 98
Thallium	ND		1.0	2.0	mg/L	6010A	26 MAR 98	27 MAR 98
Vanadium	ND		1.0	0.050	mg/L	6010A	26 MAR 98	27 MAR 98
Zinc	ND		1.0	0.020	mg/L	6010A	26 MAR 98	27 MAR 98

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

QC LOT ASSIGNMENT REPORT - MS QC
Metals Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
131259-0001-SA	SOLID	QHG-S		27 MAR 98-HX	27 MAR 98-HA
131259-0002-SA	SOLID	QHG-S		27 MAR 98-HX	27 MAR 98-HA
131259-0007-SA	SOLID	QHG-S		27 MAR 98-HX	27 MAR 98-HA
131259-0008-SA	SOLID	QHG-S		27 MAR 98-HX	27 MAR 98-HA
131259-0009-SA	SOLID	QHG-S		27 MAR 98-HX	27 MAR 98-HA
131259-0010-SA	SOLID	QHG-S		27 MAR 98-HX	27 MAR 98-HA
131259-0011-SA	SOLID	QHG-S		27 MAR 98-HX	27 MAR 98-HA
131259-0001-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131259-0002-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131259-0007-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131259-0008-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131259-0009-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131259-0010-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131259-0011-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131259-0001-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131259-0002-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131259-0007-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131259-0008-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131259-0009-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131259-0010-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131259-0011-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131259-0012-SA	AQUEOUS	QICP-A		26 MAR 98-PTX	26 MAR 98-PA
131259-0014-FB	AQUEOUS	QICP-A		26 MAR 98-PTX	26 MAR 98-PA
131259-0012-SA	AQUEOUS	QHG-A		24 MAR 98-JX	24 MAR 98-JA
131259-0014-FB	AQUEOUS	QHG-A		24 MAR 98-JX	24 MAR 98-JA

METHOD BLANK REPORT
Metals Analysis and Preparation
Project: 131259

Test: Q-HG-CVAA-S Method SW7471A - Mercury, Cold Vapor AA
Matrix: SOLID
QC Run: 27 MAR 98-HX Date Analyzed: 30 MAR 98

Analyte	Result	Units	Reporting Limit
Mercury	ND	mg/kg	0.10

Test: Q-AS-GFAA-S Method 7060A - Arsenic, Graphite Furnace AA
Matrix: SOLID
QC Run: 25 MAR 98-PX Date Analyzed: 26 MAR 98

Analyte	Result	Units	Reporting Limit
Arsenic	ND	mg/kg	0.25

Test: ICPT-CAM-S Method 6010A - CAM TTLC Metals
Matrix: SOLID
QC Run: 25 MAR 98-BX Date Analyzed: 26 MAR 98

Analyte	Result		Units	Reporting Limit
Antimony	ND		mg/kg	1.0
Barium	0.11	J	mg/kg	1.0
Beryllium	ND		mg/kg	0.10
Cadmium	ND		mg/kg	0.50
Chromium	ND		mg/kg	0.50
Cobalt	ND		mg/kg	5.0
Copper	ND		mg/kg	2.5
Lead	ND		mg/kg	0.50
Molybdenum	ND		mg/kg	4.0
Nickel	ND		mg/kg	4.0
Selenium	ND		mg/kg	0.50
Silver	ND		mg/kg	0.50
Thallium	ND		mg/kg	1.0
Vanadium	ND		mg/kg	5.0
Zinc	ND		mg/kg	2.0

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METHOD BLANK REPORT (cont.)
Metals Analysis and Preparation
Project: 131259

Test: Q-ICP-ADD Method 6010A - ICP Metals, Dissolved
Matrix: AQUEOUS
QC Run: 26 MAR 98-PTX Date Analyzed: 27 MAR 98

Analyte	Result	Units	Reporting Limit
Antimony	ND	mg/L	0.060
Arsenic	ND	mg/L	0.30
Barium	ND	mg/L	0.20
Beryllium	ND	mg/L	0.0050
Cadmium	ND	mg/L	0.0050
Chromium	ND	mg/L	0.010
Cobalt	ND	mg/L	0.050
Copper	ND	mg/L	0.025
Lead	ND	mg/L	0.10
Molybdenum	ND	mg/L	0.040
Nickel	ND	mg/L	0.040
Selenium	ND	mg/L	0.25
Silver	ND	mg/L	0.010
Thallium	ND	mg/L	2.0
Vanadium	ND	mg/L	0.050
Zinc	ND	mg/L	0.020

Test: Q-HG-CVAA-AD Method SW7470A - Mercury, Cold Vapor AA, Dissolved
Matrix: AQUEOUS
QC Run: 24 MAR 98-JX Date Analyzed: 25 MAR 98

Analyte	Result	Units	Reporting Limit
Mercury	ND	mg/L	0.00020

ND = Not Detected

LABORATORY CONTROL SAMPLE REPORT
Metals Analysis and Preparation
Project: 131259

Category: QHG-S Mercury by CVAA
Matrix: SOLID
QC Run: 27 MAR 98-HX
Concentration Units: mg/kg
Date Analyzed: 30 MAR 98

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Mercury	0.833	0.845	101	85-115

Category: QAS-GF-S Arsenic, Graphite Furnace AA
Matrix: SOLID
QC Run: 25 MAR 98-PX
Concentration Units: mg/kg
Date Analyzed: 26 MAR 98

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Arsenic	4.00	3.89	97	80-120

Category: ICP-S ICP Metals
Matrix: SOLID
QC Run: 25 MAR 98-BX
Concentration Units: mg/kg
Date Analyzed: 26 MAR 98

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Antimony	50.0	45.9	92	70-110
Barium	200	209	104	85-115
Beryllium	5.00	5.41	108	80-115
Cadmium	5.00	5.22	104	80-115
Chromium	20.0	21.5	107	85-120
Cobalt	50.0	51.0	102	85-120
Copper	25.0	25.4	101	85-115
Lead	50.0	50.5	101	80-110
Molybdenum	100	103	103	80-115
Nickel	50.0	52.5	105	85-115
Selenium	200	193	96	70-105
Silver	5.00	4.52	90	80-110
Thallium	200	193	97	80-110
Vanadium	50.0	52.2	104	85-115
Zinc	50.0	52.5	105	80-115

Category: QICP-A Method 6010A - ICP Metals
Matrix: AQUEOUS
QC Run: 26 MAR 98-PTX
Concentration Units: mg/L
Date Analyzed: 27 MAR 98

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE REPORT
Metals Analysis and Preparation (cont.)
Project: 131259

Category: QICP-A Method 6010A - ICP Metals
Matrix: AQUEOUS Date Analyzed: 27 MAR 98
QC Run: 26 MAR 98-PTX (cont.)
Concentration Units: mg/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Antimony	0.500	0.468	94	80-115
Arsenic	2.00	2.07	103	85-115
Barium	2.00	1.96	98	85-115
Beryllium	0.0500	0.0493	99	85-120
Cadmium	0.0500	0.0467	93	80-120
Chromium	0.200	0.198	99	80-115
Cobalt	0.500	0.491	98	85-120
Copper	0.250	0.248	99	85-115
Lead	0.500	0.463	93	85-120
Molybdenum	1.00	1.01	101	85-115
Nickel	0.500	0.503	101	85-115
Selenium	2.00	1.97	98	85-125
Silver	0.0500	0.0446	89	85-115
Thallium	2.00	1.80	90	85-120
Vanadium	0.500	0.500	100	85-120
Zinc	0.500	0.502	100	85-120

Category: QHG-A Mercury by CVAA
Matrix: AQUEOUS Date Analyzed: 25 MAR 98
QC Run: 24 MAR 98-JX
Concentration Units: mg/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Mercury	0.00500	0.00489	98	85-115

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Metals Analysis and Preparation
Project: 131259

Category: QHG-S Mercury by CVAA
Matrix: SOLID
Sample: 131259-0001
MS Run: 27 MAR 98-HA
Units mg/kg Units Qualifier: Wet weight

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
		Concentration							
Mercury	ND	0.173	0.180	0.167	104	108	4.0	85-115	20

Category: QAS-GF-S Arsenic, Graphite Furnace AA
Matrix: SOLID
Sample: 131259-0001
MS Run: 25 MAR 98-PA
Units mg/kg Units Qualifier: Wet weight

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
		Concentration							
Arsenic	2.92	4.56	4.46 n	2.00	82	77	2.2	80-120	20

Category: ICP-S ICP Metals
Matrix: SOLID
Sample: 131259-0001
MS Run: 25 MAR 98-BA
Units mg/kg Units Qualifier: Wet weight

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
		Concentration							
Antimony	0.470 J	5.47 n	4.63 n	25.0	20	17	17	70-110	20
Barium	52.0	141	139	100	89	87	1.6	85-115	20
Beryllium	0.406	2.79	2.75	2.50	95	94	1.2	80-115	20
Cadmium	0.208 J	2.51	2.50	2.50	92	92	0.5	80-115	20
Chromium	24.2	32.9	40.2 n	10.0	87	161	20	85-120	20
Cobalt	5.84	28.2	28.0	25.0	89	89	0.5	85-120	20
Copper	13.7	23.8 n	23.9 n	12.5	81	82	0.3	85-115	20
Lead	5.38	27.5	27.0	25.0	88	87	1.7	80-110	20

J = Result is detected below the reporting limit or is an estimated concentration.
n = Spiked analyte out of matrix spike acceptance limits; refer to lab control sample results.
ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Metals Analysis and Preparation
Project: 131259 (cont.)

Category: ICP-S ICP Metals (cont.)
Matrix: SOLID
Sample: 131259-0001
MS Run: 25 MAR 98-BA (cont.)
Units mg/kg Units Qualifier: Wet weight

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
	Concentration								
Molybdenum	1.34 J	46.3	45.8	50.0	90	89	1.2	80-115	20
Nickel	15.1	37.8	45.1 n	25.0	91	120	18	85-115	20
Selenium	ND	90.1	89.2	100	90	89	1.0	70-105	20
Silver	ND	2.18	2.17	2.50	87	87	0.6	80-110	20
Thallium	0.819 J	88.0	86.9	100	87	86	1.2	80-110	20
Vanadium	32.6	52.9 n	55.4	25.0	81	91	4.7	85-115	20
Zinc	44.7	64.2 n	63.2 n	25.0	78	74	1.6	80-115	20

Category: QICP-A Method 6010A - ICP Metals
Matrix: AQUEOUS
Sample: 131262-0003
MS Run: 26 MAR 98-PA
Units: mg/L

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
	Concentration								
Antimony	ND	0.493	0.486	0.500	99	97	1.4	80-115	20
Arsenic	ND	2.10	2.07	2.00	105	103	1.8	85-115	20
Barium	0.0132 J	1.99	1.97	2.00	99	98	1.1	85-115	20
Beryllium	ND	0.0510	0.0500	0.0500	102	100	2.1	85-120	20
Cadmium	ND	0.0477	0.0439	0.0500	95	88	8.3	80-120	20
Chromium	ND	0.203	0.200	0.200	102	100	1.5	80-115	20
Cobalt	ND	0.493	0.487	0.500	99	97	1.3	85-120	20
Copper	ND	0.254	0.251	0.250	102	100	1.2	85-115	20
Lead	ND	0.474	0.460	0.500	95	92	3.0	80-120	20
Molybdenum	0.0151 J	1.03	1.01	1.00	101	100	1.5	85-115	20
Nickel	ND	0.507	0.505	0.500	101	101	0.3	85-115	20
Selenium	ND	2.01	1.99	2.00	100	99	1.1	85-125	20
Silver	ND	0.0447	0.0460	0.0500	89	92	2.8	85-115	20
Thallium	ND	1.77	1.75	2.00	88	87	1.0	85-120	20
Vanadium	0.0163 J	0.522	0.512	0.500	101	99	1.9	85-120	20
Zinc	ND	0.502	0.496	0.500	100	99	1.1	85-120	20

J = Result is detected below the reporting limit or is an estimated concentration.
n = Spiked analyte out of matrix spike acceptance limits; refer to lab control sample results.
ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Metals Analysis and Preparation
Project: 131259 (cont.)

Category: QHG-A Mercury by CVAA
Matrix: AQUEOUS
Sample: 131262-0003
MS Run: 24 MAR 98-JA
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Mercury	ND	0.00104	0.00104	0.00100	104	104	0.0	85-115	20

ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

Moisture

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG09-01
LAB ID: 131259-0001-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	7.9		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG09-02
LAB ID: 131259-0002-SA
Matrix: SOIL
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	14		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG06B-01
LAB ID: 131259-0003-SA
Matrix: SOIL
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	17		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG06B-02
LAB ID: 131259-0004-SA
Matrix: SOIL
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	16		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG06A-01
LAB ID: 131259-0005-SA
Matrix: SOIL
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	17		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG06A-02
LAB ID: 131259-0006-SA
Matrix: SOIL
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	11		1.0	0.10	%	D2216	NA	24 MAR 98

Quanterra Inc.-Santa Ana, CA

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG05-01
LAB ID: 131259-0007-SA
Matrix: SOIL
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	14		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG05-02
LAB ID: 131259-0008-SA
Matrix: SOIL
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	13		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG08-01
LAB ID: 131259-0009-SA
Matrix: SOIL
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	16		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG08-02
LAB ID: 131259-0010-SA
Matrix: SOIL
Authorized: 20 MAR 98

Sampled: 19 MAR 98
Prepared: See Below

Received: 19 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	12		1.0	0.10	%	D2216	NA	24 MAR 98

ANALYTICAL METHODS SUMMARY

A8C250182

PARAMETER	ANALYTICAL METHOD
Total Residue as Percent Solids	MCAWW 160.3 MOD
Volatile Organics by GC/MS	SW846 8260A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A8C250182

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CG3DN	001	HG09-01 131259-0001 SA	03/19/98	00:0
CG3DQ	002	HG09-02 131259-0002 SA	03/19/98	00:0
CG3DR	003	HG05-01 131259-0007 SA	03/19/98	00:0
CG3DT	004	HG05-02 131259-0008 SA	03/19/98	00:0
CG3DV	005	HG08-01 131259-0009 SA	03/19/98	00:0
CG3DW	006	HG08-02 131259-0010 SA	03/19/98	00:0
CG3DX	007	HG08-03 131259-0011 SA	03/19/98	00:0
CG3E0	008	HG09-10-W 131259-0012 SA	03/19/98	00:0
CG3E1	009	FB0319 131259-0014 FB	03/19/98	00:0

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG08-03
LAB ID: 131259-0011-SA
Matrix: SOIL Sampled: 19 MAR 98 Received: 19 MAR 98
Authorized: 20 MAR 98 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	15		1.0	0.10	%	D2216	NA	24 MAR 98

QC LOT ASSIGNMENT REPORT - MS QC
GC/MS Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
131259-0001-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131259-0002-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131259-0003-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131259-0004-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131259-0005-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131259-0006-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131259-0007-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131259-0008-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131259-0009-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131259-0010-SA	SOLID	MOISTURE-S			23 MAR 98-AA
131259-0011-SA	SOLID	MOISTURE-S			23 MAR 98-AA

MATRIX DUPLICATE QC REPORT
GC/MS Preparation
Project: 131259

Category: MOISTURE-S Method ASTM D2216 - Percent Moisture
Matrix: SOLID
Sample: 131262-0005
MS Run: 23 MAR 98-AA
Units: %

Analyte	Concentration Sample	Concentration Duplicate	%RPD SA-DU	Acceptance Limit
Percent Water	7.60	7.60	0.0	10

Calculations are performed before rounding to avoid round-off errors in calculated results.

VOCs

Quanterra Environmental Services

Quanterra Incorporated
4101 Shuffel Drive, NW
North Canton, Ohio 44720

330 497-9396 Telephone
330 497-0772 Fax

ANALYTICAL REPORT

PROJECT NO. 131259

WWC/131259

Lot #: A8C250182

SHARON MEVES

Quanterra Inc - Santa Ana CA L

QUANTERRA INCORPORATED

Alesia M. Danford
Project Manager

April 1, 1998

CASE NARRATIVE

The following report contains the analytical results for seven solid and two water samples submitted to Quanterra-North Canton by Quanterra-Santa Ana from the WWC/131259 Site, project number 131259. The samples were received March 25, 1998, according to documented sample acceptance procedures.

Quanterra-North Canton utilizes only USEPA approved methods and instrumentation in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

The samples were received at the laboratory at a temperature of 3.5° C.

SUPPLEMENTAL QC INFORMATION

GC/MS VOLATILES

Sample(s) which contain results between the MDL and the RL are flagged with "J". There is the possibility of false positive or misidentification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation will be performed only down to the standard reporting limit (SRL). The acceptance criteria for quality control criteria may not be met at these quantitation levels.

Acid preservation causes 2-Chloroethyl vinyl ether to decompose. When detected, the concentration found will be reported; however, a true reporting limit cannot be reported when the compound is not detected.

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG09-01 131259-0001 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-001 Work Order #...: CG3DN102 Matrix.....: SOLID
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/27/98 Analysis Date..: 03/27/98
Prep Batch #...: 8087123
Dilution Factor: 1
% Moisture.....: 8.7

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG09-01 131259-0001 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-001 Work Order #...: CG3DN102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	92	(61 - 115)
Toluene-d8	100	(82 - 129)
Bromofluorobenzene	95	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG09-02 131259-0002 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-002 Work Order #...: CG3DQ102 Matrix.....: SOLID
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/27/98 Analysis Date..: 03/27/98
Prep Batch #...: 8087123
Dilution Factor: 1
% Moisture.....: 13

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: BG09-02 131259-0002 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-002 Work Order #...: CG3DQ102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	94	(61 - 115)
Toluene-d8	101	(82 - 129)
Bromofluorobenzene	94	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG05-01 131259-0007 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-003 Work Order #...: CG3DR102 Matrix.....: SOLID
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/27/98 Analysis Date..: 03/27/98
Prep Batch #...: 8087123
Dilution Factor: 1
% Moisture.....: 14

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: BG05-01 131259-0007 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-003 Work Order #...: CG3DR102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	93	(61 - 115)
Toluene-d8	100	(82 - 129)
Bromofluorobenzene	97	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG05-02 131259-0008 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-004 Work Order #...: CG3DT102 Matrix.....: SOLID
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/27/98 Analysis Date..: 03/27/98
Prep Batch #...: 8087123
Dilution Factor: 1
% Moisture.....: 11

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG05-02 131259-0008 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-004 Work Order #...: CG3DT102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	95	(61 - 115)
Toluene-d8	101	(82 - 129)
Bromofluorobenzene	95	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG08-01 131259-0009 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-005 Work Order #...: CG3DV102 Matrix.....: SOLID
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/28/98 Analysis Date..: 03/28/98
Prep Batch #...: 8088132
Dilution Factor: 1
% Moisture.....: 15

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG08-01 131259-0009 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-005 Work Order #...: CG3DV102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	99	(61 - 115)
Toluene-d8	101	(82 - 129)
Bromofluorobenzene	94	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG08-02 131259-0010 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-006 Work Order #...: CG3DW102 Matrix.....: SOLID
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/27/98 Analysis Date..: 03/27/98
Prep Batch #...: 8087123
Dilution Factor: 1
% Moisture.....: 21

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG08-02 131259-0010 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-006 Work Order #...: CG3DW102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	95	(61 - 115)
Toluene-d8	102	(82 - 129)
Bromofluorobenzene	97	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG08-03 131259-0011 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-007 Work Order #...: CG3DX102 Matrix.....: SOLID
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/27/98 Analysis Date..: 03/27/98
Prep Batch #...: 8087123
Dilution Factor: 1
% Moisture.....: 12

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG08-03 131259-0011 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-007 Work Order #...: CG3DX102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	94	(61 - 115)
Toluene-d8	102	(82 - 129)
Bromofluorobenzene	98	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG09-10-W 131259-0012 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-008 Work Order #...: CG3E0101 Matrix.....: WATER
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/29/98 Analysis Date..: 03/29/98
Prep Batch #...: 8088147
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	13	10	ug/L	SW846 8260A
Benzene	ND	1.0	ug/L	SW846 8260A
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	7.0 J	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	ND	1.0	ug/L	SW846 8260A
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	0.29 J	1.0	ug/L	SW846 8260A
Chloromethane	ND	2.0	ug/L	SW846 8260A
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	0.18 J	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	0.19 J	0.50	ug/L	SW846 8260A
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG09-10-W 131259-0012 SA

GC/MS Volatiles

Lot-Sample #...: A8C250182-008 Work Order #...: CG3E0101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	ND	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	ND	1.0	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	0.30 J	1.0	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	0.086 J	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	ND	2.0	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	0.50	ug/L	SW846 8260A
o-Xylene	ND	0.50	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	87	(69 - 127)
Toluene-d8	98	(90 - 112)
Bromofluorobenzene	100	(87 - 114)

NOTE(S):

J Estimated result. Result is less than RL.

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: FB0319 131259-0014 FB

GC/MS Volatiles

Lot-Sample #...: A8C250182-009 Work Order #...: CG3E1101 Matrix.:.....: WATER
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/29/98 Analysis Date..: 03/29/98
Prep Batch #...: 8088147
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	ug/L	SW846 8260A
Benzene	ND	1.0	ug/L	SW846 8260A
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	ND	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	ND	1.0	ug/L	SW846 8260A
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	1.0	ug/L	SW846 8260A
Chloromethane	ND	2.0	ug/L	SW846 8260A
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: FB0319 131259-0014 FB

GC/MS Volatiles

Lot-Sample #...: A8C250182-009 Work Order #...: CG3E1101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	ND	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	ND	1.0	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	ND	2.0	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	0.50	ug/L	SW846 8260A
o-Xylene	ND	0.50	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	90	(69 - 127)
Toluene-d8	95	(90 - 112)
Bromofluorobenzene	99	(87 - 114)

QUALITY CONTROL SECTION

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

Quanterra® Incorporated conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. Quanterra requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). Failure of the RPDs to fall within the laboratory-generated acceptance windows requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the MS/MSD RPDs are within acceptance criteria, the batch is acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except for the common laboratory contaminants indicated below.

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals
Methylene chloride	Phthalate Esters	Copper
Acetone		Iron
2-Butanone		Zinc
		Lead*

* *for analyses run on TJA Trace ICP or GFAA only*

QUALITY CONTROL ELEMENTS OF SW-846 METHODS (continued)

METHOD BLANK (continued)
The listed volatile and semivolatile compounds may be present in concentrations up to 5 times the reporting limits. The listed metals may be present in concentrations up to 2 times the reporting limit or must be twenty fold less than the results of the environmental samples. Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. When these values fail to meet acceptance criteria, the data is reviewed to determine the cause. If, in the analyst's judgment, sample matrix effects are indicated, no corrective action is performed. Otherwise, the MS/MSD and the environmental sample used to prepare them are reprepared and reanalyzed.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch.

SURROGATE COMPOUNDS
In addition to these batch-related QC indicators, each organic environmental and QC sample are spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

The acceptance criteria do not apply to samples that are diluted. If the dilution is more than 5X, the recoveries will be reported as diluted out. All other surrogate recoveries will be reported. If the LCS, LCSD, or the Method Blank surrogates fail to meet recovery criteria (exception for dilutions), the entire batch of samples is reprepared and reanalyzed.

If the surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank and the associated sample(s) are ND, the batch is acceptable. If the surrogate recoveries are outside criteria for environmental or MS/MSD samples, the batch may be acceptable based on the analyst's judgment that sample matrix effects are indicated.

For the GC/MS BNA methods, the surrogate criteria is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide/PCB, PAH, TPH, and Herbicide methods, the surrogate criteria is that one of two surrogate compounds meet acceptance criteria.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C250182 Work Order #...: CG5EN102 Matrix.....: SOLID
LCS Lot-Sample#: A8C280000-123
Prep Date.....: 03/27/98 Analysis Date..: 03/27/98
Prep Batch #...: 8087123
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	105	(60 - 119)	SW846 8260A
Trichloroethene	95	(74 - 115)	SW846 8260A
Chlorobenzene	98	(85 - 116)	SW846 8260A
Toluene	102	(87 - 118)	SW846 8260A
Benzene	105	(83 - 118)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	86	(61 - 115)
Toluene-d8	101	(82 - 129)
Bromofluorobenzene	98	(64 - 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C250182 Work Order #...: CG5MD102 Matrix.....: SOLID
LCS Lot-Sample#: A8C290000-132
Prep Date.....: 03/28/98 Analysis Date..: 03/28/98
Prep Batch #...: 8088132
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	97	(60 - 119)	SW846 8260A
Trichloroethene	97	(74 - 115)	SW846 8260A
Chlorobenzene	98	(85 - 116)	SW846 8260A
Toluene	97	(87 - 118)	SW846 8260A
Benzene	99	(83 - 118)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	94	(61 - 115)
Toluene-d8	98	(82 - 129)
Bromofluorobenzene	95	(64 - 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C250182 Work Order #...: CG5MX102 Matrix.....: WATER
LCS Lot-Sample#: A8C290000-147
Prep Date.....: 03/29/98 Analysis Date..: 03/29/98
Prep Batch #...: 8088147
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	106	(87 - 113)	SW846 8260A
Trichloroethene	100	(89 - 115)	SW846 8260A
Chlorobenzene	93	(89 - 119)	SW846 8260A
Toluene	92	(81 - 117)	SW846 8260A
Benzene	98	(77 - 126)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	87	(69 - 127)
Toluene-d8	97	(90 - 112)
Bromofluorobenzene	99	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C250182 Work Order #...: CG5EN101 Matrix.....: SOLID
MB Lot-Sample #: A8C280000-123

Prep Date.....: 03/27/98
Analysis Date..: 03/27/98 Prep Batch #...: 8087123
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C250182 Work Order #...: CG5EN101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	85	(61 - 115)
Toluene-d8	100	(82 - 129)
Bromofluorobenzene	96	(64 - 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C250182 Work Order #...: CG5MD101 Matrix.....: SOLID
MB Lot-Sample #: A8C290000-132
Prep Date.....: 03/28/98
Analysis Date..: 03/28/98 Prep Batch #...: 8088132
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C250182 Work Order #...: CG5MD101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	93	(61 - 115)
Toluene-d8	97	(82 - 129)
Bromofluorobenzene	94	(64 - 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

CASE NARRATIVE

QUANTERRA INCORPORATED PROJECT NUMBER 131273

All applicable internal quality control analyses including calibrations and calibration verifications, calibration (instrument) and method blanks, laboratory control samples (LCS), matrix spikes (MS) and matrix spike duplicates (MSD), and other QC met method-specified acceptance criteria. Any matrix-related anomalies are indicated using footnotes within the report. Any other anomalies are reported within the narrative.

General: MS/MSD analyses were performed on aqueous samples as designated on the COC (with the exception of TVPH and TEPH, for which no QC analyses were performed, as discussed with Woodward Clyde personnel). MS/MSD analyses for soil samples were performed as sample volume allowed. (Only 2 small sleeves were submitted to the laboratory. One sleeve was shipped to the Quanterra-North Canton facility for volatiles analysis, so only one sleeve was available for the remaining analyses. Volume concerns were discussed with Woodward Clyde personnel immediately after the first sample shipment arrived.) Where MS/MSD analyses could not be performed, duplicate laboratory control standards were reported.

Sample HG08-11-W was received, but was not listed on the COC. Partha Bora was informed of the anomaly on 3/23/98. The sample was logged for TEPH analysis per the sample label.

The field blank was identified as sample FB0320 on the COC; the sample was identified as FB0301-W on the label. The sample was logged per the label ID.

PCBs: The recoveries of decachlorobiphenyl in samples HG06A-10-W and FB03201-W were outside control limits. The recoveries of tetrachloro-m-xylene were within control for these samples, meeting method criteria, therefore, no corrective action was taken.

SVOCs: Samples HG19-01 and HG19-02 were analyzed diluted due to matrix interferences. Reporting limits are elevated accordingly.

The recovery of pyrene in the MS analysis of MS Run 23 MAR 98-AA was slightly low. The recovery of this compound in the associated LCS was acceptable, therefore, no corrective action was taken.

Metals: All samples requiring ICP and ICP Trace analysis were analyzed by method 6010B, the newly promulgated version of the ICP method in SW846, rather than method 6010A, as specified in the PRG tables.

The recoveries of arsenic in MS Run 25 MAR 98-PA, and the recoveries of antimony, chromium, copper, nickel, vanadium and zinc in MS Run 27 MAR 98-AA were outside control limits. The recoveries of these metals in the associated LCSs were acceptable, therefore, matrix interference is suspected, and no corrective action was taken.

CASE NARRATIVE

QUANTERRA INCORPORATED PROJECT NUMBER 131273

VOCs: Analyses were performed by the Quanterra-North Canton facility. Please refer to the attached report.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C250182 Work Order #...: CG5MX101 Matrix.....: WATER
MB Lot-Sample #: A8C290000-147
Prep Date.....: 03/29/98
Analysis Date..: 03/29/98 Prep Batch #...: 8088147
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	ug/L	SW846 8260A
Benzene	ND	1.0	ug/L	SW846 8260A
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	ND	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	ND	1.0	ug/L	SW846 8260A
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	1.0	ug/L	SW846 8260A
Chloromethane	ND	2.0	ug/L	SW846 8260A
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C250182 Work Order #...: CG5MX101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	ND	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	ND	1.0	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	ND	2.0	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	0.50	ug/L	SW846 8260A
o-Xylene	ND	0.50	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	88	(69 - 127)
Toluene-d8	98	(90 - 112)
Bromofluorobenzene	97	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C250182 Work Order #...: CG3DN103-MS Matrix.....: SOLID
MS Lot-Sample #: A8C250182-001 CG3DN104-MSD
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/27/98 Analysis Date..: 03/27/98
Prep Batch #...: 8087123
Dilution Factor: 1 % Moisture.....: 8.7

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	103	(78 - 117)			SW846 8260A
	99	(78 - 117)	4.8	(0-17)	SW846 8260A
Chlorobenzene	103	(81 - 115)			SW846 8260A
	95	(81 - 115)	7.7	(0-18)	SW846 8260A
1,1-Dichloroethene	103	(75 - 113)			SW846 8260A
	102	(75 - 113)	0.97	(0-20)	SW846 8260A
Toluene	101	(78 - 126)			SW846 8260A
	95	(78 - 126)	5.9	(0-24)	SW846 8260A
Trichloroethene	98	(71 - 110)			SW846 8260A
	92	(71 - 110)	6.6	(0-22)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	94	(61 - 115)
	94	(61 - 115)
Toluene-d8	100	(82 - 129)
	100	(82 - 129)
Bromofluorobenzene	95	(64 - 112)
	95	(64 - 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C250182 Work Order #...: CG3E0102-MS Matrix.....: WATER
MS Lot-Sample #: A8C250182-008 CG3E0103-MSD
Date Sampled...: 03/19/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/29/98 Analysis Date..: 03/29/98
Prep Batch #...: 8088147
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	99	(78 - 117)			SW846 8260A
	97	(78 - 117)	1.7	(0-17)	SW846 8260A
Chlorobenzene	93	(81 - 115)			SW846 8260A
	94	(81 - 115)	1.4	(0-18)	SW846 8260A
1,1-Dichloroethene	108	(75 - 113)			SW846 8260A
	106	(75 - 113)	2.4	(0-20)	SW846 8260A
Toluene	93	(78 - 126)			SW846 8260A
	93	(78 - 126)	0.51	(0-24)	SW846 8260A
Trichloroethene	98	(71 - 110)			SW846 8260A
	98	(71 - 110)	0.65	(0-22)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	94	(69 - 127)
	87	(69 - 127)
Toluene-d8	96	(90 - 112)
	98	(90 - 112)
Bromofluorobenzene	98	(87 - 114)
	99	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C250182 Work Order #...: CG3E2103-MS Matrix.....: SOLID
MS Lot-Sample #: A8C250183-001 CG3E2104-MSD
Date Sampled...: 03/20/98 00:00 Date Received..: 03/25/98
Prep Date.....: 03/28/98 Analysis Date..: 03/28/98
Prep Batch #...: 8088132
Dilution Factor: 1 % Moisture.....: 4.1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	98	(75 - 113)			SW846 8260A
	102	(75 - 113)	3.5	(0-20)	SW846 8260A
Trichloroethene	95	(71 - 110)			SW846 8260A
	95	(71 - 110)	0.49	(0-22)	SW846 8260A
Chlorobenzene	96	(81 - 115)			SW846 8260A
	97	(81 - 115)	0.65	(0-18)	SW846 8260A
Toluene	95	(78 - 126)			SW846 8260A
	97	(78 - 126)	1.7	(0-24)	SW846 8260A
Benzene	99	(78 - 117)			SW846 8260A
	98	(78 - 117)	0.54	(0-17)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	101	(61 - 115)
	100	(61 - 115)
Toluene-d8	100	(82 - 129)
	99	(82 - 129)
Bromofluorobenzene	95	(64 - 112)
	95	(64 - 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

CHAIN-OF-CUSTODY

PROJECT NAME: WWC
PO NUMBER: 131259
PROJECT MANAGER: Sharon Meves

QUANTERRA ENVIRONMENTAL SERVICES
1721 South Grand Avenue
Santa Ana, CA 92705
Phone #: (714) 258-8610

DUE: 01 APR 98
TO: QES, NORTH CANTON
4101 Shuffel Drive N.W.
North Canton, OH 44720

SAMPLE DESCRIPTION	LAB ID	DATE	TIME	MATRIX	CONTAINERS	ANALYSES: 8260 (SW846)									REMARKS/ SPCL INSTR
HG09-01	131259-0001 SA	19 MAR 98		SOIL		X									
HG09-02	131259-0002 SA	19 MAR 98		SOIL		X									
HG05-01	131259-0007 SA	19 MAR 98		SOIL		X									
HG05-02	131259-0008 SA	19 MAR 98		SOIL		X									
HG08-01	131259-0009 SA	19 MAR 98		SOIL		X									
HG08-02	131259-0010 SA	19 MAR 98		SOIL		X									
HG08-03	131259-0011 SA	19 MAR 98		SOIL		X									
HG09-10-W	131259-0012 SA	19 MAR 98		WATER		X									
FB0319	131259-0014 FB	19 MAR 98		WATER		X									

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
Relinquished by:	[signature]	Steve Shaver	Quanterra	3/24/98	1600
Received by:	[signature]	Kim Humas	QES N.C.	3/25/98	10:00
Relinquished by:					
Received by:					

Comments:

QA373 4/96 CMD

Quanterra Incorporated
1721 South Grand Avenue
Santa Ana, California 92705

714 258-8610 Telephone
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Quanterra Environmental Services

April 3, 1998

QUANTERRA INCORPORATED PROJECT NUMBER: 131273
PO/CONTRACT: 97SB044

Partha Bora
Woodward-Clyde Consultants
2020 E. First Street
Santa Ana, CA 92705

Dear Mr. Bora,

This report contains PARTIAL analytical results for the fourteen samples received under chain of custody by Quanterra Incorporated on March 23, 1998. These samples are associated with your AES, Huntington Beach project. The TEPH results will be forwarded under separate package. Disks for the project will be submitted with the TEPH data.

The case narrative is an integral part of this report.

Preliminary results were sent via facsimile on March 31, 1998 for metals and PCBs.

If you have any questions, please feel free to call me at (714) 258-8610.

Sincerely,

Sharon Meves
Project Manager

TABLE OF CONTENTS

QUANTERRA INCORPORATED PROJECT NUMBER 131273

Case Narrative

Quanterra's Quality Assurance Program

Chain of Custody Documentation

Sample Description Information

PCBs
Sample(s): 6, 13
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

SVOCs
Sample(s): 1-13
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

Metals
Sample(s): 1-5, 7-8, 10-13
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

Moisture
Sample(s): 1-5
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

VOCs
Sample(s): 1-5, 7-13
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

Quanterra Environmental Services - Western Region

Quality Control Definitions

QC Parameter	Definition
QC Batch	A set of up to 20 field samples plus associated laboratory QC samples that are similar in composition (matrix) and that are processed within the same time period with the same reagent and standard lots.
Duplicate Control Sample (DCS)	Consist of a pair of LCSs analyzed within the same QC batch to monitor precision and accuracy independent of sample matrix effects. This QC is performed only if required by client or when insufficient sample is available to perform MS/MSD.
Duplicate Sample (DU)	A second aliquot of an environmental sample, taken from the same sample container when possible, that is processed independently with the first sample aliquot. The results are used to assess the effect of the sample matrix on the precision of the analytical process. The precision estimated using this sample is not necessarily representative of the precision for other samples in the batch.
Laboratory Control Sample (LCS)	A volume of reagent water for aqueous samples or a contaminant-free solid matrix (Ottawa sand) for soil and sediment samples which is spiked with known amounts of representative target analytes and required surrogates. An LCS is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects.
Matrix Spike and Matrix Spike Duplicate (MS/MSD)	A field sample fortified with known quantities of target analytes that are also added to the LCS. Matrix spike duplicate is a second matrix spike sample. MSs/MSDs are carried through the entire analytical process and are used to determine sample matrix effect on accuracy of the measurement system. The accuracy and precision estimated using MS/MSD is only representative of the precision of the sample that was spiked.
Method Blank (MB)	A sample composed of all the reagents (in the same quantities) in reagent water carried through the entire analytical process. The method blank is used to monitor the level of contamination introduced during sample preparation steps.
Surrogate Spike	Organic constituents not expected to be detected in environmental media and are added to every sample and QC at a known concentration. Surrogates are used to determine the efficiency of the sample preparation and the analytical process.

Source: Quanterra® Quality Control Program, Policy QA-003, Rev. 0, 8/19/96.

Woodward-Clyde Consultants

SHIPMENT NO.: 5

PAGE ____ OF ____

DATE 3/20/98

CHAIN OF CUSTODY RECORD

PROJECT NAME: AES

PROJECT NO.: 97560 044

	Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
1A	HG19-01	HG19	SOIL	PUSH	2 SS liners	ICED	NONE	metals
								TPH-d
								VOCs
								SVOCs
2A	HG19-02	HG19	SOIL	PUSH	2 SS liners	ICED	NONE	metals
								TPH-d
								VOCs
								SVOCs
3A	HG19-03	HG19	SOIL	PUSH	2 SS liners	ICED	NONE	metals
								TPH-d
								VOCs
								SVOCs
4A	HG20-01	HG20	SOIL	PUSH	2 SS liners	ICED	NONE	metals
								TPH-d
								VOCs
								SVOCs
5A	HG20-02	HG20	SOIL	PUSH	2 SS liners	ICED	NONE	metals
								TPH-d
								VOCs
								SVOCs

Total Number of Samples Shipped: 5 | Sampler's Signature: [signature]

Relinquished By:	Received By:	Date / Time
Signature: [signature] Printed Name: ARTHUR KING Company: WOODWARD CLYDE Reason: SHIP TO LAB FOR ANALYSIS	Signature: [signature] Printed Name: R. MARTIN Company: CONTINENTAL	Date: 3/20/98 Time: 1700
Relinquished By: Signature: Printed Name: Company: Reason:	Received By: Signature: Printed Name: Company:	Date: / / Time:
Relinquished By: Signature: Printed Name: Company: Reason:	Received By: Signature: Printed Name: Company:	Date: / / Time:
Relinquished By: Signature: Printed Name: Company: Reason:	Received By: Signature: Printed Name: Company:	Date: / / Time:

Special Shipment / Handling / Storage Requirements:

Questions - call Partha Bora @ 714-835-6886

* Note – This does not constitute authorization to proceed with analysis

Woodward-Clyde Consultants

SHIPMENT NO.: 5

CHAIN OF CUSTODY RECORD

PAGE ____ OF ____

DATE 3 20 98

PROJECT NAME: AES

PROJECT NO.: 97360044

	Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
1	HG06A-10-W	HG06A	H_2O	GRAB	1L amberglass	ICED	NONE	TPH-d
					2(1L) amberglass		NONE	SVOCs
					1L amberglass		NONE	PCBs
2 B	HG5B-10-W	~~HG06A~~ HG5B	H_2O	GRAB	500ml poly	ICED	NONE	metals
					1L amberglass		NONE	TPH-d
					3(40ml) vials		HCL	VOCs
					2(1L) amberglass		NONE	SVOCs
3 B	HG5B-11-W	HG5B	H_2O	GRAB	500ml poly	ICED	NONE	metals
					1L amberglass		NONE	TPH-d
					3(40ml) vials		HCL	VOCs
					1L amberglass		NONE	SVOCs
4	HG08-10-W	HG08	H_2O	GRAB	1L amberglass	ICED	NONE	TPH-d
					3(40ml) vials		HCL	VOCs
					2(1L) amberglass		NONE	SVOCs
5 B	HG19-10-W	HG19	H_2O	GRAB	500ml poly	ICED	NONE	metals
					1L amberglass		NONE	TPH-d
					3(40ml) vials		HCL	VOCs
					2(1L) amberglass		NONE	SVOCs

Total Number of Samples Shipped: 5 | Sampler's Signature: [signature]

Relinquished By:	Received By:	Date / Time
Signature: [signature]	Signature: [signature]	Date: 3/20/98
Printed Name: Autumn King	Printed Name: R. [illegible]	Time: 1700
Company: Woodward Clyde	Company: [illegible]	
Reason: Ship to lab for analysis		
Relinquished By:	Received By:	Date / /
Signature:	Signature:	Time
Printed Name:	Printed Name:	
Company:	Company:	
Reason:		
Relinquished By:	Received By:	Date / /
Signature:	Signature:	Time
Printed Name:	Printed Name:	
Company:	Company:	
Reason:		
Relinquished By:	Received By:	Date / /
Signature:	Signature:	Time
Printed Name:	Printed Name:	
Company:	Company:	
Reason:		

Special Shipment / Handling / Storage Requirements:

Metal analysis filter 1st then present.
Questions? - Call Partha Bora @ 714-835-6886

* Note — This does not constitute authorization to proceed with analysis

Woodward-Clyde Consultants

SHIPMENT NO.: 5

PAGE ____ OF ____

CHAIN OF CUSTODY RECORD

DATE 3 12 98

PROJECT NAME: AES

PROJECT NO.: 9F5b044

	Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
1B	HG20-10-W	HG20	H_2O	GRAB	500ml poly	ICED	NONE	metals
				"	1L amber glass	"	NONE	TPH-d
				"	3(40ml) vials	"	HCL	VOCs
2B				"	2(1L) amber glass	"	NONE	SVOCs
	HG20-11-W	HG20	H_2O	GRAB	500ml poly	"	NONE	metals
				"	1L amber glass	"	NONE	TPH-d
				"	3(40ml) vials	"	HCL	VOCs
				"	2(1L) amber glass	"	NONE	SVOCs

END OF RECORD

Total Number of Samples Shipped: 2 | Sampler's Signature: [signature]

Relinquished By	Received By	Date / Time
Signature: [signature] Printed Name: [illegible] Company: Woodward Clyde Reason: Ship to lab for analysis	Signature: [signature] Printed Name: [illegible] Company: [illegible]	Date: 3/12/98 Time: 1700
Relinquished By: Signature: Printed Name: Company: Reason:	Received By: Signature: Printed Name: Company:	Date: / / Time:
Relinquished By: Signature: Printed Name: Company: Reason:	Received By: Signature: Printed Name: Company:	Date: / / Time:
Relinquished By: Signature: Printed Name: Company: Reason:	Received By: Signature: Printed Name: Company:	Date: / / Time:

Special Shipment / Handling / Storage Requirements:

For metal analysis filter 1st then preserve

Questions? - Call Partha Bora @ 714-835-6886

* Note – This does not constitute authorization to proceed with analysis

Woodward-Clyde Consultants

SHIPMENT NO.: 5

CHAIN OF CUSTODY RECORD

PAGE ____ OF ____

DATE 3/20/98

PROJECT NAME: ABS

PROJECT NO.: 9786044

Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
FB0320	—	H_2O	GRAB	500ml poly	ICED	NONE	METALS
				1L amberglass		NONE	TPH-d
				3(40ml) vials		~~NONE~~ HCL	VOCs
				2(1L) amberglass		NONE	SVOCs
				1L amberglass		NONE	PCBs
46-08-11-10	—	H_2O					TPH-D

Total Number of Samples Shipped: 2 Sampler's Signature: Autumn King

Relinquished By:	Received By:	Date / Time
Signature: Autumn King Printed Name: Autumn King Company: WCC Reason: Ship to lab for analysis	Signature: [illegible] Printed Name: R. MARTIN Company: [illegible]	Date: 3/20/98 Time: 1700
Relinquished By: Signature: Printed Name: Company: Reason:	Received By: Signature: Printed Name: Company:	Date: / / Time:
Relinquished By: Signature: Printed Name: Company: Reason:	Received By: Signature: Printed Name: Company:	Date: / / Time:
Relinquished By: Signature: Printed Name: Company: Reason:	Received By: Signature: Printed Name: Company:	Date: / / Time:

Special Shipment / Handling / Storage Requirements: Questions call Partha Bera @ 714-835-6886, Metals filter first then preserve

* Note — This does not constitute authorization to proceed with analysis

SAMPLE DESCRIPTION INFORMATION
for
Woodward-Clyde Consultants

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
131273-0001-SA	HG19-01	SOIL	20 MAR 98		20 MAR 98
131273-0002-SA	HG19-02	SOIL	20 MAR 98		20 MAR 98
131273-0003-SA	HG19-03	SOIL	20 MAR 98		20 MAR 98
131273-0004-SA	HG20-01	SOIL	20 MAR 98		20 MAR 98
131273-0005-SA	HG20-02	SOIL	20 MAR 98		20 MAR 98
131273-0006-SA	HG06A-10-W	WATER	20 MAR 98		20 MAR 98
131273-0007-SA	HG5B-10-W	WATER	20 MAR 98		20 MAR 98
131273-0008-SA	HG5B-11-W	WATER	20 MAR 98		20 MAR 98
131273-0009-SA	HG08-10-W	WATER	20 MAR 98		20 MAR 98
131273-0010-SA	HG19-10-W	WATER	20 MAR 98		20 MAR 98
131273-0011-SA	HG20-10-W	WATER	20 MAR 98		20 MAR 98
131273-0012-SA	HG20-11-W	WATER	20 MAR 98		20 MAR 98
131273-0013-FB	FB03201-W	WATER	20 MAR 98		20 MAR 98
131273-0014-SA	HG08-11-W	WATER	20 MAR 98		20 MAR 98

PCBs

Polychlorinated Biphenyls
Method 8081

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG06A-10-W		
LAB ID:	131273-0006-SA		
Matrix:	WATER	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 24 MAR 98	Analyzed: 25 MAR 98
Instrument:	GC/ECD-PXA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Aroclor 1016	ND		1.0	ug/L
Aroclor 1221	ND		1.0	ug/L
Aroclor 1232	ND		1.0	ug/L
Aroclor 1242	ND		1.0	ug/L
Aroclor 1248	ND		1.0	ug/L
Aroclor 1254	ND		1.0	ug/L
Aroclor 1260	ND		1.0	ug/L

Surrogate	Recovery		Acceptable Range	
2,4,5,6-Tetrachloro-m-xylene	82	%	60 - 150	
Decachlorobiphenyl	42	%	60 - 150	I

I = Surrogate recovery outside of limits due to sample matrix interference.
ND = Not Detected

Polychlorinated Biphenyls
Method 8081

Client Name:	Woodward-Clyde Consultants		
Client ID:	FB03201-W		
LAB ID:	131273-0013-FB		
Matrix:	WATER	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 24 MAR 98	Analyzed: 25 MAR 98
Instrument:	GC/ECD-PXA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
Aroclor 1016	ND		1.0	ug/L
Aroclor 1221	ND		1.0	ug/L
Aroclor 1232	ND		1.0	ug/L
Aroclor 1242	ND		1.0	ug/L
Aroclor 1248	ND		1.0	ug/L
Aroclor 1254	ND		1.0	ug/L
Aroclor 1260	ND		1.0	ug/L

Surrogate	Recovery		Acceptable Range	
2,4,5,6-Tetrachloro-m-xylene	92	%	60 - 150	
Decachlorobiphenyl	56	%	60 - 150	I

I = Surrogate recovery outside of limits due to sample matrix interference.
ND = Not Detected

QC LOT ASSIGNMENT REPORT - MS QC
Semivolatile Organics by GC

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
131273-0006-SA	AQUEOUS	PCB1PAC10A	24 MAR 98-B	24 MAR 98-B	
131273-0013-FB	AQUEOUS	PCB1PAC10A	24 MAR 98-B	24 MAR 98-B	

METHOD BLANK REPORT
Semivolatile Organics by GC
Project: 131273

Test: 8081-PCB-3510-PAC-A Method 8081 - PCBs
Matrix: AQUEOUS
QC Run: 24 MAR 98-B

Date Analyzed: 25 MAR 98

Analyte	Result	Units	Reporting Limit
Aroclor 1016	ND	ug/L	1.0
Aroclor 1221	ND	ug/L	1.0
Aroclor 1232	ND	ug/L	1.0
Aroclor 1242	ND	ug/L	1.0
Aroclor 1248	ND	ug/L	1.0
Aroclor 1254	ND	ug/L	1.0
Aroclor 1260	ND	ug/L	1.0

Surrogate	Recovery	Acceptable Range
2,4,5,6-Tetrachloro-m-xylene	120	60 -150
Decachlorobiphenyl	136	60 -150

ND = Not Detected

DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC
Project: 131273

Category: PCB1PAC10A Method 8081 - PCBs
Matrix: AQUEOUS
QC Lot: 24 MAR 98-B
Concentration Units: ug/L

Date Analyzed: 25 MAR 98

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	%Recovery DCS1	%Recovery DCS2	RPD	Acceptance Limits Recov.	Acceptance Limits RPD
Aroclor 1016	5.00	5.09	5.40	102	108	5.9	50-114	30
Aroclor 1260	5.00	5.20	5.53	104	111	6.2	8-127	30

Surrogate	Concentration Spiked	Measured DCS1	Measured DCS2	%Recovery DCS1	%Recovery DCS2	Acceptance Limits Recovery
2,4,5,6-Tetrachloro-m-xylene	0.200	0.224	0.240	112	120	60-150
Decachlorobiphenyl	0.200	0.260	0.272	130	136	60-150

Calculations are performed before rounding to avoid round-off errors in calculated results.

SVOCs

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG19-01
LAB ID: 131273-0001-SA
Matrix: SOIL Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 29 MAR 98
Instrument: GC/MS-MI Dilution: 2.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		3500	ug/kg
2,4,6-Trichlorophenol	ND		720	ug/kg
2,4-Dichlorophenol	ND		720	ug/kg
2,4-Dimethylphenol	ND		720	ug/kg
2,4-Dinitrophenol	ND		3500	ug/kg
2,4-Dinitrotoluene	ND		720	ug/kg
2,6-Dinitrotoluene	ND		720	ug/kg
2-Chloronaphthalene	ND		720	ug/kg
2-Chlorophenol	ND		720	ug/kg
2-Methylnaphthalene	ND		720	ug/kg
2-Methylphenol	ND		720	ug/kg
2-Nitroaniline	ND		3500	ug/kg
2-Nitrophenol	ND		720	ug/kg
3,3'-Dichlorobenzidine	ND		1400	ug/kg
3-Nitroaniline	ND		3500	ug/kg
4,6-Dinitro-2-methylphenol	ND		3500	ug/kg
4-Bromophenyl phenyl ether	ND		720	ug/kg
4-Chloro-3-methylphenol	ND		1400	ug/kg
4-Chloroaniline	ND		720	ug/kg
4-Chlorophenyl phenyl ether	ND		720	ug/kg
4-Methylphenol	ND		720	ug/kg
4-Nitroaniline	ND		3500	ug/kg
4-Nitrophenol	ND		3500	ug/kg
Acenaphthene	ND		720	ug/kg
Acenaphthylene	ND		720	ug/kg
Anthracene	ND		720	ug/kg
Benzo(a)anthracene	280	J	720	ug/kg
Benzo(a)pyrene	310	J	720	ug/kg
Benzo(b)fluoranthene	600	Jf	720	ug/kg
Benzo(g,h,i)perylene	240	J	720	ug/kg
Benzo(k)fluoranthene	ND		720	ug/kg
bis(2-Chloroethoxy)-methane	ND		720	ug/kg
bis(2-Chloroethyl) ether	ND		720	ug/kg
bis(2-Ethylhexyl)-phthalate	54	J	720	ug/kg
Butyl benzyl phthalate	ND		720	ug/kg
Carbazole	ND		720	ug/kg
Chrysene	420	J	720	ug/kg
Di-n-butyl phthalate	ND		720	ug/kg
Di-n-octyl phthalate	ND		720	ug/kg
Dibenz(a,h)anthracene	ND		720	ug/kg
Dibenzofuran	ND		720	ug/kg
Diethyl phthalate	ND		720	ug/kg
Dimethyl phthalate	ND		720	ug/kg

Percent moisture is 8.8%. All results and limits are reported on a dry weight basis.

f = Benzo(b) and Benzo(k) quantitated as an isomeric pair.
J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG19-01
LAB ID: 131273-0001-SA
Matrix: SOIL Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 29 MAR 98
Instrument: GC/MS-MI Dilution: 2.0

Parameter	Result	Qualifier	RL	Units
Fluoranthene	640	J	720	ug/kg
Fluorene	ND		720	ug/kg
Hexachlorobenzene	ND		720	ug/kg
Hexachlorobutadiene	ND		720	ug/kg
Hexachlorocyclopentadiene	ND		3500	ug/kg
Hexachloroethane	ND		720	ug/kg
Indeno(1,2,3-c,d)pyrene	160	J	720	ug/kg
Isophorone	ND		720	ug/kg
N-Nitroso-di-n-propylamine	ND		720	ug/kg
N-Nitrosodiphenylamine	ND		720	ug/kg
Naphthalene	ND		720	ug/kg
Nitrobenzene	ND		720	ug/kg
Pentachlorophenol	ND		3500	ug/kg
Phenanthrene	380	J	720	ug/kg
Pyrene	1000		720	ug/kg
Phenol	ND		720	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	64	%	25 - 121
Phenol-d5	74	%	24 - 113
Nitrobenzene-d5	67	%	23 - 120
2-Fluorobiphenyl	79	%	30 - 115
2,4,6-Tribromophenol	87	%	19 - 122
Terphenyl-d14	116	%	18 - 137

Percent moisture is 8.8%. All results and limits are reported on a dry weight basis.

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG19-02
LAB ID: 131273-0002-SA
Matrix: SOIL Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 29 MAR 98
Instrument: GC/MS-MI Dilution: 2.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		3800	ug/kg
2,4,6-Trichlorophenol	ND		780	ug/kg
2,4-Dichlorophenol	ND		780	ug/kg
2,4-Dimethylphenol	ND		780	ug/kg
2,4-Dinitrophenol	ND		3800	ug/kg
2,4-Dinitrotoluene	ND		780	ug/kg
2,6-Dinitrotoluene	ND		780	ug/kg
2-Chloronaphthalene	ND		780	ug/kg
2-Chlorophenol	ND		780	ug/kg
2-Methylnaphthalene	ND		780	ug/kg
2-Methylphenol	ND		780	ug/kg
2-Nitroaniline	ND		3800	ug/kg
2-Nitrophenol	ND		780	ug/kg
3,3'-Dichlorobenzidine	ND		1600	ug/kg
3-Nitroaniline	ND		3800	ug/kg
4,6-Dinitro-2-methylphenol	ND		3800	ug/kg
4-Bromophenyl phenyl ether	ND		780	ug/kg
4-Chloro-3-methylphenol	ND		1500	ug/kg
4-Chloroaniline	ND		780	ug/kg
4-Chlorophenyl phenyl ether	ND		780	ug/kg
4-Methylphenol	ND		780	ug/kg
4-Nitroaniline	ND		3800	ug/kg
4-Nitrophenol	ND		3800	ug/kg
Acenaphthene	ND		780	ug/kg
Acenaphthylene	ND		780	ug/kg
Anthracene	ND		780	ug/kg
Benzo(a)anthracene	ND		780	ug/kg
Benzo(a)pyrene	84	J	780	ug/kg
Benzo(b)fluoranthene	ND	f	780	ug/kg
Benzo(g,h,i)perylene	ND		780	ug/kg
Benzo(k)fluoranthene	ND		780	ug/kg
bis(2-Chloroethoxy)-methane	ND		780	ug/kg
bis(2-Chloroethyl) ether	ND		780	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		780	ug/kg
Butyl benzyl phthalate	ND		780	ug/kg
Carbazole	ND		780	ug/kg
Chrysene	58	J	780	ug/kg
Di-n-butyl phthalate	ND		780	ug/kg
Di-n-octyl phthalate	ND		780	ug/kg
Dibenz(a,h)anthracene	ND		780	ug/kg
Dibenzofuran	ND		780	ug/kg
Diethyl phthalate	ND		780	ug/kg
Dimethyl phthalate	ND		780	ug/kg

Percent moisture is 15.2%. All results and limits are reported on a dry weight basis.

f = Benzo(b) and Benzo(k) quantitated as an isomeric pair.
J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG19-02
LAB ID: 131273-0002-SA
Matrix: SOIL Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 29 MAR 98
Instrument: GC/MS-MI Dilution: 2.0

Parameter	Result	Qualifier	RL	Units
Fluoranthene	ND		780	ug/kg
Fluorene	ND		780	ug/kg
Hexachlorobenzene	ND		780	ug/kg
Hexachlorobutadiene	ND		780	ug/kg
Hexachlorocyclopentadiene	ND		3800	ug/kg
Hexachloroethane	ND		780	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		780	ug/kg
Isophorone	ND		780	ug/kg
N-Nitroso-di-n-propylamine	ND		780	ug/kg
N-Nitrosodiphenylamine	ND		780	ug/kg
Naphthalene	ND		780	ug/kg
Nitrobenzene	ND		780	ug/kg
Pentachlorophenol	ND		3800	ug/kg
Phenanthrene	ND		780	ug/kg
Pyrene	100	J	780	ug/kg
Phenol	ND		780	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	70	%	25 - 121
Phenol-d5	83	%	24 - 113
Nitrobenzene-d5	64	%	23 - 120
2-Fluorobiphenyl	82	%	30 - 115
2,4,6-Tribromophenol	97	%	19 - 122
Terphenyl-d14	126	%	18 - 137

Percent moisture is 15.2%. All results and limits are reported on a dry weight basis.

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG19-03
LAB ID: 131273-0003-SA
Matrix: SOIL Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 29 MAR 98
Instrument: GC/MS-MI Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1800	ug/kg
2,4,6-Trichlorophenol	ND		370	ug/kg
2,4-Dichlorophenol	ND		370	ug/kg
2,4-Dimethylphenol	ND		370	ug/kg
2,4-Dinitrophenol	ND		1800	ug/kg
2,4-Dinitrotoluene	ND		370	ug/kg
2,6-Dinitrotoluene	ND		370	ug/kg
2-Chloronaphthalene	ND		370	ug/kg
2-Chlorophenol	ND		370	ug/kg
2-Methylnaphthalene	ND		370	ug/kg
2-Methylphenol	ND		370	ug/kg
2-Nitroaniline	ND		1800	ug/kg
2-Nitrophenol	ND		370	ug/kg
3,3'-Dichlorobenzidine	ND		730	ug/kg
3-Nitroaniline	ND		1800	ug/kg
4,6-Dinitro-2-methylphenol	ND		1800	ug/kg
4-Bromophenyl phenyl ether	ND		370	ug/kg
4-Chloro-3-methylphenol	ND		720	ug/kg
4-Chloroaniline	ND		370	ug/kg
4-Chlorophenyl phenyl ether	ND		370	ug/kg
4-Methylphenol	ND		370	ug/kg
4-Nitroaniline	ND		1800	ug/kg
4-Nitrophenol	ND		1800	ug/kg
Acenaphthene	ND		370	ug/kg
Acenaphthylene	ND		370	ug/kg
Anthracene	ND		370	ug/kg
Benzo(a)anthracene	ND		370	ug/kg
Benzo(a)pyrene	ND		370	ug/kg
Benzo(b)fluoranthene	ND		370	ug/kg
Benzo(g,h,i)perylene	ND		370	ug/kg
Benzo(k)fluoranthene	ND		370	ug/kg
bis(2-Chloroethoxy)-methane	ND		370	ug/kg
bis(2-Chloroethyl) ether	ND		370	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		370	ug/kg
Butyl benzyl phthalate	ND		370	ug/kg
Carbazole	ND		370	ug/kg
Chrysene	ND		370	ug/kg
Di-n-butyl phthalate	ND		370	ug/kg
Di-n-octyl phthalate	ND		370	ug/kg
Dibenz(a,h)anthracene	ND		370	ug/kg
Dibenzofuran	ND		370	ug/kg
Diethyl phthalate	ND		370	ug/kg
Dimethyl phthalate	ND		370	ug/kg
Fluoranthene	ND		370	ug/kg
Fluorene	ND		370	ug/kg

Percent moisture is 9.9%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

(cont.)

Client Name: Woodward-Clyde Consultants
Client ID: HG19-03
LAB ID: 131273-0003-SA
Matrix: SOIL
Authorized: 21 MAR 98
Instrument: GC/MS-MI

Sampled: 20 MAR 98
Prepared: 23 MAR 98
Dilution: 1.0

Received: 20 MAR 98
Analyzed: 29 MAR 98

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		370	ug/kg
Hexachlorobutadiene	ND		370	ug/kg
Hexachlorocyclopentadiene	ND		1800	ug/kg
Hexachloroethane	ND		370	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		370	ug/kg
Isophorone	ND		370	ug/kg
N-Nitroso-di-n-propylamine	ND		370	ug/kg
N-Nitrosodiphenylamine	ND		370	ug/kg
Naphthalene	ND		370	ug/kg
Nitrobenzene	ND		370	ug/kg
Pentachlorophenol	ND		1800	ug/kg
Phenanthrene	ND		370	ug/kg
Pyrene	ND		370	ug/kg
Phenol	ND		370	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	44	%	25 - 121
Phenol-d5	53	%	24 - 113
Nitrobenzene-d5	52	%	23 - 120
2-Fluorobiphenyl	56	%	30 - 115
2,4,6-Tribromophenol	25	%	19 - 122
Terphenyl-d14	70	%	18 - 137

Percent moisture is 9.9%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG20-01
LAB ID: 131273-0004-SA
Matrix: SOIL Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 29 MAR 98
Instrument: GC/MS-MI Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1800	ug/kg
2,4,6-Trichlorophenol	ND		370	ug/kg
2,4-Dichlorophenol	ND		370	ug/kg
2,4-Dimethylphenol	ND		370	ug/kg
2,4-Dinitrophenol	ND		1800	ug/kg
2,4-Dinitrotoluene	ND		370	ug/kg
2,6-Dinitrotoluene	ND		370	ug/kg
2-Chloronaphthalene	ND		370	ug/kg
2-Chlorophenol	ND		370	ug/kg
2-Methylnaphthalene	ND		370	ug/kg
2-Methylphenol	ND		370	ug/kg
2-Nitroaniline	ND		1800	ug/kg
2-Nitrophenol	ND		370	ug/kg
3,3'-Dichlorobenzidine	ND		750	ug/kg
3-Nitroaniline	ND		1800	ug/kg
4,6-Dinitro-2-methylphenol	ND		1800	ug/kg
4-Bromophenyl phenyl ether	ND		370	ug/kg
4-Chloro-3-methylphenol	ND		740	ug/kg
4-Chloroaniline	ND		370	ug/kg
4-Chlorophenyl phenyl ether	ND		370	ug/kg
4-Methylphenol	ND		370	ug/kg
4-Nitroaniline	ND		1800	ug/kg
4-Nitrophenol	ND		1800	ug/kg
Acenaphthene	ND		370	ug/kg
Acenaphthylene	ND		370	ug/kg
Anthracene	ND		370	ug/kg
Benzo(a)anthracene	ND		370	ug/kg
Benzo(a)pyrene	ND		370	ug/kg
Benzo(b)fluoranthene	ND		370	ug/kg
Benzo(g,h,i)perylene	ND		370	ug/kg
Benzo(k)fluoranthene	ND		370	ug/kg
bis(2-Chloroethoxy)-methane	ND		370	ug/kg
bis(2-Chloroethyl) ether	ND		370	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		370	ug/kg
Butyl benzyl phthalate	ND		370	ug/kg
Carbazole	ND		370	ug/kg
Chrysene	ND		370	ug/kg
Di-n-butyl phthalate	ND		370	ug/kg
Di-n-octyl phthalate	ND		370	ug/kg
Dibenz(a,h)anthracene	ND		370	ug/kg
Dibenzofuran	ND		370	ug/kg
Diethyl phthalate	ND		370	ug/kg
Dimethyl phthalate	ND		370	ug/kg
Fluoranthene	ND		370	ug/kg
Fluorene	ND		370	ug/kg

Percent moisture is 11.8%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG20-01
LAB ID: 131273-0004-SA
Matrix: SOIL Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 29 MAR 98
Instrument: GC/MS-MI Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		370	ug/kg
Hexachlorobutadiene	ND		370	ug/kg
Hexachlorocyclopentadiene	ND		1800	ug/kg
Hexachloroethane	ND		370	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		370	ug/kg
Isophorone	ND		370	ug/kg
N-Nitroso-di-n-propylamine	ND		370	ug/kg
N-Nitrosodiphenylamine	ND		370	ug/kg
Naphthalene	ND		370	ug/kg
Nitrobenzene	ND		370	ug/kg
Pentachlorophenol	ND		1800	ug/kg
Phenanthrene	ND		370	ug/kg
Pyrene	ND		370	ug/kg
Phenol	ND		370	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	58	%	25 - 121
Phenol-d5	64	%	24 - 113
Nitrobenzene-d5	54	%	23 - 120
2-Fluorobiphenyl	60	%	30 - 115
2,4,6-Tribromophenol	75	%	19 - 122
Terphenyl-d14	87	%	18 - 137

Percent moisture is 11.8%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG20-02
LAB ID: 131273-0005-SA
Matrix: SOIL Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 29 MAR 98
Instrument: GC/MS-MI Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		1900	ug/kg
2,4,6-Trichlorophenol	ND		380	ug/kg
2,4-Dichlorophenol	ND		380	ug/kg
2,4-Dimethylphenol	ND		380	ug/kg
2,4-Dinitrophenol	ND		1900	ug/kg
2,4-Dinitrotoluene	ND		380	ug/kg
2,6-Dinitrotoluene	ND		380	ug/kg
2-Chloronaphthalene	ND		380	ug/kg
2-Chlorophenol	ND		380	ug/kg
2-Methylnaphthalene	ND		380	ug/kg
2-Methylphenol	ND		380	ug/kg
2-Nitroaniline	ND		1900	ug/kg
2-Nitrophenol	ND		380	ug/kg
3,3'-Dichlorobenzidine	ND		770	ug/kg
3-Nitroaniline	ND		1900	ug/kg
4,6-Dinitro-2-methylphenol	ND		1900	ug/kg
4-Bromophenyl phenyl ether	ND		380	ug/kg
4-Chloro-3-methylphenol	ND		760	ug/kg
4-Chloroaniline	ND		380	ug/kg
4-Chlorophenyl phenyl ether	ND		380	ug/kg
4-Methylphenol	ND		380	ug/kg
4-Nitroaniline	ND		1900	ug/kg
4-Nitrophenol	ND		1900	ug/kg
Acenaphthene	ND		380	ug/kg
Acenaphthylene	ND		380	ug/kg
Anthracene	ND		380	ug/kg
Benzo(a)anthracene	ND		380	ug/kg
Benzo(a)pyrene	ND		380	ug/kg
Benzo(b)fluoranthene	ND		380	ug/kg
Benzo(g,h,i)perylene	ND		380	ug/kg
Benzo(k)fluoranthene	ND		380	ug/kg
bis(2-Chloroethoxy)-methane	ND		380	ug/kg
bis(2-Chloroethyl) ether	ND		380	ug/kg
bis(2-Ethylhexyl)-phthalate	ND		380	ug/kg
Butyl benzyl phthalate	ND		380	ug/kg
Carbazole	ND		380	ug/kg
Chrysene	ND		380	ug/kg
Di-n-butyl phthalate	ND		380	ug/kg
Di-n-octyl phthalate	ND		380	ug/kg
Dibenz(a,h)anthracene	ND		380	ug/kg
Dibenzofuran	ND		380	ug/kg
Diethyl phthalate	ND		380	ug/kg
Dimethyl phthalate	ND		380	ug/kg
Fluoranthene	ND		380	ug/kg
Fluorene	ND		380	ug/kg

Percent moisture is 14.2%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG20-02
LAB ID: 131273-0005-SA
Matrix: SOIL Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 29 MAR 98
Instrument: GC/MS-MI Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		380	ug/kg
Hexachlorobutadiene	ND		380	ug/kg
Hexachlorocyclopentadiene	ND		1900	ug/kg
Hexachloroethane	ND		380	ug/kg
Indeno(1,2,3-c,d)pyrene	ND		380	ug/kg
Isophorone	ND		380	ug/kg
N-Nitroso-di-n-propylamine	ND		380	ug/kg
N-Nitrosodiphenylamine	ND		380	ug/kg
Naphthalene	ND		380	ug/kg
Nitrobenzene	ND		380	ug/kg
Pentachlorophenol	ND		1900	ug/kg
Phenanthrene	ND		380	ug/kg
Pyrene	ND		380	ug/kg
Phenol	ND		380	ug/kg

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	58	%	25 - 121
Phenol-d5	62	%	24 - 113
Nitrobenzene-d5	46	%	23 - 120
2-Fluorobiphenyl	52	%	30 - 115
2,4,6-Tribromophenol	69	%	19 - 122
Terphenyl-d14	78	%	18 - 137

Percent moisture is 14.2%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG06A-10-W
LAB ID: 131273-0006-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
2-Nitrophenol	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
3-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
4-Methylphenol	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Acenaphthene	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
Anthracene	ND		10	ug/L
Benzo(a)anthracene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	1.1	J	10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-butyl phthalate	1.2	J	10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethyl phthalate	ND		10	ug/L
Dimethyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG06A-10-W
LAB ID: 131273-0006-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Fluorene	ND		10	ug/L
Hexachlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Naphthalene	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Pyrene	ND		10	ug/L
Phenol	ND		10	ug/L

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	47	%	21 - 100
Phenol-d5	31	%	10 - 94
Nitrobenzene-d5	74	%	34 - 114
2-Fluorobiphenyl	74	%	43 - 116
2,4,6-Tribromophenol	76	%	10 - 123
Terphenyl-d14	83	%	33 - 141

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG5B-10-W
LAB ID: 131273-0007-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
2-Nitrophenol	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
3-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
4-Methylphenol	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Acenaphthene	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
Anthracene	ND		10	ug/L
Benzo(a)anthracene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	2.0	J	10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-butyl phthalate	1.0	J	10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethyl phthalate	1.1	J	10	ug/L
Dimethyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG5B-10-W
LAB ID: 131273-0007-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Fluorene	ND		10	ug/L
Hexachlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Naphthalene	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Pyrene	ND		10	ug/L
Phenol	ND		10	ug/L

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	47	%	21 - 100
Phenol-d5	31	%	10 - 94
Nitrobenzene-d5	82	%	34 - 114
2-Fluorobiphenyl	82	%	43 - 116
2,4,6-Tribromophenol	75	%	10 - 123
Terphenyl-d14	85	%	33 - 141

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG5B-11-W
LAB ID: 131273-0008-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
2-Nitrophenol	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
3-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
4-Methylphenol	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Acenaphthene	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
Anthracene	ND		10	ug/L
Benzo(a)anthracene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	ND		10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-butyl phthalate	ND		10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethyl phthalate	ND		10	ug/L
Dimethyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L
Fluorene	ND		10	ug/L

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG5B-11-W
LAB ID: 131273-0008-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Naphthalene	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Pyrene	ND		10	ug/L
Phenol	ND		10	ug/L

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	50	%	21 - 100
Phenol-d5	34	%	10 - 94
Nitrobenzene-d5	82	%	34 - 114
2-Fluorobiphenyl	85	%	43 - 116
2,4,6-Tribromophenol	78	%	10 - 123
Terphenyl-d14	91	%	33 - 141

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG08-10-W
LAB ID: 131273-0009-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
2-Nitrophenol	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
3-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
4-Methylphenol	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Acenaphthene	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
Anthracene	ND		10	ug/L
Benzo(a)anthracene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	1.0	J	10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-butyl phthalate	ND		10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethyl phthalate	ND		10	ug/L
Dimethyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG08-10-W
LAB ID: 131273-0009-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Fluorene	ND		10	ug/L
Hexachlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Naphthalene	1.4	J	10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Pyrene	ND		10	ug/L
Phenol	ND		10	ug/L

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	49	%	21 - 100
Phenol-d5	33	%	10 - 94
Nitrobenzene-d5	81	%	34 - 114
2-Fluorobiphenyl	82	%	43 - 116
2,4,6-Tribromophenol	77	%	10 - 123
Terphenyl-d14	79	%	33 - 141

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG19-10-W
LAB ID: 131273-0010-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
2-Nitrophenol	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
3-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
4-Methylphenol	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Acenaphthene	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
Anthracene	ND		10	ug/L
Benzo(a)anthracene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	1.3	J	10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-butyl phthalate	ND		10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethyl phthalate	ND		10	ug/L
Dimethyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG19-10-W
LAB ID: 131273-0010-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Fluorene	ND		10	ug/L
Hexachlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Naphthalene	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Pyrene	ND		10	ug/L
Phenol	ND		10	ug/L

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	51	%	21 - 100
Phenol-d5	33	%	10 - 94
Nitrobenzene-d5	86	%	34 - 114
2-Fluorobiphenyl	87	%	43 - 116
2,4,6-Tribromophenol	80	%	10 - 123
Terphenyl-d14	81	%	33 - 141

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG20-10-W
LAB ID: 131273-0011-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
2-Nitrophenol	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
3-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
4-Methylphenol	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Acenaphthene	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
Anthracene	ND		10	ug/L
Benzo(a)anthracene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	ND		10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-butyl phthalate	ND		10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethyl phthalate	ND		10	ug/L
Dimethyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L
Fluorene	ND		10	ug/L

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG20-10-W
LAB ID: 131273-0011-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Naphthalene	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Pyrene	ND		10	ug/L
Phenol	ND		10	ug/L

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	44	%	21 - 100
Phenol-d5	29	%	10 - 94
Nitrobenzene-d5	73	%	34 - 114
2-Fluorobiphenyl	74	%	43 - 116
2,4,6-Tribromophenol	73	%	10 - 123
Terphenyl-d14	80	%	33 - 141

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG20-11-W
LAB ID: 131273-0012-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
2-Nitrophenol	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
3-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
4-Methylphenol	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Acenaphthene	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
Anthracene	ND		10	ug/L
Benzo(a)anthracene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	ND		10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-butyl phthalate	ND		10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethyl phthalate	ND		10	ug/L
Dimethyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L
Fluorene	ND		10	ug/L

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: HG20-11-W
LAB ID: 131273-0012-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Naphthalene	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Pyrene	ND		10	ug/L
Phenol	ND		10	ug/L

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	50	%	21 - 100
Phenol-d5	31	%	10 - 94
Nitrobenzene-d5	81	%	34 - 114
2-Fluorobiphenyl	80	%	43 - 116
2,4,6-Tribromophenol	80	%	10 - 123
Terphenyl-d14	88	%	33 - 141

ND = Not Detected

Semivolatile Organic Compounds
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: FB03201-W
LAB ID: 131273-0013-FB
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
2,4,5-Trichlorophenol	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
2-Nitrophenol	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
3-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
4-Methylphenol	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Acenaphthene	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
Anthracene	ND		10	ug/L
Benzo(a)anthracene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	ND		10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
Carbazole	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-butyl phthalate	ND		10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Dibenzofuran	ND		10	ug/L
Diethyl phthalate	ND		10	ug/L
Dimethyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L
Fluorene	ND		10	ug/L

ND = Not Detected

Semivolatile Organic Compounds (cont.)
Method 8270B

Client Name: Woodward-Clyde Consultants
Client ID: FB03201-W
LAB ID: 131273-0013-FB
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: 23 MAR 98 Analyzed: 28 MAR 98
Instrument: GC/MS-ME Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Hexachlorobenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
Hexachloroethane	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Isophorone	ND		10	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Naphthalene	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Pentachlorophenol	ND		50	ug/L
Phenanthrene	ND		10	ug/L
Pyrene	ND		10	ug/L
Phenol	ND		10	ug/L

Surrogate	Recovery		Acceptable Range
2-Fluorophenol	41	%	21 - 100
Phenol-d5	28	%	10 - 94
Nitrobenzene-d5	80	%	34 - 114
2-Fluorobiphenyl	75	%	43 - 116
2,4,6-Tribromophenol	66	%	10 - 123
Terphenyl-d14	89	%	33 - 141

ND = Not Detected

QC LOT ASSIGNMENT REPORT - MS QC
Semivolatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
131273-0001-SA	SOLID	Q8270-S	23 MAR 98-D	23 MAR 98-D	
131273-0002-SA	SOLID	Q8270-S	23 MAR 98-D	23 MAR 98-D	
131273-0003-SA	SOLID	Q8270-S	23 MAR 98-D	23 MAR 98-D	
131273-0004-SA	SOLID	Q8270-S	23 MAR 98-D	23 MAR 98-D	
131273-0005-SA	SOLID	Q8270-S	23 MAR 98-D	23 MAR 98-D	
131273-0006-SA	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA
131273-0007-SA	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA
131273-0008-SA	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA
131273-0009-SA	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA
131273-0010-SA	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA
131273-0011-SA	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA
131273-0012-SA	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA
131273-0013-FB	AQUEOUS	Q8270-S-A		23 MAR 98-AX	23 MAR 98-AA

METHOD BLANK REPORT
Semivolatile Organics by GC/MS
Project: 131273

Test: Q8270-TCL-L-S Method 8270B - TCL Semivolatile Organics
Matrix: SOLID
QC Run: 23 MAR 98-D Date Analyzed: 28 MAR 98

Analyte	Result	Units	Reporting Limit
2,4,5-Trichlorophenol	ND	ug/kg	1600
2,4,6-Trichlorophenol	ND	ug/kg	330
2,4-Dichlorophenol	ND	ug/kg	330
2,4-Dimethylphenol	ND	ug/kg	330
2,4-Dinitrophenol	ND	ug/kg	1600
2,4-Dinitrotoluene	ND	ug/kg	330
2,6-Dinitrotoluene	ND	ug/kg	330
2-Chloronaphthalene	ND	ug/kg	330
2-Chlorophenol	ND	ug/kg	330
2-Methylnaphthalene	ND	ug/kg	330
2-Methylphenol	ND	ug/kg	330
2-Nitroaniline	ND	ug/kg	1600
2-Nitrophenol	ND	ug/kg	330
3,3'-Dichlorobenzidine	ND	ug/kg	660
3-Nitroaniline	ND	ug/kg	1600
4,6-Dinitro-2-methylphenol	ND	ug/kg	1600
4-Bromophenyl phenyl ether	ND	ug/kg	330
4-Chloro-3-methylphenol	ND	ug/kg	650
4-Chloroaniline	ND	ug/kg	330
4-Chlorophenyl phenyl ether	ND	ug/kg	330
4-Methylphenol	ND	ug/kg	330
4-Nitroaniline	ND	ug/kg	1600
4-Nitrophenol	ND	ug/kg	1600
Acenaphthene	ND	ug/kg	330
Acenaphthylene	ND	ug/kg	330
Anthracene	ND	ug/kg	330
Benzo(a)anthracene	ND	ug/kg	330
Benzo(a)pyrene	ND	ug/kg	330
Benzo(b)fluoranthene	ND	ug/kg	330
Benzo(g,h,i)perylene	ND	ug/kg	330
Benzo(k)fluoranthene	ND	ug/kg	330
bis(2-Chloroethoxy)-methane	ND	ug/kg	330
bis(2-Chloroethyl) ether	ND	ug/kg	330
bis(2-Ethylhexyl)-phthalate	ND	ug/kg	330
Butyl benzyl phthalate	ND	ug/kg	330
Carbazole	ND	ug/kg	330
Chrysene	ND	ug/kg	330
Di-n-butyl phthalate	ND	ug/kg	330
Di-n-octyl phthalate	ND	ug/kg	330
Dibenz(a,h)anthracene	ND	ug/kg	330
Dibenzofuran	ND	ug/kg	330
Diethyl phthalate	ND	ug/kg	330
Dimethyl phthalate	ND	ug/kg	330
Fluoranthene	ND	ug/kg	330
Fluorene	ND	ug/kg	330
Hexachlorobenzene	ND	ug/kg	330
Hexachlorobutadiene	ND	ug/kg	330

ND = Not Detected

METHOD BLANK REPORT (cont.)
Semivolatile Organics by GC/MS
Project: 131273

Test: Q8270-TCL-L-S Method 8270B - TCL Semivolatile Organics (cont.)
Matrix: SOLID
QC Run: 23 MAR 98-D Date Analyzed: 28 MAR 98

Analyte	Result	Units	Reporting Limit
Hexachlorocyclopentadiene	ND	ug/kg	1600
Hexachloroethane	ND	ug/kg	330
Indeno(1,2,3-c,d)pyrene	ND	ug/kg	330
Isophorone	ND	ug/kg	330
N-Nitroso-di-n-propylamine	ND	ug/kg	330
N-Nitrosodiphenylamine	ND	ug/kg	330
Naphthalene	ND	ug/kg	330
Nitrobenzene	ND	ug/kg	330
Pentachlorophenol	ND	ug/kg	1600
Phenanthrene	ND	ug/kg	330
Pyrene	ND	ug/kg	330
Phenol	ND	ug/kg	330

Surrogate	Recovery	Acceptable Range
2-Fluorophenol	116	25 -121
Phenol-d5	90	24 -113
Nitrobenzene-d5	83	23 -120
2-Fluorobiphenyl	94	30 -115
2,4,6-Tribromophenol	100	19 -122
Terphenyl-d14	121	18 -137

ND = Not Detected

METHOD BLANK REPORT (cont.)
Semivolatile Organics by GC/MS
Project: 131273

Test: Q8270-TCL-3510-A Method SW8270B - TCL Semivolatile Organics
Matrix: AQUEOUS
QC Run: 23 MAR 98-AX Date Analyzed: 27 MAR 98

Analyte	Result	Units	Reporting Limit
2,4,5-Trichlorophenol	ND	ug/L	10
2,4,6-Trichlorophenol	ND	ug/L	10
2,4-Dichlorophenol	ND	ug/L	10
2,4-Dimethylphenol	ND	ug/L	10
2,4-Dinitrophenol	ND	ug/L	50
2,4-Dinitrotoluene	ND	ug/L	10
2,6-Dinitrotoluene	ND	ug/L	10
2-Chloronaphthalene	ND	ug/L	10
2-Chlorophenol	ND	ug/L	10
2-Methylnaphthalene	ND	ug/L	10
2-Methylphenol	ND	ug/L	10
2-Nitroaniline	ND	ug/L	50
2-Nitrophenol	ND	ug/L	10
3,3'-Dichlorobenzidine	ND	ug/L	50
3-Nitroaniline	ND	ug/L	50
4,6-Dinitro-2-methylphenol	ND	ug/L	50
4-Bromophenyl phenyl ether	ND	ug/L	10
4-Chloro-3-methylphenol	ND	ug/L	10
4-Chloroaniline	ND	ug/L	10
4-Chlorophenyl phenyl ether	ND	ug/L	10
4-Methylphenol	ND	ug/L	10
4-Nitroaniline	ND	ug/L	50
4-Nitrophenol	ND	ug/L	50
Acenaphthene	ND	ug/L	10
Acenaphthylene	ND	ug/L	10
Anthracene	ND	ug/L	10
Benzo(a)anthracene	ND	ug/L	10
Benzo(a)pyrene	ND	ug/L	10
Benzo(b)fluoranthene	ND	ug/L	10
Benzo(g,h,i)perylene	ND	ug/L	10
Benzo(k)fluoranthene	ND	ug/L	10
bis(2-Chloroethoxy)-methane	ND	ug/L	10
bis(2-Chloroethyl) ether	ND	ug/L	10
bis(2-Ethylhexyl)-phthalate	ND	ug/L	10
Butyl benzyl phthalate	ND	ug/L	10
Carbazole	ND	ug/L	10
Chrysene	ND	ug/L	10
Di-n-butyl phthalate	ND	ug/L	10
Di-n-octyl phthalate	ND	ug/L	10
Dibenz(a,h)anthracene	ND	ug/L	10
Dibenzofuran	ND	ug/L	10
Diethyl phthalate	ND	ug/L	10
Dimethyl phthalate	ND	ug/L	10
Fluoranthene	ND	ug/L	10
Fluorene	ND	ug/L	10
Hexachlorobenzene	ND	ug/L	1.0

ND = Not Detected

METHOD BLANK REPORT (cont.)
Semivolatile Organics by GC/MS
Project: 131273

Test: Q8270-TCL-3510-A Method SW8270B - TCL Semivolatile Organics (cont.)
Matrix: AQUEOUS
QC Run: 23 MAR 98-AX Date Analyzed: 27 MAR 98

Analyte	Result	Units	Reporting Limit
Hexachlorobutadiene	ND	ug/L	10
Hexachlorocyclopentadiene	ND	ug/L	50
Hexachloroethane	ND	ug/L	10
Indeno(1,2,3-c,d)pyrene	ND	ug/L	10
Isophorone	ND	ug/L	10
N-Nitroso-di-n-propylamine	ND	ug/L	10
N-Nitrosodiphenylamine	ND	ug/L	10
Naphthalene	ND	ug/L	10
Nitrobenzene	ND	ug/L	10
Pentachlorophenol	ND	ug/L	50
Phenanthrene	ND	ug/L	10
Pyrene	ND	ug/L	10
Phenol	ND	ug/L	10

Surrogate	Recovery	Acceptable Range
2-Fluorophenol	61	21 -100
Phenol-d5	41	10 -94
Nitrobenzene-d5	89	34 -114
2-Fluorobiphenyl	89	43 -116
2,4,6-Tribromophenol	90	10 -123
Terphenyl-d14	99	33 -141

ND = Not Detected

DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS
Project: 131273

Category: Q8270-S Method SW8270 - Acid, Base and Neutrals by GC/MS.
Matrix: SOLID
QC Lot: 23 MAR 98-D Date Analyzed: 31 MAR 98
Concentration Units: ug/kg

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	%Recovery DCS1	%Recovery DCS2	RPD	Acceptance Limits Recov.	Acceptance Limits RPD
Phenol	6670	4570	4600	68	69	0.6	39-115	39
2-Chlorophenol	6670	5350	4790	80	72	11	55-108	38
1,4-Dichlorobenzene	3330	2840	2530	85	76	11	56-107	37
N-Nitroso-di-n-propylamine	3330	2030	1780	61	54	13	14-110	41
1,2,4-Trichlorobenzene	3330	2880	2550	87	77	12	54-104	32
4-Chloro-3-methylphenol	6670	5310	4690	80	70	12	52-120	23
Acenaphthene	3330	2800	2600	84	78	7.2	60-114	20
4-Nitrophenol	6670	5330	5520	80	83	3.6	56-142	42
2,4-Dinitrotoluene	3330	3850	3910	116	117	1.5	62-117	25
Pentachlorophenol	6670	5900	5860	89	88	0.7	49-132	37
Pyrene	3330	2750	2550	82	77	7.5	61-106	32

Surrogate	Concentration Spiked	Measured DCS1	Measured DCS2	%Recovery DCS1	%Recovery DCS2	Acceptance Limits Recovery
2-Fluorophenol	6670	5910	4950	89	74	25-121
Phenol-d5	6670	4720	4740	71	71	24-113
Nitrobenzene-d5	3330	2820	2450	85	74	23-120
2-Fluorobiphenyl	3330	2870	2640	86	79	30-115
2,4,6-Tribromophenol	6670	5580	5360	84	80	19-122
Terphenyl-d14	3330	2580	2390	78	72	18-137

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS
Project: 131273

Category: Q8270-S-A Acid, Base and Neutrals by GC/MS.
Matrix: AQUEOUS
QC Run: 23 MAR 98-AX
Concentration Units: ug/L

Date Analyzed: 27 MAR 98

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Phenol	200	72.6	36	10-96
2-Chlorophenol	200	141	71	55-105
1,4-Dichlorobenzene	100	69.3	69	56-103
N-Nitroso-di-n-propylamine	100	80.9	81	58-109
1,2,4-Trichlorobenzene	100	72.9	73	55-106
4-Chloro-3-methylphenol	200	165	83	67-104
Acenaphthene	100	81.8	82	63-117
4-Nitrophenol	200	79.7	40	10-111
2,4-Dinitrotoluene	100	93.8	94	70-110
Pentachlorophenol	200	190	95	46-133
Pyrene	100	83.6	84	67-120

Surrogates	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
2-Fluorophenol	200	96.2	48	21-100
Phenol-d5	200	68.1	34	10-94
Nitrobenzene-d5	100	78.1	78	34-114
2-Fluorobiphenyl	100	77.1	77	43-116
2,4,6-Tribromophenol	200	169	85	10-123
Terphenyl-d14	100	77.5	78	33-141

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Semivolatile Organics by GC/MS
Project: 131273

Category: Q8270-S-A Acid, Base and Neutrals by GC/MS.
Matrix: AQUEOUS
Sample: 131262-0003
MS Run: 23 MAR 98-AA
Units: ug/L

Analyte	Sample Result	Concentration MS Result		Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Phenol	ND	64.3		69.2	200	32	35	7.3	10-96	57
2-Chlorophenol	ND	128		139	200	64	70	8.7	55-105	37
N-Nitroso-di-n-propylamine	ND	69.3		72.4	100	69	72	4.4	58-109	30
4-Chloro-3-methylphenol	ND	148		160	200	74	80	7.7	67-104	36
Acenaphthene	ND	65.6		67.3	100	66	67	2.5	63-117	23
4-Nitrophenol	ND	63.4		66.4	200	32	33	4.5	10-111	49
2,4-Dinitrotoluene	ND	82.0		85.1	100	82	85	3.7	70-110	30
Pentachlorophenol	ND	140		162	200	70	81	14	46-133	39
Pyrene	ND	62.9	n	69.1	100	63	69	9.4	67-120	34

Surrogates	Sample %Recovery	%Recovery MS	%Recovery MSD	Acceptance Limit Recovery
2-Fluorophenol	50	42	47	21-100
Phenol-d5	33	30	33	10-94
Nitrobenzene-d5	72	67	70	34-114
2-Fluorobiphenyl	66	60	63	43-116
2,4,6-Tribromophenol	75	62	72	10-123
Terphenyl-d14	72	58	64	33-141

n = Spiked analyte out of matrix spike acceptance limits; refer to lab control sample results.
ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

Metals

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG19-01
LAB ID: 131273-0001-SA
Matrix: SOIL
Authorized: 21 MAR 98

Sampled: 20 MAR 98
Prepared: See Below

Received: 20 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.50	J	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Barium	57.8	B	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.28		1.0	0.11	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.17	J	1.0	0.55	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	18.5		1.0	0.55	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	4.8	J	1.0	5.5	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	12.6		1.0	2.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	8.5		1.0	0.55	mg/kg	6010A	25 MAR 98	26 MAR 98
Molybdenum	1.7	J	1.0	4.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	31.8		1.0	4.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.55	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.55	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	0.91	J	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	60.4		1.0	5.5	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	40.8		1.0	2.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	2.7		1.0	0.27	mg/kg	7060A	25 MAR 98	26 MAR 98
Mercury	0.046	J	1.0	0.11	mg/kg	SW7471	27 MAR 98	30 MAR 98

Percent moisture is 8.8%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG19-02
LAB ID: 131273-0002-SA
Matrix: SOIL — Sampled: 20 MAR 98 — Received: 20 MAR 98
Authorized: 21 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.43	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Barium	44.3	B	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.18		1.0	0.12	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.081	J	1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	13.5		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	3.8	J	1.0	5.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	9.9		1.0	2.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	5.2		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Molybdenum	0.86	J	1.0	4.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	23.2		1.0	4.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.59	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	0.67	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	44.0		1.0	5.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	30.4		1.0	2.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	1.2		1.0	0.29	mg/kg	7060A	25 MAR 98	27 MAR 98
Mercury	ND		1.0	0.12	mg/kg	SW7471	27 MAR 98	30 MAR 98

Percent moisture is 15.2%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG19-03
LAB ID: 131273-0003-SA
Matrix: SOIL — Sampled: 20 MAR 98 — Received: 20 MAR 98
Authorized: 21 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.55	J	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Barium	73.8	B	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.31		1.0	0.11	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.17	J	1.0	0.55	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	20.6		1.0	0.55	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	6.0		1.0	5.5	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	12.1		1.0	2.8	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	7.2		1.0	0.55	mg/kg	6010A	25 MAR 98	26 MAR 98
Molybdenum	0.87	J	1.0	4.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	19.1		1.0	4.4	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.55	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.55	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	ND		1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	34.9		1.0	5.5	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	46.5		1.0	2.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	2.8	q	1.0	0.28	mg/kg	7060A	25 MAR 98	27 MAR 98
Mercury	0.092	J	1.0	0.11	mg/kg	SW7471	27 MAR 98	30 MAR 98

Percent moisture is 9.9%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
q = Post-digestion spike recovery fell between 40 and 85% due to matrix interference.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG20-01
LAB ID: 131273-0004-SA
Matrix: SOIL
Authorized: 21 MAR 98

Sampled: 20 MAR 98
Prepared: See Below

Received: 20 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.42	J	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Barium	101	B	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.24		1.0	0.11	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.50	J	1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	20.2		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	3.2	J	1.0	5.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	4.5		1.0	2.8	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	2.2		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Molybdenum	1.7	J	1.0	4.5	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	12.3		1.0	4.5	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.57	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	0.60	J	1.0	1.1	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	32.9		1.0	5.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	28.8		1.0	2.3	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	3.6		1.0	0.28	mg/kg	7060A	25 MAR 98	27 MAR 98
Mercury	ND		1.0	0.11	mg/kg	SW7471	27 MAR 98	30 MAR 98

Percent moisture is 11.8%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS

Client Name: Woodward-Clyde Consultants
Client ID: HG20-02
LAB ID: 131273-0005-SA
Matrix: SOIL — Sampled: 20 MAR 98 — Received: 20 MAR 98
Authorized: 21 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	0.48	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Barium	34.6	B	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Beryllium	0.21		1.0	0.12	mg/kg	6010A	25 MAR 98	26 MAR 98
Cadmium	0.091	J	1.0	0.58	mg/kg	6010A	25 MAR 98	26 MAR 98
Chromium	14.6		1.0	0.58	mg/kg	6010A	25 MAR 98	26 MAR 98
Cobalt	3.7	J	1.0	5.8	mg/kg	6010A	25 MAR 98	26 MAR 98
Copper	5.3		1.0	2.9	mg/kg	6010A	25 MAR 98	26 MAR 98
Lead	1.7		1.0	0.58	mg/kg	6010A	25 MAR 98	26 MAR 98
Molybdenum	1.0	J	1.0	4.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Nickel	8.9		1.0	4.7	mg/kg	6010A	25 MAR 98	26 MAR 98
Selenium	ND		1.0	0.58	mg/kg	6010A	25 MAR 98	26 MAR 98
Silver	ND		1.0	0.58	mg/kg	6010A	25 MAR 98	26 MAR 98
Thallium	0.65	J	1.0	1.2	mg/kg	6010A	25 MAR 98	26 MAR 98
Vanadium	21.8		1.0	5.8	mg/kg	6010A	25 MAR 98	26 MAR 98
Zinc	29.1		1.0	2.3	mg/kg	6010A	25 MAR 98	26 MAR 98
Arsenic	2.3		1.0	0.29	mg/kg	7060A	25 MAR 98	27 MAR 98
Mercury	ND		1.0	0.12	mg/kg	SW7471	27 MAR 98	30 MAR 98

Percent moisture is 14.2%. All results and limits are reported on a dry weight basis.

B = Compound is also detected in the blank.
J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS
(Water - Dissolved)

Client Name: Woodward-Clyde Consultants
Client ID: HG5B-10-W
LAB ID: 131273-0007-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	ND		1.0	0.060	mg/L	6010A	27 MAR 98	28 MAR 98
Arsenic	ND		1.0	0.30	mg/L	6010A	27 MAR 98	28 MAR 98
Barium	0.030	J	1.0	0.20	mg/L	6010A	27 MAR 98	28 MAR 98
Beryllium	ND		1.0	0.0050	mg/L	6010A	27 MAR 98	28 MAR 98
Cadmium	ND		1.0	0.0050	mg/L	6010A	27 MAR 98	28 MAR 98
Chromium	ND		1.0	0.010	mg/L	6010A	27 MAR 98	28 MAR 98
Cobalt	ND		1.0	0.050	mg/L	6010A	27 MAR 98	28 MAR 98
Copper	ND		1.0	0.025	mg/L	6010A	27 MAR 98	28 MAR 98
Lead	ND		1.0	0.10	mg/L	6010A	27 MAR 98	28 MAR 98
Mercury	ND		1.0	0.00020	mg/L	7470A	24 MAR 98	25 MAR 98
Molybdenum	0.041		1.0	0.040	mg/L	6010A	27 MAR 98	28 MAR 98
Nickel	0.0076	J	1.0	0.040	mg/L	6010A	27 MAR 98	28 MAR 98
Selenium	ND		1.0	0.25	mg/L	6010A	27 MAR 98	28 MAR 98
Silver	ND		1.0	0.010	mg/L	6010A	27 MAR 98	28 MAR 98
Thallium	ND		1.0	2.0	mg/L	6010A	27 MAR 98	28 MAR 98
Vanadium	ND		1.0	0.050	mg/L	6010A	27 MAR 98	28 MAR 98
Zinc	0.010	J	1.0	0.020	mg/L	6010A	27 MAR 98	28 MAR 98

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS
(Water - Dissolved)

Client Name: Woodward-Clyde Consultants
Client ID: HG5B-11-W
LAB ID: 131273-0008-SA
Matrix: WATER
Authorized: 21 MAR 98

Sampled: 20 MAR 98
Prepared: See Below

Received: 20 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	ND		1.0	0.060	mg/L	6010A	27 MAR 98	28 MAR 98
Arsenic	ND		1.0	0.30	mg/L	6010A	27 MAR 98	28 MAR 98
Barium	0.019	J	1.0	0.20	mg/L	6010A	27 MAR 98	28 MAR 98
Beryllium	ND		1.0	0.0050	mg/L	6010A	27 MAR 98	28 MAR 98
Cadmium	ND		1.0	0.0050	mg/L	6010A	27 MAR 98	28 MAR 98
Chromium	ND		1.0	0.010	mg/L	6010A	27 MAR 98	28 MAR 98
Cobalt	ND		1.0	0.050	mg/L	6010A	27 MAR 98	28 MAR 98
Copper	ND		1.0	0.025	mg/L	6010A	27 MAR 98	28 MAR 98
Lead	ND		1.0	0.10	mg/L	6010A	27 MAR 98	28 MAR 98
Mercury	ND		1.0	0.00020	mg/L	7470A	24 MAR 98	25 MAR 98
Molybdenum	0.030	J	1.0	0.040	mg/L	6010A	27 MAR 98	28 MAR 98
Nickel	0.0053	J	1.0	0.040	mg/L	6010A	27 MAR 98	28 MAR 98
Selenium	ND		1.0	0.25	mg/L	6010A	27 MAR 98	28 MAR 98
Silver	ND		1.0	0.010	mg/L	6010A	27 MAR 98	28 MAR 98
Thallium	ND		1.0	2.0	mg/L	6010A	27 MAR 98	28 MAR 98
Vanadium	ND		1.0	0.050	mg/L	6010A	27 MAR 98	28 MAR 98
Zinc	0.0065	J	1.0	0.020	mg/L	6010A	27 MAR 98	28 MAR 98

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS
(Water - Dissolved)

Client Name: Woodward-Clyde Consultants
Client ID: HG19-10-W
LAB ID: 131273-0010-SA
Matrix: WATER
Authorized: 21 MAR 98

Sampled: 20 MAR 98
Prepared: See Below

Received: 20 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	ND		1.0	0.060	mg/L	6010A	27 MAR 98	28 MAR 98
Arsenic	ND		1.0	0.30	mg/L	6010A	27 MAR 98	28 MAR 98
Barium	0.030	J	1.0	0.20	mg/L	6010A	27 MAR 98	28 MAR 98
Beryllium	ND		1.0	0.0050	mg/L	6010A	27 MAR 98	28 MAR 98
Cadmium	ND		1.0	0.0050	mg/L	6010A	27 MAR 98	28 MAR 98
Chromium	ND		1.0	0.010	mg/L	6010A	27 MAR 98	28 MAR 98
Cobalt	ND		1.0	0.050	mg/L	6010A	27 MAR 98	28 MAR 98
Copper	ND		1.0	0.025	mg/L	6010A	27 MAR 98	28 MAR 98
Lead	ND		1.0	0.10	mg/L	6010A	27 MAR 98	28 MAR 98
Mercury	ND		1.0	0.00020	mg/L	7470A	24 MAR 98	25 MAR 98
Molybdenum	0.090		1.0	0.040	mg/L	6010A	27 MAR 98	28 MAR 98
Nickel	ND		1.0	0.040	mg/L	6010A	27 MAR 98	28 MAR 98
Selenium	ND		1.0	0.25	mg/L	6010A	27 MAR 98	28 MAR 98
Silver	ND		1.0	0.010	mg/L	6010A	27 MAR 98	28 MAR 98
Thallium	ND		1.0	2.0	mg/L	6010A	27 MAR 98	28 MAR 98
Vanadium	ND		1.0	0.050	mg/L	6010A	27 MAR 98	28 MAR 98
Zinc	ND		1.0	0.020	mg/L	6010A	27 MAR 98	28 MAR 98

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS
(Water - Dissolved)

Client Name: Woodward-Clyde Consultants
Client ID: HG20-10-W
LAB ID: 131273-0011-SA
Matrix: WATER — Sampled: 20 MAR 98 — Received: 20 MAR 98
Authorized: 21 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	ND		1.0	0.060	mg/L	6010A	27 MAR 98	28 MAR 98
Arsenic	0.022	J	1.0	0.30	mg/L	6010A	27 MAR 98	28 MAR 98
Barium	0.040	J	1.0	0.20	mg/L	6010A	27 MAR 98	28 MAR 98
Beryllium	ND		1.0	0.0050	mg/L	6010A	27 MAR 98	28 MAR 98
Cadmium	ND		1.0	0.0050	mg/L	6010A	27 MAR 98	28 MAR 98
Chromium	ND		1.0	0.010	mg/L	6010A	27 MAR 98	28 MAR 98
Cobalt	ND		1.0	0.050	mg/L	6010A	27 MAR 98	28 MAR 98
Copper	ND		1.0	0.025	mg/L	6010A	27 MAR 98	28 MAR 98
Lead	ND		1.0	0.10	mg/L	6010A	27 MAR 98	28 MAR 98
Mercury	ND		1.0	0.00020	mg/L	7470A	24 MAR 98	25 MAR 98
Molybdenum	0.015	J	1.0	0.040	mg/L	6010A	27 MAR 98	28 MAR 98
Nickel	ND		1.0	0.040	mg/L	6010A	27 MAR 98	28 MAR 98
Selenium	ND		1.0	0.25	mg/L	6010A	27 MAR 98	28 MAR 98
Silver	ND		1.0	0.010	mg/L	6010A	27 MAR 98	28 MAR 98
Thallium	ND		1.0	2.0	mg/L	6010A	27 MAR 98	28 MAR 98
Vanadium	ND		1.0	0.050	mg/L	6010A	27 MAR 98	28 MAR 98
Zinc	0.013	J	1.0	0.020	mg/L	6010A	27 MAR 98	28 MAR 98

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS
(Water - Dissolved)

Client Name: Woodward-Clyde Consultants
Client ID: HG20-11-W
LAB ID: 131273-0012-SA
Matrix: WATER Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	ND		1.0	0.060	mg/L	6010A	27 MAR 98	28 MAR 98
Arsenic	ND		1.0	0.30	mg/L	6010A	27 MAR 98	28 MAR 98
Barium	0.033	J	1.0	0.20	mg/L	6010A	27 MAR 98	28 MAR 98
Beryllium	ND		1.0	0.0050	mg/L	6010A	27 MAR 98	28 MAR 98
Cadmium	0.0049	J	1.0	0.0050	mg/L	6010A	27 MAR 98	28 MAR 98
Chromium	ND		1.0	0.010	mg/L	6010A	27 MAR 98	28 MAR 98
Cobalt	ND		1.0	0.050	mg/L	6010A	27 MAR 98	28 MAR 98
Copper	ND		1.0	0.025	mg/L	6010A	27 MAR 98	28 MAR 98
Lead	ND		1.0	0.10	mg/L	6010A	27 MAR 98	28 MAR 98
Mercury	ND		1.0	0.00020	mg/L	7470A	24 MAR 98	25 MAR 98
Molybdenum	0.011	J	1.0	0.040	mg/L	6010A	27 MAR 98	28 MAR 98
Nickel	ND		1.0	0.040	mg/L	6010A	27 MAR 98	28 MAR 98
Selenium	ND		1.0	0.25	mg/L	6010A	27 MAR 98	28 MAR 98
Silver	ND		1.0	0.010	mg/L	6010A	27 MAR 98	28 MAR 98
Thallium	ND		1.0	2.0	mg/L	6010A	27 MAR 98	28 MAR 98
Vanadium	ND		1.0	0.050	mg/L	6010A	27 MAR 98	28 MAR 98
Zinc	0.0091	J	1.0	0.020	mg/L	6010A	27 MAR 98	28 MAR 98

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METALS
(Water - Dissolved)

Client Name: Woodward-Clyde Consultants
Client ID: FB03201-W
LAB ID: 131273-0013-FB
Matrix: WATER — Sampled: 20 MAR 98 — Received: 20 MAR 98
Authorized: 21 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Antimony	ND		1.0	0.060	mg/L	6010A	27 MAR 98	28 MAR 98
Arsenic	ND		1.0	0.30	mg/L	6010A	27 MAR 98	28 MAR 98
Barium	ND		1.0	0.20	mg/L	6010A	27 MAR 98	28 MAR 98
Beryllium	ND		1.0	0.0050	mg/L	6010A	27 MAR 98	28 MAR 98
Cadmium	ND		1.0	0.0050	mg/L	6010A	27 MAR 98	28 MAR 98
Chromium	ND		1.0	0.010	mg/L	6010A	27 MAR 98	28 MAR 98
Cobalt	ND		1.0	0.050	mg/L	6010A	27 MAR 98	28 MAR 98
Copper	ND		1.0	0.025	mg/L	6010A	27 MAR 98	28 MAR 98
Lead	ND		1.0	0.10	mg/L	6010A	27 MAR 98	28 MAR 98
Mercury	ND		1.0	0.00020	mg/L	7470A	24 MAR 98	25 MAR 98
Molybdenum	ND		1.0	0.040	mg/L	6010A	27 MAR 98	28 MAR 98
Nickel	ND		1.0	0.040	mg/L	6010A	27 MAR 98	28 MAR 98
Selenium	ND		1.0	0.25	mg/L	6010A	27 MAR 98	28 MAR 98
Silver	ND		1.0	0.010	mg/L	6010A	27 MAR 98	28 MAR 98
Thallium	ND		1.0	2.0	mg/L	6010A	27 MAR 98	28 MAR 98
Vanadium	ND		1.0	0.050	mg/L	6010A	27 MAR 98	28 MAR 98
Zinc	0.023		1.0	0.020	mg/L	6010A	27 MAR 98	28 MAR 98

ND = Not Detected

QC LOT ASSIGNMENT REPORT - MS QC
Metals Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
131273-0001-SA	SOLID	QHG-S		27 MAR 98-HX	27 MAR 98-HA
131273-0002-SA	SOLID	QHG-S		27 MAR 98-HX	27 MAR 98-HA
131273-0003-SA	SOLID	QHG-S		27 MAR 98-HX	27 MAR 98-HA
131273-0004-SA	SOLID	QHG-S		27 MAR 98-HX	27 MAR 98-HA
131273-0005-SA	SOLID	QHG-S		27 MAR 98-HX	27 MAR 98-HA
131273-0001-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131273-0002-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131273-0003-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131273-0004-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131273-0005-SA	SOLID	QAS-GF-S		25 MAR 98-PX	25 MAR 98-PA
131273-0001-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131273-0002-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131273-0003-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131273-0004-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131273-0005-SA	SOLID	ICP-S		25 MAR 98-BX	25 MAR 98-BA
131273-0007-SA	AQUEOUS	QICP-A		27 MAR 98-CQX	27 MAR 98-CA
131273-0008-SA	AQUEOUS	QICP-A		27 MAR 98-CQX	27 MAR 98-CA
131273-0010-SA	AQUEOUS	QICP-A		27 MAR 98-CQX	27 MAR 98-CA
131273-0011-SA	AQUEOUS	QICP-A		27 MAR 98-CQX	27 MAR 98-CA
131273-0012-SA	AQUEOUS	QICP-A		27 MAR 98-CQX	27 MAR 98-CA
131273-0013-FB	AQUEOUS	QICP-A		27 MAR 98-CQX	27 MAR 98-CA
131273-0007-SA	AQUEOUS	QHG-A		24 MAR 98-JQX	24 MAR 98-JA
131273-0008-SA	AQUEOUS	QHG-A		24 MAR 98-JQX	24 MAR 98-JA
131273-0010-SA	AQUEOUS	QHG-A		24 MAR 98-JQX	24 MAR 98-JA
131273-0011-SA	AQUEOUS	QHG-A		24 MAR 98-JQX	24 MAR 98-JA
131273-0012-SA	AQUEOUS	QHG-A		24 MAR 98-JQX	24 MAR 98-JA
131273-0013-FB	AQUEOUS	QHG-A		24 MAR 98-JQX	24 MAR 98-JA

METHOD BLANK REPORT
Metals Analysis and Preparation
Project: 131273

Test: Q-HG-CVAA-S Method SW7471A - Mercury, Cold Vapor AA
Matrix: SOLID
QC Run: 27 MAR 98-HX Date Analyzed: 30 MAR 98

Analyte	Result		Units	Reporting Limit
Mercury	ND		mg/kg	0.10

Test: Q-AS-GFAA-S Method 7060A - Arsenic, Graphite Furnace AA
Matrix: SOLID
QC Run: 25 MAR 98-PX Date Analyzed: 26 MAR 98

Analyte	Result		Units	Reporting Limit
Arsenic	ND		mg/kg	0.25

Test: ICPT-CAM-S Method 6010A - CAM TTLC Metals
Matrix: SOLID
QC Run: 25 MAR 98-BX Date Analyzed: 26 MAR 98

Analyte	Result		Units	Reporting Limit
Antimony	ND		mg/kg	1.0
Barium	0.11	J	mg/kg	1.0
Beryllium	ND		mg/kg	0.10
Cadmium	ND		mg/kg	0.50
Chromium	ND		mg/kg	0.50
Cobalt	ND		mg/kg	5.0
Copper	ND		mg/kg	2.5
Lead	ND		mg/kg	0.50
Molybdenum	ND		mg/kg	4.0
Nickel	ND		mg/kg	4.0
Selenium	ND		mg/kg	0.50
Silver	ND		mg/kg	0.50
Thallium	ND		mg/kg	1.0
Vanadium	ND		mg/kg	5.0
Zinc	ND		mg/kg	2.0

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

METHOD BLANK REPORT (cont.)
Metals Analysis and Preparation
Project: 131273

Test: Q-ICP-ADD Method 6010A - ICP Metals, Dissolved
Matrix: AQUEOUS
QC Run: 27 MAR 98-CQX Date Analyzed: 28 MAR 98

Analyte	Result	Units	Reporting Limit
Antimony	ND	mg/L	0.060
Arsenic	ND	mg/L	0.30
Barium	ND	mg/L	0.20
Beryllium	ND	mg/L	0.0050
Cadmium	ND	mg/L	0.0050
Chromium	ND	mg/L	0.010
Cobalt	ND	mg/L	0.050
Copper	ND	mg/L	0.025
Lead	ND	mg/L	0.10
Molybdenum	ND	mg/L	0.040
Nickel	ND	mg/L	0.040
Selenium	ND	mg/L	0.25
Silver	ND	mg/L	0.010
Thallium	ND	mg/L	2.0
Vanadium	ND	mg/L	0.050
Zinc	ND	mg/L	0.020

Test: Q-HG-CVAA-AD Method SW7470A - Mercury, Cold Vapor AA, Dissolved
Matrix: AQUEOUS
QC Run: 24 MAR 98-JQX Date Analyzed: 25 MAR 98

Analyte	Result	Units	Reporting Limit
Mercury	ND	mg/L	0.00020

ND = Not Detected

LABORATORY CONTROL SAMPLE REPORT
Metals Analysis and Preparation
Project: 131273

Category: QHG-S Mercury by CVAA
Matrix: SOLID
Date Analyzed: 30 MAR 98
QC Run: 27 MAR 98-HX
Concentration Units: mg/kg

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Mercury	0.833	0.845	101	85-115

Category: QAS-GF-S Arsenic, Graphite Furnace AA
Matrix: SOLID
Date Analyzed: 26 MAR 98
QC Run: 25 MAR 98-PX
Concentration Units: mg/kg

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Arsenic	4.00	3.89	97	80-120

Category: ICP-S ICP Metals
Matrix: SOLID
Date Analyzed: 26 MAR 98
QC Run: 25 MAR 98-BX
Concentration Units: mg/kg

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Antimony	50.0	45.9	92	70-110
Barium	200	209	104	85-115
Beryllium	5.00	5.41	108	80-115
Cadmium	5.00	5.22	104	80-115
Chromium	20.0	21.5	107	85-120
Cobalt	50.0	51.0	102	85-120
Copper	25.0	25.4	101	85-115
Lead	50.0	50.5	101	80-110
Molybdenum	100	103	103	80-115
Nickel	50.0	52.5	105	85-115
Selenium	200	193	96	70-105
Silver	5.00	4.52	90	80-110
Thallium	200	193	97	80-110
Vanadium	50.0	52.2	104	85-115
Zinc	50.0	52.5	105	80-115

Category: QICP-A Method 6010A - ICP Metals
Matrix: AQUEOUS
Date Analyzed: 27 MAR 98
QC Run: 27 MAR 98-CQX
Concentration Units: mg/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE REPORT
Metals Analysis and Preparation (cont.)
Project: 131273

Category: QICP-A Method 6010A - ICP Metals
Matrix: AQUEOUS Date Analyzed: 27 MAR 98
QC Run: 27 MAR 98-CQX (cont.)
Concentration Units: mg/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Antimony	0.500	0.491	98	80-115
Arsenic	2.00	2.07	104	85-115
Barium	2.00	2.03	102	85-115
Beryllium	0.0500	0.0503	101	85-120
Cadmium	0.0500	0.0479	96	80-120
Chromium	0.200	0.205	103	80-115
Cobalt	0.500	0.498	100	85-120
Copper	0.250	0.256	103	85-115
Lead	0.500	0.475	95	85-120
Molybdenum	1.00	1.01	101	85-115
Nickel	0.500	0.509	102	85-115
Selenium	2.00	1.99	99	85-125
Silver	0.0500	0.0473	95	85-115
Thallium	2.00	1.74	87	85-120
Vanadium	0.500	0.509	102	85-120
Zinc	0.500	0.500	100	85-120

Category: QHG-A Mercury by CVAA
Matrix: AQUEOUS Date Analyzed: 25 MAR 98
QC Run: 24 MAR 98-JQX
Concentration Units: mg/L

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Mercury	0.00500	0.00489	98	85-115

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Metals Analysis and Preparation
Project: 131273

Category: QHG-S Mercury by CVAA
Matrix: SOLID
Sample: 131259-0001
MS Run: 27 MAR 98-HA
Units mg/kg Units Qualifier: Wet weight

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Mercury	ND	0.173	0.180	0.167	104	108	4.0	85-115	20

Category: QAS-GF-S Arsenic, Graphite Furnace AA
Matrix: SOLID
Sample: 131259-0001
MS Run: 25 MAR 98-PA
Units mg/kg Units Qualifier: Wet weight

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Arsenic	2.92	4.56	4.46 n	2.00	82	77	2.2	80-120	20

Category: ICP-S ICP Metals
Matrix: SOLID
Sample: 131259-0001
MS Run: 25 MAR 98-BA
Units mg/kg Units Qualifier: Wet weight

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Antimony	0.470 J	5.47 n	4.63 n	25.0	20	17	17	70-110	20
Barium	52.0	141	139	100	89	87	1.6	85-115	20
Beryllium	0.406	2.79	2.75	2.50	95	94	1.2	80-115	20
Cadmium	0.208 J	2.51	2.50	2.50	92	92	0.5	80-115	20
Chromium	24.2	32.9	40.2 n	10.0	87	161	20	85-120	20
Cobalt	5.84	28.2	28.0	25.0	89	89	0.5	85-120	20
Copper	13.7	23.8 n	23.9 n	12.5	81	82	0.3	85-115	20
Lead	5.38	27.5	27.0	25.0	88	87	1.7	80-110	20

J = Result is detected below the reporting limit or is an estimated concentration.
n = Spiked analyte out of matrix spike acceptance limits; refer to lab control sample results.
ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Metals Analysis and Preparation
Project: 131273 (cont.)

Category: ICP-S ICP Metals (cont.)
Matrix: SOLID
Sample: 131259-0001
MS Run: 25 MAR 98-BA (cont.)
Units mg/kg Units Qualifier: Wet weight

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
		Concentration							
Molybdenum	1.34 J	46.3	45.8	50.0	90	89	1.2	80-115	20
Nickel	15.1	37.8	45.1 n	25.0	91	120	18	85-115	20
Selenium	ND	90.1	89.2	100	90	89	1.0	70-105	20
Silver	ND	2.18	2.17	2.50	87	87	0.6	80-110	20
Thallium	0.819 J	88.0	86.9	100	87	86	1.2	80-110	20
Vanadium	32.6	52.9 n	55.4	25.0	81	91	4.7	85-115	20
Zinc	44.7	64.2 n	63.2 n	25.0	78	74	1.6	80-115	20

Category: QICP-A Method 6010A - ICP Metals
Matrix: AQUEOUS
Sample: 131313-0001
MS Run: 27 MAR 98-CA
Units: mg/L

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
		Concentration							
Antimony	ND	0.486	0.488	0.500	97	98	0.3	80-115	20
Arsenic	ND	2.08	2.06	2.00	104	103	1.1	85-115	20
Barium	0.0286 J	2.01	2.02	2.00	99	99	0.3	85-115	20
Beryllium	ND	0.0493	0.0493	0.0500	99	99	0.0	85-120	20
Cadmium	ND	0.0424	0.0457	0.0500	85	91	7.5	80-120	20
Chromium	ND	0.197	0.200	0.200	98	100	1.8	80-115	20
Cobalt	ND	0.481	0.481	0.500	96	96	0.0	85-120	20
Copper	0.00507 J	0.256	0.255	0.250	100	100	0.3	85-115	20
Lead	ND	0.462	0.462	0.500	92	92	0.1	80-120	20
Molybdenum	0.0109 J	0.996	0.999	1.00	99	99	0.2	85-115	20
Nickel	ND	0.491	0.492	0.500	98	98	0.0	85-115	20
Selenium	ND	1.96	1.97	2.00	98	99	0.7	85-125	20
Silver	ND	0.0457	0.0470	0.0500	91	94	2.8	85-115	20
Thallium	ND	1.70	1.72	2.00	85	86	0.8	85-120	20
Vanadium	0.0329 J	0.530	0.530	0.500	99	99	0.0	85-120	20
Zinc	ND	0.492	0.495	0.500	98	99	0.6	85-120	20

J = Result is detected below the reporting limit or is an estimated concentration.
n = Spiked analyte out of matrix spike acceptance limits; refer to lab control sample results.
ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
Metals Analysis and Preparation
Project: 131273 (cont.)

Category: QHG-A Mercury by CVAA
Matrix: AQUEOUS
Sample: 131262-0003
MS Run: 24 MAR 98-JA
Units: mg/L

Analyte	Sample Result	Concentration MS Result	Concentration MSD Result	Amount Spiked MS/MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
Mercury	ND	0.00104	0.00104	0.00100	104	104	0.0	85-115	20

ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

Moisture

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG19-01
LAB ID: 131273-0001-SA
Matrix: SOIL — Sampled: 20 MAR 98 — Received: 20 MAR 98
Authorized: 21 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	8.8		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG19-02
LAB ID: 131273-0002-SA
Matrix: SOIL
Authorized: 21 MAR 98

Sampled: 20 MAR 98
Prepared: See Below

Received: 20 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	15		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG19-03
LAB ID: 131273-0003-SA
Matrix: SOIL — Sampled: 20 MAR 98 — Received: 20 MAR 98
Authorized: 21 MAR 98 — Prepared: See Below — Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	9.9		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG20-01
LAB ID: 131273-0004-SA
Matrix: SOIL Sampled: 20 MAR 98 Received: 20 MAR 98
Authorized: 21 MAR 98 Prepared: See Below Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	12		1.0	0.10	%	D2216	NA	24 MAR 98

GENERAL INORGANICS

Client Name: Woodward-Clyde Consultants
Client ID: HG20-02
LAB ID: 131273-0005-SA
Matrix: SOIL
Authorized: 21 MAR 98

Sampled: 20 MAR 98
Prepared: See Below

Received: 20 MAR 98
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Percent Water	14		1.0	0.10	%	D2216	NA	24 MAR 98

QC LOT ASSIGNMENT REPORT - MS QC
GC/MS Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
131273-0001-SA	SOLID	MOISTURE-S			23 MAR 98-DB
131273-0002-SA	SOLID	MOISTURE-S			23 MAR 98-DB
131273-0003-SA	SOLID	MOISTURE-S			23 MAR 98-DB
131273-0004-SA	SOLID	MOISTURE-S			23 MAR 98-DB
131273-0005-SA	SOLID	MOISTURE-S			23 MAR 98-DB

MATRIX DUPLICATE QC REPORT
GC/MS Preparation
Project: 131273

Category: MOISTURE-S Method ASTM D2216 - Percent Moisture
Matrix: SOLID
Sample: 131273-0001
MS Run: 23 MAR 98-DB
Units: %

Analyte	Concentration Sample	Concentration Duplicate	%RPD SA-DU	Acceptance Limit
Percent Water	8.80	8.60	2.3	10

Calculations are performed before rounding to avoid round-off errors in calculated results.

VOCs

Quanterra Incorporated
4101 Shuffel Drive, NW
North Canton, Ohio 44720

330 497-9396 Telephone
330 497-0772 Fax

Quanterra
Environmental Services

ANALYTICAL REPORT

PROJECT NO. 131273

WWC/131273

Lot #: A8C240141

SHARON MEVES

Quanterra Inc - Santa Ana CA L

QUANTERRA INCORPORATED

Alesia M. Danford
Project Manager

April 2, 1998

CASE NARRATIVE

The following report contains the analytical results for five solid and seven water samples submitted to Quanterra-North Canton by Quanterra-Santa Ana from the WWC/131273 Site, project number 131273. The samples were received March 24, 1998, according to documented sample acceptance procedures.

Quanterra-North Canton utilizes only USEPA approved methods and instrumentation in all analytical work. The samples presented in this report were analyzed for the parameters listed on the method reference page in accordance with the methods indicated.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

The samples were received at the laboratory at a temperature of 4.6° C.

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

One 40ml Volatile vial for samples HG19-10-W 131273-0010 SA and FB03201-W 131273-0013 FB were received with headspace.

GC/MS VOLATILES

Sample(s) which contain results between the MDL and the RL are flagged with "J". There is the possibility of false positive or misidentification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation will be performed only down to the standard reporting limit (SRL). The acceptance criteria for quality control criteria may not be met at these quantitation levels.

Acid preservation causes 2-Chloroethyl vinyl ether to decompose. When detected, the concentration found will be reported; however, a true reporting limit cannot be reported when the compound is not detected.

The matrix spike/matrix spike duplicate associated with batch 8091166 failed recovery criteria. The laboratory control sample associated with this batch was in control. This is believed to be a matrix effect; therefore, no further corrective action was taken.

The matrix spike/matrix spike duplicate associated with batch 8089213 on sample HG5B-10-W 131273-0007 SA failed, due to a power failure and insufficient sample. The laboratory control sample associated with this batch was in control.

ANALYTICAL METHODS SUMMARY

A8C240141

PARAMETER	ANALYTICAL METHOD
Total Residue as Percent Solids	MCAWW 160.3 MOD
Volatile Organics by GC/MS	SW846 8260A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A8C240141

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CG2AK	001	HG19-01 131273-0001 SA	03/20/98	00:0
CG2AP	002	HG19-02 131273-0002 SA	03/20/98	00:0
CG2AV	003	HG19-03 131273-0003 SA	03/20/98	00:0
CG2AX	004	HG20-01 131273-0004 SA	03/20/98	00:0
CG2C1	005	HG20-02 131273-0005 SA	03/20/98	00:0
CG2C3	006	HG5B-10-W 131273-0007 SA	03/20/98	00:0
CG2C4	007	HG5B-11-W 131273-0008 SA	03/20/98	00:0
CG2C7	008	HG08-10-W 131273-0009 SA	03/20/98	00:0
CG2CA	009	HG19-10-W 131273-0010 SA	03/20/98	00:0
CG2CD	010	HG20-10-W 131273-0011 SA	03/20/98	00:0
CG2CF	011	HG20-11-W 131273-0012 SA	03/20/98	00:0
CG2CH	012	FB03201-W 131273-0013 FB	03/20/98	00:0

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG19-01 131273-0001 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-001 Work Order #...: CG2AK102 Matrix.....: SOLID
Date Sampled...: 03/20/98 00:00 Date Received..: 03/24/98
Prep Date.....: 03/27/98 Analysis Date..: 03/27/98
Prep Batch #...: 8087123
Dilution Factor: 1
% Moisture.....: 11

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG19-01 131273-0001 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-001 Work Order #...: CG2AK102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING-LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	0.41 J	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	91	(61 - 115)
Toluene-d8	100	(82 - 129)
Bromofluorobenzene	95	(64 - 112)

NOTE(S):

J Estimated result. Result is less than RL.

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG19-02 131273-0002 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-002 Work Order #...: CG2AP102 Matrix.....: SOLID
Date Sampled...: 03/20/98 00:00 Date Received..: 03/24/98
Prep Date.....: 03/27/98 Analysis Date..: 03/27/98
Prep Batch #...: 8087123
Dilution Factor: 1
% Moisture.....: 15

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG19-02 131273-0002 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-002 Work Order #...: CG2AP102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	92	(61 - 115)
Toluene-d8	99	(82 - 129)
Bromofluorobenzene	96	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG19-03 131273-0003 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-003 Work Order #...: CG2AV102 Matrix.....: SOLID
Date Sampled...: 03/20/98 00:00 Date Received..: 03/24/98
Prep Date.....: 03/27/98 Analysis Date..: 03/27/98
Prep Batch #...: 8087123
Dilution Factor: 1
% Moisture.....: 10

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG19-03 131273-0003 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-003 Work Order #...: CG2AV102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	94	(61 - 115)
Toluene-d8	99	(82 - 129)
Bromofluorobenzene	97	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG20-01 131273-0004 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-004 Work Order #...: CG2AX102 Matrix.....: SOLID
Date Sampled...: 03/20/98 00:00 Date Received..: 03/24/98
Prep Date.....: 03/27/98 Analysis Date..: 03/27/98
Prep Batch #...: 8087123
Dilution Factor: 1
% Moisture.....: 12

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG20-01 131273-0004 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-004 Work Order #...: CG2AX102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	93	(61 - 115)
Toluene-d8	100	(82 - 129)
Bromofluorobenzene	98	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG20-02 131273-0005 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-005 Work Order #...: CG2C1102 Matrix.....: SOLID
Date Sampled...: 03/20/98 00:00 Date Received..: 03/24/98
Prep Date.....: 03/27/98 Analysis Date..: 03/27/98
Prep Batch #...: 8087123
Dilution Factor: 1
% Moisture.....: 15

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG20-02 131273-0005 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-005 Work Order #...: CG2C1102 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	92	(61 - 115)
Toluene-d8	100	(82 - 129)
Bromofluorobenzene	97	(64 - 112)

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG5B-10-W 131273-0007 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-006 Work Order #...: CG2C3101 Matrix.....: WATER
Date Sampled...: 03/20/98 00:00 Date Received..: 03/24/98
Prep Date.....: 03/30/98 Analysis Date..: 03/30/98
Prep Batch #...: 8089213
Dilution Factor: 2.08

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	21	ug/L	SW846 8260A
Benzene	ND	2.1	ug/L	SW846 8260A
Bromobenzene	ND	2.1	ug/L	SW846 8260A
Bromodichloromethane	ND	2.1	ug/L	SW846 8260A
Bromoform	ND	2.1	ug/L	SW846 8260A
Bromomethane	ND	4.2	ug/L	SW846 8260A
2-Butanone	ND	21	ug/L	SW846 8260A
n-Butylbenzene	ND	2.1	ug/L	SW846 8260A
sec-Butylbenzene	ND	2.1	ug/L	SW846 8260A
tert-Butylbenzene	ND	2.1	ug/L	SW846 8260A
Carbon disulfide	ND	2.1	ug/L	SW846 8260A
Carbon tetrachloride	ND	2.1	ug/L	SW846 8260A
Chlorobenzene	ND	2.1	ug/L	SW846 8260A
Chloroethane	ND	4.2	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	2.1	ug/L	SW846 8260A
Chloromethane	ND	4.2	ug/L	SW846 8260A
2-Chlorotoluene	ND	2.1	ug/L	SW846 8260A
4-Chlorotoluene	ND	2.1	ug/L	SW846 8260A
Dibromochloromethane	ND	2.1	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	2.1	ug/L	SW846 8260A
Dibromomethane	ND	2.1	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	2.1	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	2.1	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	2.1	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	4.2	ug/L	SW846 8260A
1,1-Dichloroethane	8.1	2.1	ug/L	SW846 8260A
1,2-Dichloroethane	ND	2.1	ug/L	SW846 8260A
cis-1,2-Dichloroethene	40	1.0	ug/L	SW846 8260A
trans-1,2-Dichloroethene	10	1.0	ug/L	SW846 8260A
1,1-Dichloroethene	1.8 J	2.1	ug/L	SW846 8260A
Dichlorofluoromethane	ND	4.2	ug/L	SW846 8260A
1,2-Dichloropropane	ND	2.1	ug/L	SW846 8260A
1,3-Dichloropropane	ND	2.1	ug/L	SW846 8260A
2,2-Dichloropropane	ND	2.1	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	2.1	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	2.1	ug/L	SW846 8260A
1,1-Dichloropropene	ND	2.1	ug/L	SW846 8260A
Ethylbenzene	ND	2.1	ug/L	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG5B-10-W 131273-0007 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-006 Work Order #...: CG2C3101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Hexachlorobutadiene	ND	2.1	ug/L	SW846 8260A
Bromochloromethane	ND	2.1	ug/L	SW846 8260A
2-Hexanone	ND	21	ug/L	SW846 8260A
Isopropylbenzene	ND	2.1	ug/L	SW846 8260A
p-Isopropyltoluene	ND	2.1	ug/L	SW846 8260A
Methylene chloride	ND	2.1	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	21	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	2.1	ug/L	SW846 8260A
Naphthalene	ND	2.1	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	4.2	ug/L	SW846 8260A
n-Propylbenzene	ND	2.1	ug/L	SW846 8260A
Styrene	ND	2.1	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	2.1	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	2.1	ug/L	SW846 8260A
Tetrachloroethene	ND	2.1	ug/L	SW846 8260A
Toluene	ND	2.1	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	2.1	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	2.1	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	2.1	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	2.1	ug/L	SW846 8260A
Trichloroethene	1.9 J	2.1	ug/L	SW846 8260A
Trichlorofluoromethane	ND	2.1	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	2.1	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	2.1	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	2.1	ug/L	SW846 8260A
Vinyl acetate	ND	4.2	ug/L	SW846 8260A
Vinyl chloride	ND	4.2	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	1.0	ug/L	SW846 8260A
o-Xylene	ND	1.0	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	90	(69 - 127)
Toluene-d8	98	(90 - 112)
Bromofluorobenzene	99	(87 - 114)

NOTE(S):

J Estimated result. Result is less than RL.

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG5B-11-W 131273-0008 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-007 Work Order #...: CG2C4101 Matrix.....: WATER
Date Sampled...: 03/20/98 00:00 Date Received..: 03/24/98
Prep Date.....: 03/30/98 Analysis Date..: 03/30/98
Prep Batch #...: 8089213
Dilution Factor: 2.08

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	21	ug/L	SW846 8260A
Benzene	ND	2.1	ug/L	SW846 8260A
Bromobenzene	ND	2.1	ug/L	SW846 8260A
Bromodichloromethane	ND	2.1	ug/L	SW846 8260A
Bromoform	ND	2.1	ug/L	SW846 8260A
Bromomethane	ND	4.2	ug/L	SW846 8260A
2-Butanone	ND	21	ug/L	SW846 8260A
n-Butylbenzene	ND	2.1	ug/L	SW846 8260A
sec-Butylbenzene	ND	2.1	ug/L	SW846 8260A
tert-Butylbenzene	ND	2.1	ug/L	SW846 8260A
Carbon disulfide	ND	2.1	ug/L	SW846 8260A
Carbon tetrachloride	ND	2.1	ug/L	SW846 8260A
Chlorobenzene	ND	2.1	ug/L	SW846 8260A
Chloroethane	ND	4.2	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	2.1	ug/L	SW846 8260A
Chloromethane	ND	4.2	ug/L	SW846 8260A
2-Chlorotoluene	ND	2.1	ug/L	SW846 8260A
4-Chlorotoluene	ND	2.1	ug/L	SW846 8260A
Dibromochloromethane	ND	2.1	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	2.1	ug/L	SW846 8260A
Dibromomethane	ND	2.1	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	2.1	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	2.1	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	2.1	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	4.2	ug/L	SW846 8260A
1,1-Dichloroethane	8.0	2.1	ug/L	SW846 8260A
1,2-Dichloroethane	ND	2.1	ug/L	SW846 8260A
cis-1,2-Dichloroethene	38	1.0	ug/L	SW846 8260A
trans-1,2-Dichloroethene	10	1.0	ug/L	SW846 8260A
1,1-Dichloroethene	1.6 J	2.1	ug/L	SW846 8260A
Dichlorofluoromethane	ND	4.2	ug/L	SW846 8260A
1,2-Dichloropropane	ND	2.1	ug/L	SW846 8260A
1,3-Dichloropropane	ND	2.1	ug/L	SW846 8260A
2,2-Dichloropropane	ND	2.1	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	2.1	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	2.1	ug/L	SW846 8260A
1,1-Dichloropropene	ND	2.1	ug/L	SW846 8260A
Ethylbenzene	ND	2.1	ug/L	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: BG5B-11-W 131273-0008 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-007 Work Order #...: CG2C4101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Hexachlorobutadiene	ND	2.1	ug/L	SW846 8260A
Bromochloromethane	ND	2.1	ug/L	SW846 8260A
2-Hexanone	ND	21	ug/L	SW846 8260A
Isopropylbenzene	ND	2.1	ug/L	SW846 8260A
p-Isopropyltoluene	ND	2.1	ug/L	SW846 8260A
Methylene chloride	ND	2.1	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	21	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	2.1	ug/L	SW846 8260A
Naphthalene	ND	2.1	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	4.2	ug/L	SW846 8260A
n-Propylbenzene	ND	2.1	ug/L	SW846 8260A
Styrene	ND	2.1	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	2.1	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	2.1	ug/L	SW846 8260A
Tetrachloroethene	ND	2.1	ug/L	SW846 8260A
Toluene	ND	2.1	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	2.1	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	2.1	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	2.1	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	2.1	ug/L	SW846 8260A
Trichloroethene	**2.0 J**	**2.1**	**ug/L**	**SW846 8260A**
Trichlorofluoromethane	ND	2.1	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	2.1	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	2.1	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	2.1	ug/L	SW846 8260A
Vinyl acetate	ND	4.2	ug/L	SW846 8260A
Vinyl chloride	ND	4.2	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	1.0	ug/L	SW846 8260A
o-Xylene	ND	1.0	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	94	(69 - 127)
Toluene-d8	96	(90 - 112)
Bromofluorobenzene	97	(87 - 114)

NOTE(S):

J Estimated result. Result is less than RL.

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG08-10-W 131273-0009 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-008 Work Order #...: CG2C7101 Matrix.....: WATER
Date Sampled...: 03/20/98 00:00 Date Received..: 03/24/98
Prep Date.....: 03/30/98 Analysis Date..: 03/30/98
Prep Batch #...: 8089160
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	33	10	ug/L	SW846 8260A
Benzene	0.11 J	1.0	ug/L	SW846 8260A
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	ND	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	ND	1.0	ug/L	SW846 8260A
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	1.0	ug/L	SW846 8260A
Chloromethane	ND	2.0	ug/L	SW846 8260A
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	0.32 J	0.50	ug/L	SW846 8260A
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG08-10-W 131273-0009 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-008 Work Order #...: CG2C7101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	ND	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	**1.0**	**1.0**	**ug/L**	**SW846 8260A**
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	**0.29 J**	**1.0**	**ug/L**	**SW846 8260A**
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	ND	2.0	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	0.50	ug/L	SW846 8260A
o-Xylene	ND	0.50	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	91	(69 - 127)
Toluene-d8	97	(90 - 112)
Bromofluorobenzene	95	(87 - 114)

NOTE(S):

J Estimated result. Result is less than RL.

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG19-10-W 131273-0010 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-009 Work Order #...: CG2CA101 Matrix.....: WATER
Date Sampled...: 03/20/98 00:00 Date Received..: 03/24/98
Prep Date.....: 03/30/98 Analysis Date..: 03/30/98
Prep Batch #...: 8089160
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	80	10	ug/L	SW846 8260A
Benzene	0.35 J	1.0	ug/L	SW846 8260A
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	9.2 J	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	1.6	1.0	ug/L	SW846 8260A
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	1.0	ug/L	SW846 8260A
Chloromethane	ND	2.0	ug/L	SW846 8260A
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	0.54 J	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	1.4	0.50	ug/L	SW846 8260A
trans-1,2-Dichloroethene	0.15 J	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG19-10-W 131273-0010 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-009 Work Order #...: CG2CA101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	ND	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	ND	1.0	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	**0.39 J**	**1.0**	**ug/L**	**SW846 8260A**
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	**0.98 J**	**2.0**	**ug/L**	**SW846 8260A**
m-Xylene & p-Xylene	**0.31 J**	**0.50**	**ug/L**	**SW846 8260A**
o-Xylene	**0.19 J**	**0.50**	**ug/L**	**SW846 8260A**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	99	(69 - 127)
Toluene-d8	95	(90 - 112)
Bromofluorobenzene	103	(87 - 114)

NOTE(S):

J Estimated result. Result is less than RL.

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG20-10-W 131273-0011 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-010 Work Order #...: CG2CD101 Matrix.....: WATER
Date Sampled...: 03/20/98 00:00 Date Received..: 03/24/98
Prep Date.....: 03/30/98 Analysis Date..: 03/30/98
Prep Batch #...: 8089160
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	ug/L	SW846 8260A
Benzene	ND	1.0	ug/L	SW846 8260A
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	ND	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	0.30 J	1.0	ug/L	SW846 8260A
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	1.0	ug/L	SW846 8260A
Chloromethane	ND	2.0	ug/L	SW846 8260A
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	0.65 J	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	1.1	0.50	ug/L	SW846 8260A
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG20-10-W 131273-0011 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-010 Work Order #...: CG2CD101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	ND	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	ND	1.0	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	0.14 J	1.0	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	ND	2.0	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	0.50	ug/L	SW846 8260A
o-Xylene	ND	0.50	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	90	(69 - 127)
Toluene-d8	98	(90 - 112)
Bromofluorobenzene	96	(87 - 114)

NOTE(S):

J Estimated result. Result is less than RL.

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG20-11-W 131273-0012 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-011 Work Order #...: CG2CF101 Matrix.....: WATER
Date Sampled...: 03/20/98 00:00 Date Received..: 03/24/98
Prep Date.....: 03/30/98 Analysis Date..: 03/30/98
Prep Batch #...: 8089160
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	ug/L	SW846 8260A
Benzene	ND	1.0	ug/L	SW846 8260A
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	ND	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	0.28 J	1.0	ug/L	SW846 8260A
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	1.0	ug/L	SW846 8260A
Chloromethane	ND	2.0	ug/L	SW846 8260A
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	0.63 J	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	1.2	0.50	ug/L	SW846 8260A
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: HG20-11-W 131273-0012 SA

GC/MS Volatiles

Lot-Sample #...: A8C240141-011 Work Order #...: CG2CF101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING-LIMIT	UNITS	METHOD
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	ND	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	ND	1.0	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	0.11 J	1.0	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	ND	2.0	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	0.50	ug/L	SW846 8260A
o-Xylene	ND	0.50	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	92	(69 - 127)
Toluene-d8	98	(90 - 112)
Bromofluorobenzene	95	(87 - 114)

NOTE(S):

J Estimated result. Result is less than RL.

Quanterra Inc - Santa Ana CA Lab

Client Sample ID: FB03201-W 131273-0013 FB

GC/MS Volatiles

Lot-Sample #...: A8C240141-012 Work Order #...: CG2CH101 Matrix.....: WATER
Date Sampled...: 03/20/98 00:00 Date Received..: 03/24/98
Prep Date.....: 03/30/98 Analysis Date..: 03/30/98
Prep Batch #...: 8089160
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	12	10	ug/L	SW846 8260A
Benzene	ND	1.0	ug/L	SW846 8260A
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	ND	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	ND	1.0	ug/L	SW846 8260A
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	1.0	ug/L	SW846 8260A
Chloromethane	ND	2.0	ug/L	SW846 8260A
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A

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Quanterra Inc - Santa Ana CA Lab

Client Sample ID: FB03201-W 131273-0013 FB

GC/MS Volatiles

Lot-Sample #...: A8C240141-012 Work Order #...: CG2CH101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING-LIMIT	UNITS	METHOD
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	ND	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	ND	1.0	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	ND	2.0	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	0.50	ug/L	SW846 8260A
o-Xylene	ND	0.50	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	90	(69 - 127)
Toluene-d8	95	(90 - 112)
Bromofluorobenzene	97	(87 - 114)

QUALITY CONTROL SECTION

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

Quanterra® Incorporated conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. Quanterra requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). Failure of the RPDs to fall within the laboratory-generated acceptance windows requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the MS/MSD RPDs are within acceptance criteria, the batch is acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except for the common laboratory contaminants indicated below.

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals
Methylene chloride	Phthalate Esters	Copper
Acetone		Iron
2-Butanone		Zinc
		Lead*

** for analyses run on TJA Trace ICP or GFAA only*

QUALITY CONTROL ELEMENTS OF SW-846 METHODS (continued)

METHOD BLANK (continued)
The listed volatile and semivolatile compounds may be present in concentrations up to 5 times the reporting limits. The listed metals may be present in concentrations up to 2 times the reporting limit or must be twenty fold less than the results of the environmental samples. Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE
A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. When these values fail to meet acceptance criteria, the data is reviewed to determine the cause. If, in the analyst's judgment, sample matrix effects are indicated, no corrective action is performed. Otherwise, the MS/MSD and the environmental sample used to prepare them are reprepared and reanalyzed.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch.

SURROGATE COMPOUNDS
In addition to these batch-related QC indicators, each organic environmental and QC sample are spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

The acceptance criteria do not apply to samples that are diluted. If the dilution is more than 5X, the recoveries will be reported as diluted out. All other surrogate recoveries will be reported. If the LCS, LCSD, or the Method Blank surrogates fail to meet recovery criteria (exception for dilutions), the entire batch of samples is reprepared and reanalyzed.

If the surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank and the associated sample(s) are ND, the batch is acceptable. If the surrogate recoveries are outside criteria for environmental or MS/MSD samples, the batch may be acceptable based on the analyst's judgment that sample matrix effects are indicated.

For the GC/MS BNA methods, the surrogate criteria is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide/PCB, PAH, TPH, and Herbicide methods, the surrogate criteria is that one of two surrogate compounds meet acceptance criteria.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C240141 Work Order #...: CG5EN102 Matrix.....: SOLID
LCS Lot-Sample#: A8C280000-123
Prep Date.....: 03/27/98 Analysis Date..: 03/27/98
Prep Batch #...: 8087123
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	105	(60 - 119)	SW846 8260A
Trichloroethene	95	(74 - 115)	SW846 8260A
Chlorobenzene	98	(85 - 116)	SW846 8260A
Toluene	102	(87 - 118)	SW846 8260A
Benzene	105	(83 - 118)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	86	(61 - 115)
Toluene-d8	101	(82 - 129)
Bromofluorobenzene	98	(64 - 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C240141 Work Order #...: CG5QM102 Matrix.....: WATER
LCS Lot-Sample#: A8C300000-160
Prep Date.....: 03/29/98 Analysis Date..: 03/29/98
Prep Batch #...: 8089160
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	108	(87 - 113)	SW846 8260A
Trichloroethene	100	(89 - 115)	SW846 8260A
Chlorobenzene	95	(89 - 119)	SW846 8260A
Toluene	94	(81 - 117)	SW846 8260A
Benzene	99	(77 - 126)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	88	(69 - 127)
Toluene-d8	98	(90 - 112)
Bromofluorobenzene	97	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C240141 Work Order #...: CG5XD102 Matrix.....: WATER
LCS Lot-Sample#: A8C300000-213
Prep Date.....: 03/30/98 Analysis Date..: 03/30/98
Prep Batch #...: 8089213
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	112	(87 - 113)	SW846 8260A
Trichloroethene	100	(89 - 115)	SW846 8260A
Chlorobenzene	96	(89 - 119)	SW846 8260A
Toluene	94	(81 - 117)	SW846 8260A
Benzene	99	(77 - 126)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	89	(69 - 127)
Toluene-d8	98	(90 - 112)
Bromofluorobenzene	96	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C240141 Work Order #...: CG6WX102 Matrix.....: WATER
LCS Lot-Sample#: A8D010000-166
Prep Date.....: 03/31/98 Analysis Date..: 03/31/98
Prep Batch #...: 8091166
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	108	(87 - 113)	SW846 8260A
Trichloroethene	100	(89 - 115)	SW846 8260A
Chlorobenzene	94	(89 - 119)	SW846 8260A
Toluene	93	(81 - 117)	SW846 8260A
Benzene	100	(77 - 126)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	93	(69 - 127)
Toluene-d8	96	(90 - 112)
Bromofluorobenzene	98	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C240141 **Work Order #...:** CG5EN101 **Matrix.....:** SOLID
MB Lot-Sample #: A8C280000-123

Prep Date.....: 03/27/98
Analysis Date..: 03/27/98 **Prep Batch #...:** 8087123
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20	ug/kg	SW846 8260A
Benzene	ND	5.0	ug/kg	SW846 8260A
Bromobenzene	ND	5.0	ug/kg	SW846 8260A
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260A
Bromoform	ND	5.0	ug/kg	SW846 8260A
Bromomethane	ND	10	ug/kg	SW846 8260A
2-Butanone	ND	20	ug/kg	SW846 8260A
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
sec-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
tert-Butylbenzene	ND	5.0	ug/kg	SW846 8260A
Carbon disulfide	ND	5.0	ug/kg	SW846 8260A
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260A
Chlorobenzene	ND	5.0	ug/kg	SW846 8260A
Chloroethane	ND	10	ug/kg	SW846 8260A
2-Chloroethyl vinyl ether	ND	10	ug/kg	SW846 8260A
Chloroform	ND	5.0	ug/kg	SW846 8260A
Chloromethane	ND	10	ug/kg	SW846 8260A
2-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
4-Chlorotoluene	ND	5.0	ug/kg	SW846 8260A
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromoethane (EDB)	ND	5.0	ug/kg	SW846 8260A
Dibromomethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,3-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,4-Dichlorobenzene	ND	5.0	ug/kg	SW846 8260A
Dichlorodifluoromethane	ND	10	ug/kg	SW846 8260A
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260A
cis-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
trans-1,2-Dichloroethene	ND	2.5	ug/kg	SW846 8260A
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260A
Dichlorofluoromethane	ND	5.0	ug/kg	SW846 8260A
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
1,3-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
2,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260A
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
1,1-Dichloropropene	ND	5.0	ug/kg	SW846 8260A
Ethylbenzene	ND	5.0	ug/kg	SW846 8260A
Hexachlorobutadiene	ND	5.0	ug/kg	SW846 8260A
2-Hexanone	ND	10	ug/kg	SW846 8260A

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C240141 Work Order #...: CG5EN101 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Isopropylbenzene	ND	5.0	ug/kg	SW846 8260A
p-Isopropyltoluene	ND	5.0	ug/kg	SW846 8260A
Methylene chloride	ND	5.0	ug/kg	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/kg	SW846 8260A
Methyl tert-butyl ether	ND	5.0	ug/kg	SW846 8260A
Naphthalene	ND	5.0	ug/kg	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	10	ug/kg	SW846 8260A
n-Propylbenzene	ND	5.0	ug/kg	SW846 8260A
Styrene	ND	5.0	ug/kg	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260A
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260A
Toluene	ND	5.0	ug/kg	SW846 8260A
1,2,3-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trichlorobenzene	ND	5.0	ug/kg	SW846 8260A
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260A
Trichloroethene	ND	5.0	ug/kg	SW846 8260A
Trichlorofluoromethane	ND	10	ug/kg	SW846 8260A
1,2,3-Trichloropropane	ND	5.0	ug/kg	SW846 8260A
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
1,3,5-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260A
Vinyl acetate	ND	10	ug/kg	SW846 8260A
Vinyl chloride	ND	10	ug/kg	SW846 8260A
m-Xylene & p-Xylene	ND	2.5	ug/kg	SW846 8260A
o-Xylene	ND	2.5	ug/kg	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	85	(61 - 115)
Toluene-d8	100	(82 - 129)
Bromofluorobenzene	96	(64 - 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C240141 **Work Order #...:** CG5QM101 **Matrix.....:** WATER
MB Lot-Sample #: A8C300000-160
Prep Date.....: 03/29/98
Analysis Date..: 03/29/98 **Prep Batch #...:** 8089160
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	ug/L	SW846 8260A
Benzene	ND	1.0	ug/L	SW846 8260A
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	ND	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	ND	1.0	ug/L	SW846 8260A
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	1.0	ug/L	SW846 8260A
Chloromethane	ND	2.0	ug/L	SW846 8260A
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C240141 Work Order #...: CG5QM101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	ND	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	ND	1.0	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	ND	2.0	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	0.50	ug/L	SW846 8260A
o-Xylene	ND	0.50	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	87	(69 - 127)
Toluene-d8	97	(90 - 112)
Bromofluorobenzene	97	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C240141 **Work Order #...:** CG5XD101 **Matrix.....:** WATER
MB Lot-Sample #: A8C300000-213

Prep Date.....: 03/30/98
Analysis Date..: 03/30/98 **Prep Batch #...:** 8089213
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	ug/L	SW846 8260A
Benzene	ND	1.0	ug/L	SW846 8260A
Bromobenzene	ND	1.0	ug/L	SW846 8260A
Bromodichloromethane	ND	1.0	ug/L	SW846 8260A
Bromoform	ND	1.0	ug/L	SW846 8260A
Bromomethane	ND	2.0	ug/L	SW846 8260A
2-Butanone	ND	10	ug/L	SW846 8260A
n-Butylbenzene	ND	1.0	ug/L	SW846 8260A
sec-Butylbenzene	ND	1.0	ug/L	SW846 8260A
tert-Butylbenzene	ND	1.0	ug/L	SW846 8260A
Carbon disulfide	ND	1.0	ug/L	SW846 8260A
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260A
Chlorobenzene	ND	1.0	ug/L	SW846 8260A
Chloroethane	ND	2.0	ug/L	SW846 8260A
2-Chloroethyl vinyl ether	ND	--	ug/L	SW846 8260A
Chloroform	ND	1.0	ug/L	SW846 8260A
Chloromethane	ND	2.0	ug/L	SW846 8260A
2-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
4-Chlorotoluene	ND	1.0	ug/L	SW846 8260A
Dibromochloromethane	ND	1.0	ug/L	SW846 8260A
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260A
Dibromomethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260A
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260A
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260A
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260A
cis-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260A
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260A
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260A
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
1,3-Dichloropropane	ND	1.0	ug/L	SW846 8260A
2,2-Dichloropropane	ND	1.0	ug/L	SW846 8260A
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260A
1,1-Dichloropropene	ND	1.0	ug/L	SW846 8260A
Ethylbenzene	ND	1.0	ug/L	SW846 8260A
Hexachlorobutadiene	ND	1.0	ug/L	SW846 8260A
Bromochloromethane	ND	1.0	ug/L	SW846 8260A

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A8C240141 Work Order #...: CG5XD101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2-Hexanone	ND	10	ug/L	SW846 8260A
Isopropylbenzene	ND	1.0	ug/L	SW846 8260A
p-Isopropyltoluene	ND	1.0	ug/L	SW846 8260A
Methylene chloride	ND	1.0	ug/L	SW846 8260A
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260A
Methyl tert-butyl ether	ND	1.0	ug/L	SW846 8260A
Naphthalene	ND	1.0	ug/L	SW846 8260A
1,2-Dibromo-3-chloro-propane	ND	2.0	ug/L	SW846 8260A
n-Propylbenzene	ND	1.0	ug/L	SW846 8260A
Styrene	ND	1.0	ug/L	SW846 8260A
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260A
Tetrachloroethene	ND	1.0	ug/L	SW846 8260A
Toluene	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,2,4-Trichlorobenzene	ND	1.0	ug/L	SW846 8260A
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260A
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260A
Trichloroethene	ND	1.0	ug/L	SW846 8260A
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260A
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260A
1,2,4-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
1,3,5-Trimethylbenzene	ND	1.0	ug/L	SW846 8260A
Vinyl acetate	ND	2.0	ug/L	SW846 8260A
Vinyl chloride	ND	2.0	ug/L	SW846 8260A
m-Xylene & p-Xylene	ND	0.50	ug/L	SW846 8260A
o-Xylene	ND	0.50	ug/L	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	89	(69 - 127)
Toluene-d8	97	(90 - 112)
Bromofluorobenzene	96	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C240141 Work Order #...: CG2AK103-MS Matrix.....: SOLID
MS Lot-Sample #: A8C240141-001 CG2AK104-MSD
Date Sampled...: 03/20/98 00:00 Date Received..: 03/24/98
Prep Date.....: 03/27/98 Analysis Date..: 03/27/98
Prep Batch #...: 8087123
Dilution Factor: 1 % Moisture.....: 11

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	100	(78 - 117)			SW846 8260A
	101	(78 - 117)	0.88	(0-17)	SW846 8260A
Chlorobenzene	96	(81 - 115)			SW846 8260A
	100	(81 - 115)	4.1	(0-18)	SW846 8260A
1,1-Dichloroethene	94	(75 - 113)			SW846 8260A
	97	(75 - 113)	2.2	(0-20)	SW846 8260A
Toluene	96	(78 - 126)			SW846 8260A
	97	(78 - 126)	0.93	(0-24)	SW846 8260A
Trichloroethene	92	(71 - 110)			SW846 8260A
	94	(71 - 110)	1.7	(0-22)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	95	(61 - 115)
	94	(61 - 115)
Toluene-d8	99	(82 - 129)
	98	(82 - 129)
Bromofluorobenzene	94	(64 - 112)
	95	(64 - 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C240141 **Work Order #...:** CG474102-MS **Matrix.....:** WATER
MS Lot-Sample #: A8C260158-003 CG474103-MSD
Date Sampled...: 03/19/98 00:00 **Date Received..:** 03/25/98
Prep Date.....: 03/30/98 **Analysis Date..:** 03/30/98
Prep Batch #...: 8089213
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	110	(75 - 113)			SW846 8260A
	111	(75 - 113)	0.63	(0-20)	SW846 8260A
Trichloroethene	100	(71 - 110)			SW846 8260A
	101	(71 - 110)	0.79	(0-22)	SW846 8260A
Chlorobenzene	93	(81 - 115)			SW846 8260A
	95	(81 - 115)	1.9	(0-18)	SW846 8260A
Toluene	92	(78 - 126)			SW846 8260A
	88	(78 - 126)	4.4	(0-24)	SW846 8260A
Benzene	99	(78 - 117)			SW846 8260A
	100	(78 - 117)	0.81	(0-17)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	90	(69 - 127)
	103	(69 - 127)
Toluene-d8	95	(90 - 112)
	94	(90 - 112)
Bromofluorobenzene	95	(87 - 114)
	97	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C240141 **Work Order #...:** CG132102-MS **Matrix.....:** WATER
MS Lot-Sample #: A8C220104-010 CG132103-MSD
Date Sampled...: 03/18/98 00:00 **Date Received..:** 03/21/98
Prep Date.....: 03/30/98 **Analysis Date..:** 03/30/98
Prep Batch #...: 8089160
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	106	(75 - 113)			SW846 8260A
	109	(75 - 113)	3.5	(0-20)	SW846 8260A
Trichloroethene	100	(71 - 110)			SW846 8260A
	101	(71 - 110)	0.82	(0-22)	SW846 8260A
Chlorobenzene	91	(81 - 115)			SW846 8260A
	93	(81 - 115)	1.7	(0-18)	SW846 8260A
Toluene	88	(78 - 126)			SW846 8260A
	89	(78 - 126)	1.4	(0-24)	SW846 8260A
Benzene	98	(78 - 117)			SW846 8260A
	100	(78 - 117)	1.3	(0-17)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	99	(69 - 127)
	99	(69 - 127)
Toluene-d8	94	(90 - 112)
	93	(90 - 112)
Bromofluorobenzene	95	(87 - 114)
	96	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A8C240141 Work Order #...: CG2C4102-MS Matrix.....: WATER
MS Lot-Sample #: A8C240141-007 CG2C4103-MSD
Date Sampled...: 03/20/98 00:00 Date Received..: 03/24/98
Prep Date.....: 03/31/98 Analysis Date..: 03/31/98
Prep Batch #...: 8091166
Dilution Factor: 2.08

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	113	(75 - 113)			SW846 8260A
	116 a	(75 - 113)	2.0	(0-20)	SW846 8260A
Trichloroethene	108	(71 - 110)			SW846 8260A
	110	(71 - 110)	2.0	(0-22)	SW846 8260A
Chlorobenzene	95	(81 - 115)			SW846 8260A
	97	(81 - 115)	1.8	(0-18)	SW846 8260A
Toluene	91	(78 - 126)			SW846 8260A
	93	(78 - 126)	2.0	(0-24)	SW846 8260A
Benzene	100	(78 - 117)			SW846 8260A
	101	(78 - 117)	1.1	(0-17)	SW846 8260A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
1,2-Dichloroethane-d4	99	(69 - 127)
	97	(69 - 127)
Toluene-d8	96	(90 - 112)
	95	(90 - 112)
Bromofluorobenzene	97	(87 - 114)
	98	(87 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

a Spiked analyte recovery is outside stated control limits.

CHAIN-OF-CUSTODY

PROJECT NAME: WWC
PO NUMBER: 131273
PROJECT MANAGER: Sharon Meves

QUANTERRA ENVIRONMENTAL SERVICES
1721 South Grand Avenue
Santa Ana, CA 92705
Phone #: (714) 258-8610

DUE: 04 APR 98
TO: QES, NORTH CANTON
4101 Shuffel Drive N.W.
North Canton, OH 44720

SAMPLE DESCRIPTION	LAB ID	DATE	TIME	MATRIX	CONTAINERS	ANALYSES: 8260 (SW8260A)									REMARKS/ SPCL INSTR
HG19-01	131273-0001 SA	20 MAR 98		SOIL		X									
HG19-02	131273-0002 SA	20 MAR 98		SOIL		X									
HG19-03	131273-0003 SA	20 MAR 98		SOIL		X									
HG20-01	131273-0004 SA	20 MAR 98		SOIL		X									
HG20-02	131273-0005 SA	20 MAR 98		SOIL		X									
HG5B-10-W	131273-0007 SA	20 MAR 98		WATER		X									
HG5B-11-W	131273-0008 SA	20 MAR 98		WATER		X									
HG08-10-W	131273-0009 SA	20 MAR 98		WATER		X									
HG19-10-W	131273-0010 SA	20 MAR 98		WATER		X									
HG20-10-W	131273-0011 SA	20 MAR 98		WATER		X									
HG20-11-W	131273-0012 SA	20 MAR 98		WATER		X									
FB03201-W	131273-0013 FB	20 MAR 98		WATER		X									

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
Relinquished by:	[signature]	Quanterra ST	Carlos Millan	3-23-98	1530
Received by:	Doris Herren	DORIS HERREN	Quanterra NC	3-24-98	0945
Relinquished by:					
Received by:					

Comments:

QA373 4/96 CMD

Quanterra
Environmental Services

Quanterra Incorporated
1721 South Grand Avenue
Santa Ana, California 92705

714 258-8610 Telephone
714 258-0921 Fax

April 3, 1998

QUANTERRA INCORPORATED PROJECT NUMBER: 131273
PO/CONTRACT: 97SB044

Partha Bora
Woodward-Clyde Consultants
2020 E. First Street
Santa Ana, CA 92705

Dear Mr. Bora,

This report contains PARTIAL analytical results for the fourteen samples received under chain of custody by Quanterra Incorporated on March 23, 1998. These samples are associated with your AES, Huntington Beach project. This report contains only the TEPH results that were not submitted in the original report.

The case narrative is an integral part of this report.

If you have any questions, please feel free to call me at (714) 258-8610.

Sincerely,

Sharon Meves
Project Manager

TABLE OF CONTENTS

QUANTERRA INCORPORATED PROJECT NUMBER 131273

Case Narrative

Quanterra's Quality Assurance Program

Chain of Custody Documentation

Sample Description Information

TEPH
Sample(s): 1-14
- Sample Data Sheets
- Method Blank Reports
- Laboratory QC Reports

CASE NARRATIVE

QUANTERRA INCORPORATED PROJECT NUMBER 131273

All applicable internal quality control analyses including calibrations and calibration verifications, calibration (instrument) and method blanks, laboratory control samples (LCS), matrix spikes (MS) and matrix spike duplicates (MSD), and other QC met method-specified acceptance criteria. Any matrix-related anomalies are indicated using footnotes within the report. Any other anomalies are reported within the narrative.

General: MS/MSD analyses were performed on aqueous samples as designated on the COC (with the exception of TVPH and TEPH, for which no QC analyses were performed, as discussed with Woodward Clyde personnel). MS/MSD analyses for soil samples were performed as sample volume allowed. (Only 2 small sleeves were submitted to the laboratory. One sleeve was shipped to the Quanterra-North Canton facility for volatiles analysis, so only one sleeve was available for the remaining analyses. Volume concerns were discussed with Woodward Clyde personnel immediately after the first sample shipment arrived.) Where MS/MSD analyses could not be performed, duplicate laboratory control standards were reported.

There were no anomalies associated with this report.

Quanterra Environmental Services - Western Region

Quality Control Definitions

QC Parameter	Definition
QC Batch	A set of up to 20 field samples plus associated laboratory QC samples that are similar in composition (matrix) and that are processed within the same time period with the same reagent and standard lots.
Duplicate Control Sample (DCS)	Consist of a pair of LCSs analyzed within the same QC batch to monitor precision and accuracy independent of sample matrix effects. This QC is performed only if required by client or when insufficient sample is available to perform MS/MSD.
Duplicate Sample (DU)	A second aliquot of an environmental sample, taken from the same sample container when possible, that is processed independently with the first sample aliquot. The results are used to assess the effect of the sample matrix on the precision of the analytical process. The precision estimated using this sample is not necessarily representative of the precision for other samples in the batch.
Laboratory Control Sample (LCS)	A volume of reagent water for aqueous samples or a contaminant-free solid matrix (Ottawa sand) for soil and sediment samples which is spiked with known amounts of representative target analytes and required surrogates. An LCS is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects.
Matrix Spike and Matrix Spike Duplicate (MS/MSD)	A field sample fortified with known quantities of target analytes that are also added to the LCS. Matrix spike duplicate is a second matrix spike sample. MSs/MSDs are carried through the entire analytical process and are used to determine sample matrix effect on accuracy of the measurement system. The accuracy and precision estimated using MS/MSD is only representative of the precision of the sample that was spiked.
Method Blank (MB)	A sample composed of all the reagents (in the same quantities) in reagent water carried through the entire analytical process. The method blank is used to monitor the level of contamination introduced during sample preparation steps.
Surrogate Spike	Organic constituents not expected to be detected in environmental media and are added to every sample and QC at a known concentration. Surrogates are used to determine the efficiency of the sample preparation and the analytical process.

Source: Quanterra® Quality Control Program, Policy QA-003, Rev. 0, 8/19/96.

Woodward-Clyde Consultants

SHIPMENT NO.: 5

CHAIN OF CUSTODY RECORD

PAGE ____ OF ____

PROJECT NAME: AES

DATE 3 20 98

PROJECT NO.: 97360044

	Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
1	HG06A-10-W	HG06A	H_2O	GRAB	1L amber glass	ICED	NONE	TPH-d
					2(1L) amber glass		NONE	SVOCs
					1L amber glass		NONE	PCBs
2	HG5B-10-W	~~HG06A~~ HG5B	H_2O	GRAB	500ml poly	ICED	NONE	metals
					1L amber glass		NONE	TPH-d
			✓		3(40ml) vials		HCL	VOCs
					2(1L) amber glass		NONE	SVOCs
3	HG5B-11-W	HG5B	H_2O	GRAB	500ml poly	ICED	NONE	metals
					1L amber glass		NONE	TPH-d
					3(40ml) vials		HCL	VOCs
					1L amber glass		NONE	SVOCs
4	HG08-10-W	HG08	H_2O	GRAB	1L amber glass	ICED	NONE	TPH-d
					3(40ml) vials		HCL	VOCs
			x		2(1L) amber glass		NONE	SVOCs
5	HG19-10-W	HG19	H_2O	GRAB	500ml poly	ICED	NONE	metals
					1L amber glass		NONE	TPH-d
					3(40ml) vials		HCL	VOCs
					2(1L) amber glass		NONE	SVOCs

Total Number of Samples Shipped: 5 | Sampler's Signature: [signature]

Relinquished By:	Received By:	Date / Time
Signature: [signature] 3	Signature: [signature]	3/20/98
Printed Name: Autumn King	Printed Name: R. MARTIN	
Company: Woodward Clyde	Company: Quanterra	
Reason: Ship to lab for analysis	3	1700
Signature: [signature]	Signature:	/ /
Printed Name:	Printed Name:	
Company:	Company:	
Reason:		
Signature:	Signature:	/ /
Printed Name:	Printed Name:	
Company:	Company:	
Reason:		
Signature:	Signature:	/ /
Printed Name:	Printed Name:	
Company:	Company:	
Reason:		

Special Shipment / Handling / Storage Requirements:

Metal analysis filter 1st then preserve.
Questions? - Call Partha Bora @ 714-835-6886

* Note — This does not constitute authorization to proceed with analysis

Woodward-Clyde Consultants

SHIPMENT NO.: 5

CHAIN OF CUSTODY RECORD

PAGE ____ OF ____

PROJECT NAME: AES

DATE 3/20/98

PROJECT NO.: 97-6044

3/20/98

Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
1 HG19-01	HG19	SOIL	PUSH	2 ss liners	ICED	NONE	metals
							TPH-d
							VOCs
							SVOCs
2 HG19-02	HG19	SOIL	PUSH	2 ss liners	ICED	NONE	metals
							TPH-d
				5°,	4°,	4°	VOCs
							SVOCs
3 HG19-03	HG19	SOIL	PUSH	2 ss liners	ICED	NONE	metals
							TPH-d
							VOCs
							SVOCs
4 HG20-01	HG20	SOIL	PUSH	2 ss liners	ICED	NONE	metals
							TPH-d
							VOCs
							SVOCs
5 HG20-02	HG20	SOIL	PUSH	2 ss liners	ICED	NONE	metals
							TPH-d
							VOCs
							SVOCs

Total Number of Samples Shipped: 5

Sampler's Signature: [signature]

Relinquished By:	Received By:	Date / Time
Signature: [signature]	Signature: [signature]	Date: 3/20/98
Printed Name: Anthony King	Printed Name: R. MARTIN	Time: 1700
Company: Woodward Clyde	Company: Quanterra	
Reason: Ship to lab for analysis		
Relinquished By:	Received By:	Date / /
Signature:	Signature:	Time
Printed Name:	Printed Name:	
Company:	Company:	
Reason:		
Relinquished By:	Received By:	Date / /
Signature:	Signature:	Time
Printed Name:	Printed Name:	
Company:	Company:	
Reason:		
Relinquished By:	Received By:	Date / /
Signature:	Signature:	Time
Printed Name:	Printed Name:	
Company:	Company:	
Reason:		

Special Shipment / Handling / Storage Requirements:

Questions - Call Partha Bora @ 714-835-6886

* Note — This does not constitute authorization to proceed with analysis

Woodward-Clyde Consultants

SHIPMENT NO.: 5

CHAIN OF CUSTODY RECORD

PAGE ____ OF ____

DATE 3/20/98

PROJECT NAME: AES

PROJECT NO.: 97sb044

Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
1 B HG20-10-W	HG20	H_2O	GRAB	500ml poly	ICD	NONE	metals
			"	1L amber glass	"	NONE	TPH-d
			"	3(40ml) vials	"	HCL	VOCs
			"	2(1L) amber glass	"	NONE	SVOCs
2 B HG20-11-W	HG20	H_2O	GRAB	500ml poly	"	NONE	metals
			"	1L amber glass	"	NONE	TPH-d
			"	3(40ml) vials	"	HCL	VOCs
			"	2(1L) amber glass	"	NONE	SVOCs

END OF RECORD

Total Number of Samples Shipped: 2

Sampler's Signature: Autumn King

Relinquished By:	Received By:	Date / Time
Signature: Autumn King Printed Name: Autumn King Company: Woodward Clyde Reason: Ship to lab for analysis	Signature: [signature] Printed Name: P. MARTIN Company: Quantera	Date: 3/20/98 Time: 1700
Signature: Printed Name: Company: Reason:	Signature: Printed Name: Company:	Date: / / Time:
Signature: Printed Name: Company: Reason:	Signature: Printed Name: Company:	Date: / / Time:
Signature: Printed Name: Company: Reason:	Signature: Printed Name: Company:	Date: / / Time:

Special Shipment / Handling / Storage Requirements:

For metal analysis filter 1st then preserve
Questions? - Call Partha Bora @ 714-835-6886

* Note – This does not constitute authorization to proceed with analysis

Woodward-Clyde Consultants

SHIPMENT NO.: 5

CHAIN OF CUSTODY RECORD

PAGE ____ OF ____

DATE 3/20/98

PROJECT NAME: ABS

PROJECT NO.: 9736044

Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
FB0320	—	H_2O	GRAB	500ml poly	ICED	NONE	METALS
				1L amberglass		NONE	1PH-d
				3/40ml vials		~~NONE~~ HCL	VOCs
				2(1L) amberglass		NONE	SVOCs
				1L amberglass		NONE	PCBs

Total Number of Samples Shipped: 4 Sampler's Signature: [signature]

Relinquished By:	Received By:	Date / Time
Signature: [signature]	Signature: [signature]	Date: 3/20/98
Printed Name: Autumn King	Printed Name: K-MARTIN	Time: 1700
Company: WCC	Company: Quantara	
Reason: Ship to lab for analysis		
Relinquished By:	Received By:	Date / Time
Signature:	Signature:	Date: / /
Printed Name:	Printed Name:	Time:
Company:	Company:	
Reason:		
Relinquished By:	Received By:	Date / Time
Signature:	Signature:	Date: / /
Printed Name:	Printed Name:	Time:
Company:	Company:	
Reason:		
Relinquished By:	Received By:	Date / Time
Signature:	Signature:	Date: / /
Printed Name:	Printed Name:	Time:
Company:	Company:	
Reason:		

Special Shipment / Handling / Storage Requirements:

Questions Call Partha Bora @ 714-835-6886, Metals filter first then preserve

* Note — This does not constitute authorization to proceed with analysis

TEPH

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG19-01		
LAB ID:	131273-0001-SA		
Matrix:	SOIL	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 26 MAR 98	Analyzed: 03 APR 98
Instrument:	GC/FID	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		11	mg/kg
C15-<C20	6.6	J	11	mg/kg
C20-<C25	16		11	mg/kg
C25-<C30	33		11	mg/kg
C30-<C35	33		11	mg/kg
C35-C40	35		11	mg/kg

Percent moisture is 8.8%. All results and limits are reported on a dry weight basis.

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG19-02		
LAB ID:	131273-0002-SA		
Matrix:	SOIL	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 26 MAR 98	Analyzed: 03 APR 98
Instrument:	GC/FID	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		12	mg/kg
C15-<C20	ND		12	mg/kg
C20-<C25	ND		12	mg/kg
C25-<C30	ND		12	mg/kg
C30-<C35	8.4	J	12	mg/kg
C35-C40	18		12	mg/kg

Percent moisture is 15.2%. All results and limits are reported on a dry weight basis.

J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG19-03		
LAB ID:	131273-0003-SA		
Matrix:	SOIL	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 26 MAR 98	Analyzed: 03 APR 98
Instrument:	GC/FID	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		11	mg/kg
C15-<C20	ND		11	mg/kg
C20-<C25	ND		11	mg/kg
C25-<C30	ND		11	mg/kg
C30-<C35	ND		11	mg/kg
C35-C40	ND		11	mg/kg

Percent moisture is 9.9%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG20-01		
LAB ID:	131273-0004-SA		
Matrix:	SOIL	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 26 MAR 98	Analyzed: 03 APR 98
Instrument:	GC/FID	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		11	mg/kg
C15-<C20	ND		11	mg/kg
C20-<C25	ND		11	mg/kg
C25-<C30	ND		11	mg/kg
C30-<C35	ND		11	mg/kg
C35-C40	ND		11	mg/kg

Percent moisture is 11.8%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG20-02		
LAB ID:	131273-0005-SA		
Matrix:	SOIL	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 26 MAR 98	Analyzed: 03 APR 98
Instrument:	GC/FID	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		12	mg/kg
C15-<C20	ND		12	mg/kg
C20-<C25	ND		12	mg/kg
C25-<C30	ND		12	mg/kg
C30-<C35	ND		12	mg/kg
C35-C40	ND		12	mg/kg

Percent moisture is 14.2%. All results and limits are reported on a dry weight basis.

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG06A-10-W		
LAB ID:	131273-0006-SA		
Matrix:	WATER	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 23 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	ND		1.0	mg/L
C20-<C25	ND		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG5B-10-W		
LAB ID:	131273-0007-SA		
Matrix:	WATER	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 23 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	ND		1.0	mg/L
C20-<C25	ND		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG5B-11-W		
LAB ID:	131273-0008-SA		
Matrix:	WATER	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 23 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	ND		1.0	mg/L
C20-<C25	ND		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG08-10-W		
LAB ID:	131273-0009-SA		
Matrix:	WATER	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 23 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	ND		1.0	mg/L
C20-<C25	ND		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG19-10-W		
LAB ID:	131273-0010-SA		
Matrix:	WATER	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 23 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	1.1		1.0	mg/L
C20-<C25	1.3		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG20-10-W		
LAB ID:	131273-0011-SA		
Matrix:	WATER	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 23 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	ND		1.0	mg/L
C20-<C25	ND		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG20-11-W		
LAB ID:	131273-0012-SA		
Matrix:	WATER	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 23 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	ND		1.0	mg/L
C20-<C25	ND		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	FB03201-W		
LAB ID:	131273-0013-FB		
Matrix:	WATER	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 23 MAR 98	Analyzed: 28 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	ND		1.0	mg/L
C20-<C25	ND		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

Total Extractable Petroleum Hydrocarbons
Method 8015M

Client Name:	Woodward-Clyde Consultants		
Client ID:	HG08-11-W		
LAB ID:	131273-0014-SA		
Matrix:	WATER	Sampled: 20 MAR 98	Received: 20 MAR 98
Authorized:	21 MAR 98	Prepared: 23 MAR 98	Analyzed: 29 MAR 98
Instrument:	GC/FID-HOA	Dilution: 1.0	

Parameter	Result	Qualifier	RL	Units
C10-<C15	ND		1.0	mg/L
C15-<C20	ND		1.0	mg/L
C20-<C25	ND		1.0	mg/L
C25-<C30	ND		1.0	mg/L
C30-<C35	ND		1.0	mg/L
C35-C40	ND		1.0	mg/L

ND = Not Detected

APPENDIX D

DATA REVIEW REPORT

This report summarizes the quality control (QC) activities performed for the verification of project, field and analytical data quality objectives (DQOs). QC activities included the development of DQOs, use of standard U.S. Environmental Protection Agency (EPA) methods, and evaluation of established acceptance precision and accuracy criteria. The data were compared to the laboratory established acceptance criteria for the evaluation of precision, accuracy, representativeness, comparability, and completeness (PARCC).

D.1 OVERVIEW OF DATA ACQUISITION AND REVIEW

To meet the project objectives and generate data of sufficient quality, samples were analyzed using EPA Methods (SW-846, 1986 and revisions and EPA Methods for Chemical Analysis of Water and Wastes, 1983 and revisions). Additionally, to ensure the quality of the data, the following steps were taken:

- Internal QC samples and procedures were utilized by the laboratory.
- A complete laboratory data package was obtained from the laboratory, including results and associated QC evaluation. Full data documentation, including raw data, will be stored at the laboratory for a minimum of 10 years.
- Data were reviewed in accordance with the EPA document entitled *Functional Guidelines for Organic and Inorganic Data Review* (February 1994) as applicable for the method performed.

D.2 SUMMARY OF DATA REVIEW

Samples collected during the field investigation, including groundwater, soil, and sediment, were analyzed by Quanterra Incorporated of Santa Ana, California. Some samples were subcontracted to Quanterra Incorporated in Canton, Ohio for the soil volatile organic compound (VOC) analyses and to Quanterra Incorporated in Tallahassee, Florida for the water VOC analyses. Data were reported in three Sample Delivery Groups (SDGs): 131259, 131262, and 131273. Table 4-1 lists the samples included in the SDGs. The data tables in the report document the sample analytical results and include any data qualifiers added as a result of this data review. The following sections present the results of the data review.

D.2.1 Laboratory Case Narrative

In the case narratives for this project, the laboratory reported that occasionally inadequate groundwater or soil sample volumes were submitted for matrix spike/matrix spike duplicate (MS/MSD) analyses for the analysis of VOCs. In these situations, the laboratory analyzed laboratory control samples and duplicates to assess the accuracy and precision of the method. When inadequate sample material was submitted for analysis of project soil samples, Woodward-Clyde attempted to resample the location and submitted the sample to Quanterra Incorporated for analysis.

The laboratory analyzed total extractable petroleum hydrocarbons (TEPH) using the carbon chain breakdown specified by Woodward-Clyde. Because this is not a standard method for the laboratory, there are no control limits determined for surrogate, matrix spike, or laboratory control sample recoveries or duplicate relative percent differences (RPDs). Upon agreement with Woodward-Clyde, the laboratory initially reported the TEPH results without any associated laboratory quality control results. However, without the QC results, there is no assessment of the accuracy and precision of the TEPH analyses. Therefore, discussions were held with the laboratory to determine the types of QC samples and results and the corrective actions taken for QC results out of compliance. The laboratory analyzed method blanks that were free of contamination. The laboratory analyzed surrogates with each sample; all surrogate recoveries were above 10 percent and no samples required reanalysis. The laboratory analyzed a laboratory control sample with each batch that was specific for the carbon chain analysis (not a gas or diesel standard). In addition, the calibration procedures described in EPA Method 8015 mod. were followed. The TEPH data have been accepted without qualification.

The laboratory reported the temperature of coolers containing samples for VOC analysis and if any water samples contained headspace. The temperature of the coolers ranged from 3.5°C to 5.9°C, which adequately preserved the samples. All water samples were submitted with at least three separate 40-milliliter (mL) volatile organic analysis (VOA) vials. All samples had at least two containers for analysis without headspace. Other issues noted in the laboratory case narratives are addressed in the following sections.

D.2.2 Holding Times

Holding times are evaluated by comparing sampling dates, extraction dates, and analysis dates. Samples were collected from March 19 through March 20, 1998. The recommended holding

times for each method are specified in the table below. Holding times were within the evaluation criteria specified by the methodology for all analyses.

Analytes	Analytical Method	Matrix	Recommended Holding Time
Volatile Organic Compounds (VOCs)	8260A	water soil	14 days 14 days
Semivolatile Organic Compounds (SVOCs)	8270B	water soil	7 days (extraction); 40 days (analysis) 14 days (extraction); 40 days (analysis)
Polychlorinated Biphenyls (PCBs)	8081	water soil	7 days (extraction); 40 days (analysis) 14 days (extraction); 40 days (analysis)
California Title 22 CAM Metals	6010B/7000	water soil	180 days (28 days for mercury) 180 days (28 days for mercury)
Total Volatile Petroleum Hydrocarbons (TVPH)	8015 mod	water soil	14 days 14 days
Total Extractable Petroleum Hydrocarbons (TEPH)	8015 mod	water soil	7 days (extraction); 40 days (analysis) 14 days (extraction); 40 days (analysis)

D.2.3 Method Blank Samples

Method blanks were analyzed to assess if laboratory contamination had impacted project samples. Method blanks were analyzed by the laboratory at the rate of at least one per analytical batch for each method. Method blanks associated with the VOC, PCB, and SVOC analyses were free of contamination. Barium was detected in the soil method blank of SDGs 131262, 131259, and 131273 at a concentration (0.11 mg/kg) below reporting limits. All soil results were much greater than five times the method blank contamination and no data have been qualified.

D.2.4 Field Equipment Blank Samples

Field equipment rinsate blanks were used to evaluate the effectiveness of decontamination procedures. At sampling locations where dedicated or disposable sampling equipment were used, the rinsate blanks were collected by pouring distilled or organic-free water directly into sampling bottles (bottle blanks). Approximately one field blank was collected each day of sampling.

Field blanks were free of contamination for the PCB analyses. Field blanks for SVOCs associated with SDG 131259 and 131262 had detections of bis(2-ethylhexyl)phthalate. Project samples with detected concentrations of this compound at less than ten times the field blank concentrations have been qualified as not detected.

Field blanks for VOCs associated with SDGs 131262 and 131273 had detections of acetone and methylene chloride, respectively. Project samples with detected concentrations of these compounds at less than ten times the field blank concentrations have been qualified as not detected.

Field blanks for metals associated with SDGs 131259 and 131273 had detections of zinc and nickel, respectively. Project samples with detected concentrations of these compounds at less than five times the field blank concentrations have been qualified as not detected.

D.2.5 Trip Blanks

Trip blanks should be analyzed for VOCs; the data would be used to evaluate if contamination had occurred during shipment or storage. Trip blanks were not submitted with the samples for VOC analysis, which does not meet the EPA guidelines of one trip blank per cooler with samples for VOC analysis. The field blanks submitted in the coolers will help identify any cross-contamination caused by shipment or storage; however, contamination caused by some laboratory practices may be missed.

D.2.6 Laboratory Control Samples (LCS)

LCS were prepared in the laboratory and analyzed with the field samples in each of the SDGs. LCS recoveries for VOCs, SVOCs, PCBs, and metals were within laboratory control limits. No data require qualification due to LCS results.

LCS were analyzed in duplicate if insufficient sample was received by the laboratory for MS/MSD analyses. The relative percent difference (RPD) for the duplicate analyses were within evaluation criteria.

D.2.7 Reporting Limits

"Detection limit" refers to the Method Detection Limit (MDL) for organic analyses and the Instrument Detection Limit (IDL) for metals. The Reporting Limit (RL) is defined as the lowest level of analyte of interest that can be reliably detected and quantified on a routine basis. The RL is generally 5 to 10 times greater than the MDL or IDL. On a sample specific basis, RLs are adjusted to account for the dry weight, dilutions, and sample amount used. The laboratory reported sample concentrations detected above the MDL, but below the RL, as estimates (J).

Reporting limits were occasionally elevated due to matrix interference and dilutions for soil samples for metals analyses.

D.2.8 Surrogate Compound Recoveries

Surrogates are spiked into samples to monitor the accuracy for an organic analysis. Every sample for organic analysis was spiked with a surrogate(s) compound. The surrogate recoveries were generally within evaluation criteria for VOC, SVOC, and PCB analyses. No qualification of soil data was required based on outlying surrogate recoveries.

The SVOC surrogate recoveries (11 percent to 22 percent) for one water sample in SDG 131262 (HG18-10-W) had all six surrogates below the control limits. The SVOC results for the sample has been qualified as estimates due to potential low bias.

D.2.9 Matrix Spike/Matrix Spike Duplicate

For the evaluation of the accuracy and precision of the analysis, a known amount of an analyte is spiked into a sample. The recoveries are evaluated against established criteria to assess the accuracy, and the RPD between the analyses is calculated for the evaluation of the precision. SVOC and PCB MS/MSD recoveries and RPDs were within evaluation criteria.

All VOC MS/MSD RPDs were within control limits and most VOC MS recoveries were within control limits. The water MS recovery of 1,2-dichloroethene in SDG 131273 were above control limits. No compounds were detected in this sample; therefore, no data have been qualified.

The MS/MSD RPDs for metals were within control limits indicating acceptable precision. MS recoveries for some metals were below the laboratory control limits. The MS antimony recoveries for soil samples associated SDGs 131259 and 131262 were all below control limits (75 percent to 125 percent). Antimony data was qualified as estimated for all soil samples due to potential low bias.

In addition, the soil matrix spike associated with SDG 131259 had low recoveries of arsenic, chromium, copper, nickel and zinc. The results for the project sample used for the MS (HG09-01) have been qualified as estimated "J" for arsenic, chromium, copper, nickel and zinc.

D.2.10 Field Duplicate Samples

Overall precision for the sampling event was measured using field duplicate samples. The duplicate pairs are listed in the table below. There was good agreement between field duplicate results; therefore, qualification of data based on the field duplicate precision was not required.

Primary Sample	Duplicate Sample
HG08-01	HG08-03
HG18-10-W	HG18-11-W
HG16-01	HG16-03
HG19-01	HG19-03
HG5B-10-W	HG5B-11-W
HG20-10-W	HG20-11-W

D.3 DATA QUALITY ASSESSMENT

PARCC parameters are used to evaluate analytical data. These parameters may be assessed in terms of laboratory and/or field procedures, and may also provide information about the specific environmental sample undergoing evaluation. The PARCC parameters are also used to determine the usability of the individual results for meeting project objectives.

D.3.1 Precision

Precision is the agreement between a set of replicate measurements without assumption or knowledge of the true value. Precision is assessed and measured as the RPD between duplicate (or replicate) analyses including field duplicate, MS/MSD, duplicate LCS, and matrix duplicate analyses. As noted in the data review, no data require qualification based on precision parameters.

D.3.2 Accuracy

Accuracy is defined as the degree of agreement of a measurement to an accepted reference or true value. In the laboratory, accuracy is measured as the percent recovery (%R) of an analyte in a reference standard or spiked sample. To assess accuracy in terms of the overall objectives, the blank analyses, surrogate spikes, LCS, and MS/MSD recoveries were reviewed. Barium was detected in some method blanks causing data to be qualified as not detected. The accuracy evaluation of VOC and PCBs indicated acceptable recoveries of spiked compounds. One water sample had low surrogate recoveries, and the data are qualified as estimates due to potential low

bias. Various metals (antimony, arsenic, chromium, copper and zinc) were qualified as estimated based on MS/MSD recoveries. Due to the relatively minor deviations in bias and MS/MSD recoveries, the qualified data were judged acceptable for the project decisions.

D.3.3 Representativeness

Representativeness is a qualitative measure of data quality defined by the degree to which the data represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Representativeness was assessed through the analysis of QC samples including field blanks and field blind duplicate samples. These samples were evaluated during the data review process to document that contamination originating from field or laboratory procedures was not attributed to the environmental media undergoing investigation, and the field duplicate samples were evaluated to assess the precision of the sampling. Field blanks were contaminated with bis(2-ethylhexyl)phthalate, zinc, nickel, and common laboratory contaminants VOCs. The analytical data obtained from the collocated field duplicates were reviewed and are representative of the area under investigation (on a site-specific basis).

D.3.4 Comparability

Comparability is a qualitative measurement that expresses the confidence with which one data set can be compared to another data set measuring the same property. Comparability was optimized in the laboratory and during field activities with the establishment of minimum requirements, acceptance, and reporting criteria for all samples submitted for chemical analysis. This was accomplished by using standard methods for routine chemical analyses and meeting requirements as established by the laboratory and/or method. For the field activities, well established, documented sampling methodologies as specified in the Standard Operating Procedures were followed. Data generated for this project were judged to be comparable.

D.3.5 Completeness

Completeness is a quantitative measure of how much usable data is obtained from a sampling program. Completeness is expressed in terms of the percentage of data requested from the laboratory that were accepted during the validation process. For this project, 100 percent of the project data were complete.

Table 1
Summary of Samples Collected, Analyses, and Associated Data Package
Huntington Beach Generating Station

SDG	Sample Number	Sample Type	Lab Sample ID	Date Sampled	Analysis
131262					
	HG18-10-W	Water	131262-0001-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG18-11-W	Water	131262-0002-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG16-10-W	Water	131262-0003-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	RBHG10-W	Rinstate Blank	131262-0004-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG18-01	Soil	131262-0005-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG18-02	Soil	131262-0006-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG16-01	Soil	131262-0007-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG16-02	Soil	131262-0008-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG16-03	Soil	131262-0009-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG10-01	Soil	131262-0010-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG10-02	Soil	131262-0011-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
131259					
	HG09-01	Soil	131259-0001-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG09-02	Soil	131259-0002-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG06B-01	Soil	131259-0003-SA	3/19/98	PCBs, SVOCs, TPH-d
	HG06B-02	Soil	131259-0004-SA	3/19/98	PCBs, SVOCs, TPH-d
	HG06A-01	Soil	131259-0005-SA	3/19/98	PCBs, SVOCs, TPH-d
	HG06A-02	Soil	131259-0006-SA	3/19/98	PCBs, SVOCs, TPH-d
	HG05-01	Soil	131259-0007-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG05-02	Soil	131259-0008-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG08-01	Soil	131259-0009-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG08-02	Soil	131259-0010-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG08-03	Soil	131259-0011-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG09-10-W	Water	131259-0012-SA	3/19/98	Metals, VOCs, SVOCs, TPH-d,
	HG06B-10-W	Water	131259-0013-SA	3/19/98	PCBs, SVOCs, TPH-d
	FB0319	Rinsate Blank	131259-0014-FB	3/19/98	PCBs, Metals, VOCs, SVOCs, TPH-d,
131273					
	HG19-01	Soil	131273-0001-SA	3/20/98	Metals, VOCs, SVOCs, TPH-d,
	HG19-02	Soil	131273-0002-SA	3/20/98	Metals, VOCs, SVOCs, TPH-d,
	HG19-03	Soil	131273-0003-SA	3/20/98	Metals, VOCs, SVOCs, TPH-d,
	HG20-01	Soil	131273-0004-SA	3/20/98	Metals, VOCs, SVOCs, TPH-d,
	HG20-02	Soil	131273-0005-SA	3/20/98	Metals, VOCs, SVOCs, TPH-d,
	HG06A-10-W	Water	131273-0006-SA	3/20/98	PCBs, SVOCs, TPH-d
	HG05B-10-W	Water	131273-0007-SA	3/20/98	Metals, VOCs, SVOCs, TPH-d,
	HG05B-11-W	Water	131273-0008-SA	3/20/98	Metals, VOCs, SVOCs, TPH-d,
	HG08-10-W	Water	131273-0009-SA	3/20/98	Metals, VOCs, SVOCs, TPH-d,
	HG19-10-W	Water	131273-0010-SA	3/20/98	Metals, VOCs, SVOCs, TPH-d,
	HG20-10-W	Water	131273-0011-SA	3/20/98	Metals, VOCs, SVOCs, TPH-d,
	HG20-11-W	Water	131273-0012-SA	3/20/98	Metals, VOCs, SVOCs, TPH-d,
	FB03201-W	Rinsate Blank	131273-0013-FB	3/20/98	PCBs, Metals, VOCs, SVOCs, TPH-d,
	HG08-11-W	Water	131273-0014-FB	3/20/98	TPH-d

Table 2
Summary of QA/QC Samples

SDG	Sample Number	Sample Type	Lab Sample ID	Date Sampled	Analysis
Alamitos Generating Station					
131212	AG1B-10-W	Water	131212-0007-MS	3/17/98	Metals, VOCs, SVOCs, TPH-d,
131212	AG1B-10-W	Water	131212-0007-SD	3/17/98	Metals, VOCs, SVOCs, TPH-d,
131235	AG3B5-01	Soil	131235-0009-MS	3/18/98	Metals, VOCs, SVOCs, TPH-d,
131235	AG3B5-01	Soil	131235-0009-SD	3/18/98	Metals, VOCs, SVOCs, TPH-d,
131235	AG3B2-10-W	Water	131235-0010-MS	3/18/98	Metals, VOCs, SVOCs, TPH-d,
131235	AG3B2-10-W	Water	131235-0010-SD	3/18/98	Metals, VOCs, SVOCs, TPH-d,
Huntington Generating Station					
131262	HG16-10-W	Water	131262-0003-MS	3/19/98	Metals, VOCs, SVOCs, TPH-d,
131262	HG16-10-W	Water	131262-0003-SD	3/19/98	Metals, VOCs, SVOCs, TPH-d,
Redondo Generating Station					
131313	RG22B-10-W	Water	131313-0001-MS	3/23/98	Metals, VOCs, SVOCs, TPH-d, TPH-g
131313	RG22B-10-W	Water	131313-0001-SD	3/23/98	Metals, VOCs, SVOCs, TPH-d, TPH-g

APPENDIX E

EPA REGION IX PRGs

Key: i=IRIS h=HEAST n=NCEA x=WITHDRAWN r=ROUTE EXTRAPOLATION ca=CANCER PRG nc=NONCANCER PRG sat=SOIL SATURATION max=CEILING LIMIT *(where: nc < 100X ca) **(where: nc < 10X ca)

FOR PLANNING PURPOSES

TOXICITY INFORMATION							CONTAMINANT	PRELIMINARY REMEDIAL GOALS (PRGs)				SOIL SCREENING LEVELS	
SFo (mg/kg-d)	RfDo (mg/kg-d)	SFi 1/(mg/kg-d)	RfDi (mg/kg-d)	V O C	skin abs. soils	CAS No.		Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m^3)	Tap Water (ug/l)	Migration to Ground Water DAF 20 (mg/kg)	Migration to Ground Water DAF 1 (mg/kg)
1.7E-03 i	4.0E-03 i	8.7E-03 r	4.0E-03 r	0	0.10	30560-19-1	Acephate	5.1E+01 ca**	2.2E+02 ca*	7.7E-01 ca*	7.7E+00 ca*		
7.7E-03 r	2.6E-03 r	7.7E-03 i	2.6E-03 i	1	0.10	75-07-0	Acetaldehyde	9.2E+00 ca**	2.1E+01 ca**	8.7E-01 ca*	1.5E+00 ca*		
	2.0E-02 i		2.0E-02 r	0	0.10	34256-82-1	Acetochlor	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc		
	1.0E-01 i		1.0E-01 r	1	0.10	67-64-1	Acetone	2.1E+03 nc	8.8E+03 nc	3.7E+02 nc	6.1E+02 nc	1.6E+01	8.0E-01
	9.0E-04 h		2.9E-03 x	0	0.10	75-86-5	Acetone cyanohydrin	5.2E+01 nc	5.5E+02 nc	1.0E+01 nc	2.9E+01 nc		
	6.0E-03 i		1.4E-02 h	1	0.10	75-05-8	Acetonitrile	2.2E+02 nc	1.2E+03 nc	5.2E+01 nc	7.1E+01 nc		
	1.0E-01 i		5.7E-06 x	1	0.10	98-86-2	Acetophenone	4.9E-01 nc	1.6E+00 nc	2.1E-02 nc	4.2E-02 nc		
	1.3E-02 i		1.3E-02 r	0	0.10	50594-66-6	Acifluorfen	8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc		
	2.0E-02 h		5.7E-06 i	1	0.10	107-02-8	Acrolein	1.0E-01 nc	3.4E-01 nc	2.1E-02 nc	4.2E-02 nc		
1.6E+00 i	2.0E-04 i	4.6E+00 i	2.0E-04 r	0	0.10	79-06-1	Acrylamide	9.8E-02 ca*	4.2E-01 ca	1.5E-03 ca	1.5E-02 ca		
	5.0E-01 i		2.9E-04 i	0	0.10	79-10-7	Acrylic acid	3.1E+04 nc	2.9E+05 nc	1.0E+00 nc	1.8E+04 nc		
5.4E-01 i	1.0E-03 h	2.4E-01 i	5.7E-04 i	1	0.10	107-13-1	Acrylonitrile	1.9E-01 ca*	4.7E-01 ca*	2.8E-02 ca*	3.7E+00 ca*		
8.1E-02 h	1.0E-02 i	6.0E-02 r	1.0E-02 r	0	0.10	15972-60-8	Alachlor	5.5E+00 ca*	2.4E+01 ca	8.4E-02 ca	8.4E-01 ca		
	1.5E-01 i		1.5E-01 r	0	0.10	1596-84-5	Alar	9.8E+03 nc	1.0E+05 nc	5.5E+02 nc	5.5E+03 nc		
	1.0E-03 i		1.0E-03 r	0	0.10	116-06-3	Aldicarb	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc		
	1.0E-03 i		1.0E-03 r	0	0.10	1646-88-4	Aldicarb sulfone	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc		
1.7E+01 i	3.0E-05 i	1.7E+01 i	3.0E-05 r	0	0.10	309-00-2	Aldrin	2.6E-02 ca*	1.1E-01 ca	3.9E-04 ca	4.0E-03 ca	1.2E+04	5.9E+02
	2.5E-01 i		2.5E-01 r	0	0.10	5585-64-6	Ally	1.6E+04 nc	1.0E+05 max	9.1E+02 nc	9.1E+03 nc		
	5.0E-03 x		5.0E-03 r	0	0.10	107-18-6	Allyl alcohol	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc		
	5.0E-02 h		2.9E-04 i	0	0.10	107-05-1	Allyl chloride	3.2E+03 nc	3.3E+04 nc	1.0E+00 nc	1.8E+03 nc		
	1.0E+00 n			0	0.01	7429-90-5	Aluminum	7.7E+04 nc	1.0E+05 max		3.7E+04 nc		
	4.0E-04 i			0	0.01	20859-73-8	Aluminum phosphide	3.1E+01 nc	6.8E+02 nc		1.5E+01 nc		
	3.0E-04 i		3.0E-04 r	0	0.10	67485-29-4	Amdro	2.0E+01 nc	2.0E+02 nc	1.1E+00 nc	1.1E+01 nc		
	9.0E-03 i		9.0E-03 r	0	0.10	834-12-8	Ametryn	5.9E+02 nc	6.1E+03 nc	3.3E+01 nc	3.3E+02 nc		
	7.0E-02 h		7.0E-02 r	0	0.10	591-27-5	m-Aminophenol	4.6E+03 nc	4.8E+04 nc	2.6E+02 nc	2.6E+03 nc		
	2.0E-05 h		2.0E-05 r	0	0.10	504-24-5	4-Aminopyridine	1.3E+00 nc	1.4E+01 nc	7.3E-02 nc	7.3E-01 nc		
	2.5E-03 i		2.5E-03 r	0	0.10	33089-61-1	Amitraz	1.6E+02 nc	1.7E+03 nc	9.1E+00 nc	9.1E+01 nc		
			2.9E-02 i	n/a	n/a	7664-41-7	Ammonia			1.0E+02 nc			
	2.0E-01 i			0	0.10	7773-06-0	Ammonium sulfamate	1.3E+04 nc	1.0E+05 max		7.3E+03 nc		
5.7E-03 i	2.9E-04 r	5.7E-03 r	2.9E-04 i	0	0.10	62-53-3	Aniline	1.9E+01 nc	2.0E+02 nc	1.0E+00 nc	1.1E+01 nc		
	4.0E-04 i			0	0.01	7440-36-0	Antimony and compounds	3.1E+01 nc	6.8E+02 nc		1.5E+01 nc	5.0E+00	3.0E-01
	5.0E-04 h			0	0.01	1314-60-9	Antimony pentoxide	3.8E+01 nc	8.5E+02 nc		1.8E+01 nc		
	6.0E-04 h			0	0.01	28300-74-5	Antimony potassium tartrate	6.9E+01 nc	1.5E+03 nc		3.3E+01 nc		
	4.0E-04 h			0	0.01	1332-81-6	Antimony tetroxide	3.1E+01 nc	6.8E+02 nc		1.5E+01 nc		
	4.0E-04 h			0	0.01	1309-64-4	Antimony trioxide	3.1E+01 nc	6.8E+02 nc		1.5E+01 nc		
	1.3E-02 i		1.3E-02 r	0	0.10	74115-24-5	Apollo	8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc		
2.5E-02 i	5.0E-02 h	2.5E-02 i	5.0E-02 r	0	0.10	140-57-8	Aramite	1.8E+01 ca*	7.6E+01 ca	2.7E-01 ca	2.7E+00 ca		
	3.0E-04 i			0	0.03	7440-38-2	Arsenic (noncancer endpoint)	2.2E+01 nc					
1.5E+00 i	3.0E-04 i	1.5E+01 i		0	0.03	7440-38-2	Arsenic (cancer endpoint)	3.8E-01 ca*	2.4E+00 ca	4.5E-04 ca	4.5E-02 ca	2.9E+01	1.0E+00
			1.4E-05 i	n/a	n/a	7784-42-1	Arsine			5.2E-02 nc			
	8.0E-03 i		8.0E-03 r	0	0.10	76578-12-6	Assure	5.9E+02 nc	6.1E+03 nc	3.3E+01 nc	3.3E+02 nc		
	8.0E-02 i		8.0E-02 r	0	0.10	3337-71-1	Asulam	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc		
2.2E-01 h	3.5E-02 h	2.2E-01 r	3.5E-02 h	0	0.10	1912-24-9	Atrazine	2.0E+00 ca	8.6E+00 ca	3.1E-02 ca	3.0E-01 ca		
	4.0E-04 i		4.0E-04 r	0	0.10	71751-41-2	Avermectin B1	2.6E+01 nc	2.7E+02 nc	1.5E+00 nc	1.5E+01 nc		
1.1E-01 i		1.1E-01 i		0	0.10	103-33-3	Azobenzene	4.0E+00 ca	1.7E+01 ca	6.2E-02 ca	6.1E-01 ca		
	7.0E-02 i		1.4E-04 h	0	0.01	7440-39-3	Barium and compounds	5.3E+03 nc	1.0E+05 max	5.2E-01 nc	2.6E+03 nc	1.6E+03	8.2E+01
	4.0E-03 i		4.0E-03 r	0	0.10	114-26-1	Baygon	2.6E+02 nc	2.7E+03 nc	1.5E+01 nc	1.5E+02 nc		

Key: i=IRIS h=HEAST n=NCEA w=WITHDRAWN r=ROUTE EXTRAPOLATION ca=CANCER PRG nc=NONCANCER PRG sat=SOIL SATURATION max=CEILING LIMIT *(where: nc < 100X ca) **(where: nc < 10X ca)

FOR PLANNING PURPOSES

TOXICITY INFORMATION								CONTAMINANT	PRELIMINARY REMEDIAL GOALS (PRGs)				SOIL SCREENING LEVELS	
SFo 1/(mg/kg-d)	RfDo (mg/kg-d)	SFi 1/(mg/kg-d)	RfDi (mg/kg-d)	V O C	skin abs. / soils	CAS No.		Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m^3)	Tap Water (ug/l)	Migration to Ground Water DAF 20 (mg/kg)	Migration to Ground Water DAF 1 (mg/kg)
	3.0E-02 i		3.0E-02 r	0	0.10	43121-43-3	Bayleton	2.0E+03 nc	2.0E+04 nc	1.1E+02 nc	1.1E+03 nc		
	2.5E-02 i		2.5E-02 r	0	0.10	68359-37-5	Baythroid	1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc		
	3.0E-01 i		3.0E-01 r	0	0.10	1861-40-1	Benefin	2.0E+04 nc	1.0E+05 max	1.1E+03 nc	1.1E+04 nc		
	5.0E-02 i		5.0E-02 r	0	0.10	17804-35-2	Benomyl	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc		
	2.5E-03 i		2.5E-03 r	0	0.10	25057-89-0	Bentazon	1.6E+02 nc	1.7E+03 nc	9.1E+00 nc	9.1E+01 nc		
	1.0E-01 i		1.0E-01 r	0	0.10	100-52-7	Benzaldehyde	6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc		
2.9E-02 i	1.7E-03 r	2.9E-02 i	1.7E-03 n	1	0.10	71-43-2	Benzene	6.3E-01 ca*	1.4E+00 ca*	2.3E-01 ca*	3.9E-01 ca*	3.0E-02	2.0E-03
2.3E+02 i	3.0E-03 i	2.3E+02 i	3.0E-03 r	0	0.10	92-87-5	Benzidine	1.9E-03 ca	8.3E-03 ca	2.9E-05 ca	2.9E-04 ca		
	4.0E+00 i		4.0E+00 i	0	0.10	65-85-0	Benzoic acid	1.0E+05 max	1.0E+05 max	1.5E+04 nc	1.5E+05 nc	4.0E+02	2.0E+01
1.3E+01 i		1.3E+01 r		0	0.10	98-07-7	Benzotrichloride	3.4E-02 ca	1.5E-01 ca	5.2E-04 ca	5.2E-03 ca		
	3.0E-01 h		3.0E-01 r	0	0.10	100-51-6	Benzyl alcohol	2.0E+04 nc	1.0E+05 max	1.1E+03 nc	1.1E+04 nc		
1.7E-01 i		1.7E-01 r		1	0.10	100-44-7	Benzyl chloride	8.1E-01 ca	2.0E+00 ca	4.0E-02 ca	6.6E-02 ca		
4.3E+00 i	5.0E-03 i	8.4E+00 i		0	0.01	7440-41-7	Beryllium and compounds	1.4E-01 ca	1.1E+00 ca	8.0E-04 ca	1.6E-02 ca	6.3E+01	3.0E+00
	1.0E-04 i		1.0E-04 r	0	0.10	141-66-2	Bidrin	6.5E+00 nc	6.8E+01 nc	3.7E-01 nc	3.7E+00 nc		
	1.5E-02 i		1.5E-02 r	0	0.10	82657-04-3	Biphenthrin (Talstar)	9.8E+02 nc	1.0E+04 nc	5.5E+01 nc	5.5E+02 nc		
	5.0E-02 i		5.0E-02 r	1	0.10	92-52-4	1,1-Biphenyl	3.5E+02 sat	3.5E+02 sat	1.8E+02 nc	3.0E+02 nc		
1.1E+00 i		1.2E+00 i		1	0.10	111-44-4	Bis(2-chloroethyl)ether	4.3E-02 ca	9.7E-02 ca	5.8E-03 ca	9.8E-03 ca	4.0E-04	2.0E-05
7.0E-02 h	4.0E-02 i	3.5E-02 h	4.0E-02 r	1	0.10	39638-32-9	Bis(2-chloroisopropyl)ether	2.5E+00 ca	6.7E+00 ca	1.9E-01 ca	2.7E-01 ca		
2.2E+02 i		2.2E+02 i		1	0.10	542-88-1	Bis(chloromethyl)ether	1.9E-04 ca	4.2E-04 ca	3.1E-05 ca	5.2E-05 ca		
7.0E-02 w		7.0E-02 w		0	0.10	108-60-1	Bis(2-chloro-1-methylethyl)ether	6.3E+00 ca	2.7E+01 ca	9.6E-02 ca	9.6E-01 ca		
1.4E-02 i	2.0E-02 i	1.4E-02 r	2.2E-02 r	0	0.10	117-81-7	Bis(2-ethylhexyl)phthalate (DEHP)	3.2E+01 ca*	1.4E+02 ca	4.8E-01 ca	4.8E+00 ca		
	8.0E-02 i		8.0E-02 r	0	0.10	80-05-7	Bisphenol A	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc		
	9.0E-02 i		8.7E-03 h	0	0.10	7440-42-8	Boron	5.9E+03 nc	6.1E+04 nc	2.1E+01 nc	3.3E+03 nc		
			2.0E-04 h	0	0.10	7637-07-2	Boron trifluoride			7.3E-01 nc			
9.2E-03 i	2.0E-02 i	9.2E-02 r	2.0E-02 r	1	0.10	75-27-4	Bromodichloromethane	6.3E-01 ca	1.4E+00 ca	1.1E-01 ca	1.8E-01 ca	6.0E-01	3.0E-02
7.9E-03 i	2.0E-02 i	3.9E-03 i	2.0E-02 r	0	0.10	75-25-2	Bromoform (tribromomethane)	5.6E+01 ca**	2.4E+02 ca*	1.7E+00 ca*	8.5E+00 ca*	8.0E-01	4.0E-02
	1.4E-03 i		1.4E-03 i	1	0.10	74-83-9	Bromomethane	6.8E+00 nc	2.3E+01 nc	5.2E+00 nc	8.7E+00 nc	2.0E-01	1.0E-02
				0	0.10	101-55-3	4-Bromophenyl phenyl ether						
	8.0E-03 h		8.0E-03 r	0	0.10	2104-96-3	Bromophos	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc		
	2.0E-02 i		2.0E-02 r	0	0.10	1689-84-5	Bromoxynil	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	1.8E+02 nc		
	2.0E-02 i		2.0E-02 r	0	0.10	1689-99-2	Bromoxynil octanoate	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc		
6.6E-01 r		6.6E-01 i		1	0.10	106-99-0	1,3-Butadiene	6.5E-03 ca	1.4E-02 ca	6.9E-03 ca	1.1E-02 ca		
	1.0E-01 i		1.0E-01 r	0	0.10	71-36-3	1-Butanol	6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc	1.7E+01	9.0E-01
	5.0E-02 i		5.0E-02 r	0	0.10	2008-41-5	Butylate	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc		
	2.0E-01 i		2.0E-01 r	0	0.10	85-68-7	Butyl benzyl phthalate	9.3E+02 sat	9.3E+02 sat	7.3E+02 nc	7.3E+03 nc	9.3E+02	8.1E+02
	1.0E+00 i		1.0E+00 r	0	0.10	85-70-1	Butylphthalyl butylglycolate	6.5E+04 nc	1.0E+05 max	3.7E+03 nc	3.7E+04 nc		
	3.0E-03 h		3.0E-03 r	0	0.10	75-60-5	Cacodylic acid	2.0E+02 nc	2.0E+03 nc	1.1E+01 nc	1.1E+02 nc		
	8.0E-04 i	6.3E+00 i	5.7E-05 w	0	0.01	7440-43-9	Cadmium and compounds	3.8E+01 nc	8.5E+02 nc	1.1E-03 ca	1.8E+01 nc	8.0E+00	4.0E-01
							"CAL-Modified PRG" (PEA, 1994)	9.0E+00					
	5.0E-01 i		5.0E-01 r	0	0.10	105-60-2	Caprolactam	3.3E+04 nc	1.0E+05 max	1.8E+03 nc	1.8E+04 nc		
8.6E-03 h	2.0E-03 i	8.6E-03 r	2.0E-03 r	0	0.10	2425-06-1	Captafol	5.2E+01 ca**	2.2E+02 ca*	7.8E-01 ca*	7.8E+00 ca*		
3.5E-03 h	1.3E-01 i	3.5E-03 r	1.3E-01 r	0	0.10	133-06-2	Captan	1.3E+02 ca*	5.5E+02 ca	1.9E+00 ca	1.9E+01 ca		
	1.0E-01 i		1.1E-01 r	0	0.10	63-25-2	Carbaryl	6.5E+03 nc	6.8E+04 nc	4.0E+02 nc	3.7E+03 nc		
2.0E-02 h		2.0E-02 r		0	0.10	86-74-8	Carbazole	2.2E+01 ca	9.5E+01 ca	3.4E-01 ca	3.4E+00 ca	6.0E-01	3.0E-02
	5.0E-03 i		5.0E-03 r	0	0.10	1563-66-2	Carbofuran	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc		
	1.0E[illegible]		2.9E-03 h	1	0.10	75-15-0	Carbon disulfide	7.5E+00 nc	2.4E+01 nc	1.0E+01 nc	2.1E+01 nc	3.2E+01	[illegible]0E+00
1.3E-01 i	7.0[illegible]	[illegible]3E-02 i	5.7E-04 n	1	0.10	56-23-5	Carbon tetrachloride	2.3E-01 ca*	5.0E-01 ca*	1.3E-01 ca*	1.7E-01 ca*	7.0E-02	[illegible]0E-03

Key: i=IRIS h=HEAST n=HCEA w=WITHDRAWN r=ROUTE EXTRAPOLATION ca=CANCER PRG nc=NONCANCER PRG sat=SOIL SATURATION max=CEILING LIMIT *(where: nc < 100X ca) **(where: nc < 10X ca)

FOR PLANNING PURPOSES

TOXICITY INFORMATION							CONTAMINANT	PRELIMINARY REMEDIAL GOALS (PRGs)				SOIL SCREENING LEVELS	
SFo (1/(mg/kg-d))	RfDo (mg/kg-d)	SFi (1/(mg/kg-d))	RfDi (mg/kg-d)	V O C	skin abs. soils	CAS No.		Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m^3)	Tap Water (ug/l)	Migration to Ground Water DAF 20 (mg/kg)	DAF 1 (mg/kg)
	1.0E-02 i		1.0E-02 r	0	0.10	55285-14-8	Carbosulfan	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc		
	1.0E-01 i		1.0E-01 r	0	0.10	5234-68-4	Carboxin	6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc		
	2.0E-03 i		2.0E-03 r	0	0.10	302-17-0	Chloral	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc		
	1.5E-02 i		1.5E-02 r	0	0.10	133-90-4	Chloramben	9.8E+02 nc	1.0E+04 nc	5.5E+01 nc	5.5E+02 nc		
		4.0E-01 r		0	0.10	118-75-2	Chloranil	1.1E+00 ca	4.7E+00 ca	1.7E-02 ca	1.7E-01 ca		
4.0E-01 h				0	0.10	57-74-9	Chlordane	3.4E-01 ca**	1.5E+00 ca*	5.2E-03 ca*	5.2E-02 ca*	1.0E+01	5.0E-01
1.3E+00 i	6.0E-05 i	1.3E+00 i	6.0E-05 r	0	0.10	90982-32-4	Chlorimuron-ethyl	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc		
	2.0E-02 i		2.0E-02 r	0	0.10	7782-50-5	Chlorine	7.7E+03 nc	1.7E+05 nc		3.7E+03 nc		
	1.0E-01 i			0	0.01	10049-04-4	Chlorine dioxide			2.1E-01 nc			
			5.7E-05 i	n/a	n/a	107-20-0	Chloroacetaldehyde						
				1	0.10	79-11-8	Chloroacetic acid	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc		
	2.0E-03 h		2.0E-03 r	0	0.10	532-27-4	2-Chloroacetophenone	3.2E-02 nc	1.1E-01 nc	3.1E-02 nc	5.2E-02 nc		
	8.0E-06 r		8.0E-06 i	1	0.10	106-47-8	4-Chloroaniline	2.6E+02 nc	2.7E+03 nc	1.5E+01 nc	1.5E+02 nc	7.0E-01	3.0E-02
	4.0E-03 i		4.0E-03 r	0	0.10	108-90-7	Chlorobenzene	6.5E+01 nc	2.2E+02 nc	2.1E+01 nc	3.9E+01 nc	1.0E+00	7.0E-02
	2.0E-02 i		5.7E-03 h	1	0.10	510-15-6	Chlorobenzilate	1.6E+00 ca	7.1E+00 ca	2.5E-02 ca	2.5E-01 ca		
2.7E-01 h	2.0E-02 i	2.7E-01 h	2.0E-02 r	0	0.10	74-11-3	p-Chlorobenzoic acid	1.3E+04 nc	1.0E+05 max	7.3E+02 nc	7.3E+03 nc		
	2.0E-01 h		2.0E-01 r	0	0.10	98-56-6	4-Chlorobenzotrifluoride	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc		
	2.0E-02 h		2.0E-02 r	0	0.10	126-99-8	2-Chloro-1,3-butadiene	3.6E+00 nc	1.2E+01 nc	7.3E+00 nc	1.4E+01 nc		
	2.0E-02 h		2.0E-03 h	1	0.10	109-69-3	1-Chlorobutane	4.8E+02 sat	4.8E+02 sat	1.5E+03 nc	2.4E+03 nc		
	4.0E-01 h		4.0E-01 r	1	0.10	75-68-3	1-Chloro-1,1-difluoroethane (HCFC-142b)	3.4E+02 sat	3.4E+02 sat	5.2E+04 nc	8.7E+04 nc		
	1.4E+01 r		1.4E+01 i	1	0.10	110-75-8	2-Chloroethyl vinyl ether						
				1	0.10	75-45-6	Chlorodifluoromethane	3.4E+02 sat	3.4E+02 sat	5.1E+04 nc	8.5E+04 nc		
	1.4E+01 r		1.4E+01 i	1	0.10	67-66-3	Chloroform	2.5E-01 ca	5.3E-01 ca	8.4E-02 ca	1.6E-01 ca	8.0E-01	3.0E-02
8.1E-03 i	1.0E-02 i	8.1E-02 i	1.0E-02 r	1	0.10	74-87-3	Chloromethane	1.2E+00 ca	2.6E+00 ca	1.1E+00 ca	1.5E+00 ca		
1.3E-02 h		8.3E-03 h		0	0.10	95-69-2	4-Chloro-2-methylaniline	7.7E-01 ca	3.3E+00 ca	1.2E-02 ca	1.2E-01 ca*		
5.8E-01 h		5.8E-01 r		0	0.10	3165-93-3	4-Chloro-2-methylaniline hydrochloride	9.7E-01 ca	4.1E+00 ca	1.5E-02 ca	1.5E-01 ca		
4.8E-01 h		4.8E-01 r		1	0.10	91-58-7	beta-Chloronaphthalene	1.1E+02 sat	1.1E+02 sat	2.9E+02 nc	4.9E+02 nc		
	8.0E-02 i		8.0E-02 r	0	0.10	88-73-3	o-Chloronitrobenzene	1.8E+01 ca	7.6E+01 ca	2.7E-01 ca	2.7E+00 ca		
2.5E-02 h		2.5E-02 r	r	0	0.10	100-00-5	p-Chloronitrobenzene	2.5E+01 ca	1.1E+02 ca	3.7E-01 ca	3.7E+00 ca		
1.8E-02 h		1.8E-02 r	r	0	0.10	95-57-8	2-Chlorophenol	9.1E+01 nc	3.7E+02 nc	1.8E+01 nc	3.8E+01 nc	4.0E+00	2.0E-01
	5.0E-03 i		5.0E-03 r	1	0.10	75-29-6	2-Chloropropane	1.7E+02 nc	5.8E+02 nc	1.0E+02 nc	1.7E+02 nc		
	2.9E-02 r		2.9E-02 h	1	0.10	1897-45-6	Chlorothalonil	4.0E+01 ca**	1.7E+02 ca*	6.1E-01 ca*	6.1E+00 ca*		
1.1E-02 h	1.5E-02 i	1.1E-02 r	1.5E-02 r	0	0.10	95-49-8	o-Chlorotoluene	1.6E+02 nc	5.5E+02 nc	7.3E+01 nc	1.2E+02 nc		
	2.0E-02 i		2.0E-02 r	1	0.10	101-21-3	Chlorpropham	1.3E+04 nc	1.0E+05 max	7.3E+02 nc	7.3E+03 nc		
	2.0E-01 i		2.0E-01 r	0	0.10	2921-88-2	Chlorpyrifos	2.0E+02 nc	2.0E+03 nc	1.1E+01 nc	1.1E+02 nc		
	3.0E-03 i		3.0E-03 r	0	0.10	5598-13-0	Chlorpyrifos-methyl	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc		
	1.0E-02 h		1.0E-02 r	0	0.10	64902-72-3	Chlorsulfuron	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc		
	5.0E-02 i		5.0E-02 r	0	0.10	602-38-56-4	Chlorthiophos	5.2E+01 nc	5.5E+02 nc	2.9E+00 nc	2.9E+01 nc		
	8.0E-04 h		8.0E-04 r	0	0.01	n/a	Total Chromium (1/6 ratio Cr VI/Cr III)	2.1E+02 ca	4.5E+02 ca	1.6E-04 ca		3.8E+01	2.0E+00
		4.2E+01 i		0	0.01	7440-47-3	Chromium VI	3.0E+01 ca	6.4E+01 ca	2.3E-05 ca	1.8E+02 nc	3.8E+01	2.0E+00
	5.0E-03 i	2.9E+02 i		0	0.01		"CAL-Modified PRG" (PEA, 1994)	2.0E-01			1.6E-01		
								4.6E+03 nc	9.7E+04 nc	1.0E+00 nc	2.2E+03 nc		
	8.0E-02 n		2.8E-04 n	0	0.01	7440-48-4	Cobalt			3.1E-03 ca			
		2.2E+00 i		0	0.01	8007-45-2	Coke Oven Emissions	2.8E+03 nc	6.3E+04 nc		1.4E+03 nc		
	3.7E-02 h			0	0.01	7440-50-8	Copper and compounds	5.3E-03 ca	1.1E-02 ca	3.5E-03 ca	5.9E-03 ca		
1.9E+00 h	1.0E-02 n	1.9E+00 n	1.0E-02 r	1	0.10	123-73-9	Crotonaldehyde	1.9E+01 nc	6.2E+01 nc	9.4E+00 nc	1.9E+01 nc		
	4.0E-02 i		2.8E-03 h	1	0.10	98-82-8	Cumene	5.3E-01 ca*	2.3E+00 ca	8.0E-03 ca	8.0E-02 ca		
8.4E-01 h	2.0E-03 h	8.4E-01 r	2.0E-03 r	0	0.10	21725-46-2	Cyanazine						

Key: i=IRIS h=HEAST n=NCEA w=WITHDRAWN r=ROUTE EXTRAPOLATION ca=CANCER PRG nc=NONCANCER PRG sat=SOIL SATURATION max=CEILING LIMIT *(where: nc < 100X ca) **(where: nc < 10X ca)

FOR PLANNING PURPOSES

TOXICITY INFORMATION						CONTAMINANT	PRELIMINARY REMEDIAL GOALS (PRGs)				SOIL SCREENING LEVELS	
SFo 1/(mg/kg-d)	RfDo (mg/kg-d)	SFi 1/(mg/kg-d)	RfDi (mg/kg-d)	V O C	skin abs. soils	CAS No.	Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m^3)	Tap Water (ug/l)	Migration to Ground Water DAF 20 (mg/kg)	DAF 1 (mg/kg)
					0.01	n/a	Cyanides					
	1.0E-01 h			0	0.01	542-62-1	Barium cyanide	7.7E+03 nc	1.0E+05 max		3.7E+03 nc	
	4.0E-02 i			0	0.01	592-01-8	Calcium cyanide	3.1E+03 nc	6.8E+04 nc		1.5E+03 nc	
	5.0E-02 i			0	0.01	506-77-4	Chlorine cyanide	3.8E+03 nc	8.5E+04 nc		1.8E+03 nc	
	5.0E-03 i			0	0.01	544-92-3	Copper cyanide	3.8E+02 nc	8.5E+03 nc		1.8E+02 nc	
	4.0E-02 i			0	0.10	460-19-5	Cyanogen	2.6E+03 nc	2.7E+04 nc		1.5E+03 nc	
	9.0E-02 i			0	0.10	506-68-3	Cyanogen bromide	5.9E+03 nc	1.0E+05 max		3.3E+03 nc	
	5.0E-02 i			0	0.10	506-77-4	Cyanogen chloride	3.3E+03 nc	3.4E+04 nc		1.8E+03 nc	
	2.0E-02 i			0	0.10	57-12-5	Free cyanide	1.3E+03 nc	1.4E+04 nc		7.3E+02 nc	4.0E+01	2.0E+00
	2.0E-02 i		8.6E-04 i	1	0.10	74-90-8	Hydrogen cyanide	1.1E+01 nc	3.5E+01 nc	3.1E+00 nc	6.2E+00 nc	
	5.0E-02 i			0	0.10	151-50-8	Potassium cyanide	3.3E+03 nc	3.4E+04 nc		1.8E+03 nc	
	2.0E-01 i			0	0.10	506-61-6	Potassium silver cyanide	1.3E+04 nc	1.0E+05 max		7.3E+03 nc	
	1.0E-01 i			0	0.10	506-64-9	Silver cyanide	6.5E+03 nc	1.0E+05 max		3.7E+03 nc	
	4.0E-02 i			0	0.10	143-33-9	Sodium cyanide	2.6E+03 nc	2.7E+04 nc		1.5E+03 nc	
	5.0E-02 i			0	0.10	557-21-1	Zinc cyanide	3.3E+03 nc	3.4E+04 nc		1.8E+03 nc	
	5.0E+00 i		5.0E+00 r	0	0.10	108-94-1	Cyclohexanone	1.0E+05 max	1.0E+05 max	1.8E+04 nc	1.8E+05 nc	
	2.0E-01 i		2.0E-01 r	0	0.10	108-91-8	Cyclohexylamine	1.3E+04 nc	1.0E+05 max	7.3E+02 nc	7.3E+03 nc	
	5.0E-03 i		5.0E-03 r	0	0.10	68085-85-8	Cyhalothrin/Karate	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc	
	1.0E-02 i		1.0E-02 r	0	0.10	52315-07-8	Cypermethrin	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc	
	7.5E-03 i		7.5E-03 r	0	0.10	66215-27-8	Cyromazine	4.9E+02 nc	5.1E+03 nc	2.7E+01 nc	2.7E+02 nc	
	1.0E-02 i		1.0E-02 r	0	0.10	1861-32-1	Dacthal	6.5E+02 nc	1.0E+05 max	3.7E+01 nc	3.7E+02 nc	
	3.0E-02 i		3.0E-02 r	0	0.10	75-99-0	Dalapon	2.0E+03 nc	2.0E+04 nc	1.1E+02 nc	1.1E+03 nc	
	2.5E-02 i		2.5E-02 r	0	0.10	39515-41-8	Danitol	1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc	
2.4E-01 i		2.4E-01 r		0	0.10	72-54-8	DDD	1.9E+00 ca	7.9E+00 ca	2.8E-02 ca	2.8E-01 ca	1.6E+01	8.0E-01
3.4E-01 i		3.4E-01 r		0	0.10	72-55-9	DDE	1.3E+00 ca	5.6E+00 ca	2.0E-02 ca	2.0E-01 ca	5.4E+01	3.0E+00
3.4E-01 i	5.0E-04 i	3.4E-01 i	5.0E-04 r	0	0.10	50-29-3	DDT	1.3E+00 ca*	5.6E+00 ca*	2.0E-02 ca*	2.0E-01 ca*	3.2E+01	2.0E+00
	1.0E-02 i		1.0E-02 r	0	0.10	1163-19-5	Decabromodiphenyl ether	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc		
	4.0E-05 i		4.0E-05 r	0	0.10	8065-48-3	Demeton	2.6E+00 nc	2.7E+01 nc	1.5E-01 nc	1.5E+00 nc		
6.1E-02 h		6.1E-02 r		0	0.10	2303-16-4	Diallate	7.3E+00 ca	3.1E+01 ca	1.1E-01 ca	1.1E+00 ca		
	9.0E-04 h		9.0E-04 r	0	0.10	333-41-5	Diazinon	5.9E+01 nc	6.1E+02 nc	3.3E+00 nc	3.3E+01 nc		
	4.0E-03 n		4.0E-03 r	1	0.10	132-64-9	Dibenzofuran	1.4E+02 sat	1.4E+02 sat	1.5E+01 nc	2.4E+01 nc		
	1.0E-02 i		1.0E-02 r	0	0.10	106-37-6	1,4-Dibromobenzene	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc		
8.4E-02 i	2.0E-02 i	8.4E-02 r	2.0E-02 r	0	0.10	124-48-1	Dibromochloromethane	5.3E+00 ca*	2.3E+01 ca	8.0E-02 ca	1.0E+00 ca	4.0E-01	2.0E-02
1.4E+00 h	6.7E-05 r	2.4E-03 h	5.7E-05 i	0	0.10	96-12-8	1,2-Dibromo-3-chloropropane	3.2E-01 ca**	1.4E+00 ca*	2.1E-01 nc	4.8E-02 ca*		
							"CAL-Modified PRG" (PEA, 1994)	6.0E-02		9.6E-04	4.7E-03		
9.5E+01 i	5.7E-05 r	7.7E-01 i	5.7E-05 h	1	0.10	106-93-4	1,2-Dibromoethane	4.9E-03 ca	2.0E-02 ca	8.7E-03 ca*	7.6E-04 ca		
	1.0E-01 i		1.0E-01 r	0	0.10	84-74-2	Dibutyl phthalate	6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc	2.3E+03	2.7E+02
	3.0E-02 i		3.0E-02 r	0	0.10	1918-00-9	Dicamba	2.0E+03 nc	2.0E+04 nc	1.1E+02 nc	1.1E+03 nc		
	9.0E-02 i		5.7E-02 h	1	0.10	95-50-1	1,2-Dichlorobenzene	7.0E+02 sat	7.0E+02 sat	2.1E+02 nc	3.7E+02 nc	1.7E+01	9.0E-01
	3.0E-02 e		3.0E-02 r	1	0.10	541-73-1	1,3-Dichlorobenzene	5.0E+02 nc	8.6E+02 sat	1.1E+02 nc	1.8E+02 nc		
2.4E-02 h	2.3E-01 r	2.4E-02 r	2.3E-01 i	1	0.10	106-46-7	1,4-Dichlorobenzene	3.6E+00 ca	8.5E+00 ca	2.8E-01 ca	4.7E-01 ca	2.0E+00	1.0E-01
4.5E-01 i		4.5E-01 r		0	0.10	91-94-1	3,3-Dichlorobenzidine	9.9E-01 ca	4.2E+00 ca	1.5E-02 ca	1.5E-01 ca	7.0E-03	3.0E-04
9.3E+00 r		9.3E+00 h		1	0.10	764-41-0	1,4-Dichloro-2-butene	7.5E-03 ca	1.7E-02 ca	7.2E-04 ca	1.2E-03 ca		
	2.0E-01 i		8.7E-02 h	1	0.10	75-71-8	Dichlorodifluoromethane	9.4E+01 nc	3.1E+02 nc	2.1E+02 nc	3.9E+02 nc		
	1.0E-01 h		1.4E-01 h	1	0.10	75-34-3	1,1-Dichloroethane	5.0E+02 nc	1.7E+03 nc	5.2E+02 nc	8.1E+02 nc	2.3E+01	1.0E+00
9.1E-02 i	2.0E-03 r	9.1E-02 i	2.0E-03 n	1	0.10	107-06-2	1,2-Dichloroethane (EDC)	2.5E-01 ca*	5.5E-01 ca*	7.4E-02 ca	1.2E-01 ca	2.0E-02	1.0E-03
6.0E-01 i	9.0E-03 i	1.8E-01 i	9.0E-03 r	1	0.10	75-35-4	1,1-Dichloroethylene	3.7E-02 ca	8.0E-02 ca	3.8E-02 ca	4.6E-02 ca	8.0E-02	[illegible]0E-03

Key: i=IRIS h=HEAST n=NCEA x=WITHDRAWN r=ROUTE EXTRAPOLATION ca=CANCER PRG nc=NONCANCER PRG sat=SOIL SATURATION max=CEILING LIMIT *(where: nc < 100X ca) **(where: nc < 10X ca)

FOR PLANNING PURPOSES

TOXICITY INFORMATION								CONTAMINANT	PRELIMINARY REMEDIAL GOALS (PRGs)				SOIL SCREENING LEVELS	
				V O C	skin abs. soils*				Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m^3)	Tap Water (ug/l)	Migration to Ground Water DAF 20 (mg/kg)	DAF 1 (mg/kg)
SFo 1/(mg/kg-d)	RfDo (mg/kg-d)	SFi 1/(mg/kg-d)	RfDi (mg/kg-d)				CAS No.							
	1.0E-02 h		1.0E-02 r	1	0.10		156-59-2	1,2-Dichloroethylene (cis)	3.1E+01 nc	1.0E+02 nc	3.7E+01 nc	6.1E+01 nc	4.0E-01	2.0E-02
	2.0E-02 i		2.0E-02 r	1	0.10		156-60-5	1,2-Dichloroethylene (trans)	7.8E+01 nc	2.7E+02 nc	7.3E+01 nc	1.2E+02 nc	7.0E-01	3.0E-02
	9.0E-03 h		9.0E-03 r	1	0.10		540-59-0	1,2-Dichloroethylene (mixture)	3.5E+01 nc	1.2E+02 nc	3.3E+01 nc	5.5E+01 nc		
	3.0E-03 i		3.0E-03 r	0	0.10		120-83-2	2,4-Dichlorophenol	2.0E+02 nc	2.0E+03 nc	1.1E+01 nc	1.1E+02 nc	1.0E+00	5.0E-02
	8.0E-03 i		8.0E-03 r	0	0.10		94-82-6	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)	5.2E+02 nc	5.5E+03 nc	2.9E+01 nc	2.9E+02 nc		
	1.0E-02 i		1.0E-02 r	0	0.10		94-75-7	2,4-Dichlorophenoxyacetic Acid (2,4-D)	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc		
6.8E-02 h	1.1E-03 r	6.8E-02 r	1.1E-03 i	1	0.10		78-87-5	1,2-Dichloropropane	3.1E-01 ca*	6.8E-01 ca*	9.9E-02 ca*	1.6E-01 ca*	3.0E-02	1.0E-03
1.8E-01 h	3.0E-04 i	1.3E-01 h	5.7E-03 i	1	0.10		542-75-6	1,3-Dichloropropene	2.5E-01 ca*	5.5E-01 ca	5.2E-02 ca	8.1E-02 ca	4.0E-03	2.0E-04
	3.0E-03 i		3.0E-03 r	0	0.10		616-23-9	2,3-Dichloropropanol	2.0E+02 nc	2.0E+03 nc	1.1E+01 nc	1.1E+02 nc		
2.9E-01 i	5.0E-04 i	2.9E-01 r	1.4E-04 i	0	0.10		62-73-7	Dichlorvos	1.5E+00 ca**	6.6E+00 ca*	2.3E-02 ca*	2.3E-01 ca*		
4.4E-01 x		4.4E-01 r		0	0.10		115-32-2	Dicofol	1.0E+00 ca	4.3E+00 ca	1.5E-02 ca	1.5E-01 ca		
	3.0E-02 h		5.7E-05 h	1	0.10		77-73-6	Dicyclopentadiene			2.1E-01 nc	4.2E-01 nc		
1.6E+01 i	5.0E-05 i	1.6E+01 i	5.0E-05 r	0	0.10		60-57-1	Dieldrin	2.8E-02 ca*	1.2E-01 ca	4.2E-04 ca	4.2E-03 ca	4.0E-03	2.0E-04
	5.7E-03 h		5.7E-03 x	0	0.10		112-34-5	Diethylene glycol, monobutyl ether	3.7E+02 nc	3.9E+03 nc	2.1E+01 nc	2.1E+02 nc		
	2.0E+00 h		2.0E+00 r	0	0.10		111-90-0	Diethylene glycol, monoethyl ether	1.0E+05 max	1.0E+05 max	7.3E+03 nc	7.3E+04 nc		
	1.1E-02 h		1.1E-02 r	0	0.10		617-84-5	Diethylformamide	7.2E+02 nc	7.5E+03 nc	4.0E+01 nc	4.0E+02 nc		
1.2E-03 i	6.0E-01 i	1.2E-03 r	6.0E-01 r	0	0.10		103-23-1	Di(2-ethylhexyl)adipate	3.7E+02 nc	1.6E+03 nc	5.6E+00 nc	5.6E+01 nc		
	8.0E-01 i		8.0E-01 r	0	0.10		84-66-2	Diethyl phthalate	5.2E+04 nc	1.0E+05 max	2.9E+03 nc	2.9E+04 nc		
4.7E+03 h		4.7E+03 r		0	0.10		56-53-1	Diethylstilbestrol	9.5E-05 ca	4.1E-04 ca	1.4E-06 ca	1.4E-05 ca		
	8.0E-02 i		8.0E-02 r	0	0.10		43222-48-6	Difenzoquat (Avenge)	5.2E+03 nc	5.5E+04 nc	2.9E+02 nc	2.9E+03 nc		
	2.0E-02 i		2.0E-02 r	0	0.10		35367-38-5	Diflubenzuron	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc		
	1.1E+01 r		1.1E+01 i	1	0.10		75-37-6	1,1-Difluoroethane			4.2E+04 nc	6.9E+04 nc		
	8.0E-02 i		8.0E-02 r	0	0.10		1445-75-6	Diisopropyl methylphosphonate	5.2E+03 nc	5.5E+04 nc	2.9E+02 nc	2.9E+03 nc		
	2.0E-02 i		2.0E-02 r	0	0.10		55290-64-7	Dimethipin	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc		
	2.0E-04 i		2.0E-04 r	0	0.10		60-51-5	Dimethoate	1.3E+01 nc	1.4E+02 nc	7.3E-01 nc	7.3E+00 nc'		
1.4E-02 h		1.4E-02 r		0	0.10		119-90-4	3,3'-Dimethoxybenzidine	3.2E+01 ca	1.4E+02 ca	4.8E-01 ca	4.8E+00 ca		
	5.7E-06 r		5.7E-06 x	1	0.10		124-40-3	Dimethylamine	6.5E-02 nc	2.4E-01 nc	2.1E-02 nc	3.5E-02 nc		
	2.0E-03 i		2.0E-03 r	0	0.10		121-69-7	N-N-Dimethylaniline	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc		
7.5E-01 h		7.5E-01 r		0	0.10		95-68-1	2,4-Dimethylaniline	5.9E-01 ca	2.5E+00 ca	9.0E-03 ca	9.0E-02 ca		
5.8E-01 h		5.8E-01 r		0	0.10		21436-96-4	2,4-Dimethylaniline hydrochloride	7.7E-01 ca	3.3E+00 ca	1.2E-02 ca	1.2E-01 ca		
9.2E+00 h		9.2E+00 r		0	0.10		119-93-7	3,3'-Dimethylbenzidine	4.8E-02 ca	2.1E-01 ca	7.3E-04 ca	7.3E-03 ca		
2.6E+00 x		3.5E+00 x		0	0.10		57-14-7	1,1-Dimethylhydrazine	1.7E-01 ca	7.3E-01 ca	1.9E-03 ca	2.6E-02 ca		
3.7E+01 x		3.7E+01 x		0	0.10		540-73-8	1,2-Dimethylhydrazine	1.2E-02 ca	5.2E-02 ca	1.8E-04 ca	1.8E-03 ca		
	1.0E-01 h		8.6E-03 i	0	0.10		68-12-2	N,N-Dimethylformamide	6.5E+03 nc	6.8E+04 nc	3.1E+01 nc	3.7E+03 nc		
	2.0E-02 i		2.0E-02 r	0	0.10		105-67-9	2,4-Dimethylphenol	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc	9.0E+00	4.0E-01
	8.0E-04 i		8.0E-04 r	0	0.10		576-26-1	2,6-Dimethylphenol	3.9E+01 nc	4.1E+02 nc	2.2E+00 nc	2.2E+01 nc		
	1.0E-03 i		1.0E-03 r	0	0.10		95-65-8	3,4-Dimethylphenol	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc		
	1.0E+01 h		1.0E+01 r	0	0.10		131-11-3	Dimethyl phthalate	1.0E+05 max	1.0E+05 max	3.7E+04 nc	3.7E+05 nc		
	1.0E-01 i		1.0E-01 r	0	0.10		120-61-6	Dimethyl terephthalate	6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc		
	2.0E-03 i		2.0E-03 r	0	0.10		131-89-5	4,6-Dinitro-o-cyclohexyl phenol	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc		
	1.0E-04 i		1.0E-04 r	0	0.10		99-65-0	1,3-Dinitrobenzene	6.5E+00 nc	6.8E+01 nc	3.7E-01 nc	3.7E+00 nc		
	4.0E-04 h		4.0E-04 r	0	0.10		528-29-0	1,2-Dinitrobenzene	2.6E+01 nc	2.7E+02 nc	1.5E+00 nc	1.5E+01 nc		
	4.0E-04 h		4.0E-04 r	0	0.10		100-25-4	1,4-Dinitrobenzene	2.6E+01 nc	2.7E+02 nc	1.5E+00 nc	1.5E+01 nc		
	2.0E-03 i		2.0E-03 r	0	0.10		51-28-5	2,4-Dinitrophenol	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc	3.0E-01	1.0E-02
6.8E-01 i		6.8E-01 r		0	0.10		25321-14-6	Dinitrotoluene mixture	6.5E-01 ca	2.8E+00 ca	9.9E-03 ca	9.9E-02 ca	8.0E-04	4.0E-05
	2.0E-03 i		2.0E-03 r	0	0.10		121-14-2	2,4-Dinitrotoluene (also see Dinitrotoluene mixture)	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc	8.0E-04	4.0E-05
	1.0E-03 h		1.0E-03 r	0	0.10		606-20-2	2,6-Dinitrotoluene (also see Dinitrotoluene mixture)	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc	7.0E-04	3.0E-05

Key: i=IRIS h=HEAST n=NCEA x=WITHDRAWN r=ROUTE EXTRAPOLATION ca=CANCER PRG nc=NONCANCER PRG sat=SOIL SATURATION max=CEILING LIMIT *(where: nc < 100X ca) **(where: nc < 10X ca)

FOR PLANNING PURPOSES

TOXICITY INFORMATION							CONTAMINANT	PRELIMINARY REMEDIAL GOALS (PRGs)				SOIL SCREENING LEVELS	
SFo 1/(mg/kg-d)	RfDo (mg/kg-d)	SFi 1/(mg/kg-d)	RfDi (mg/kg-d)	V O C	skin abs. soils	CAS No.		Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m^3)	Tap Water (ug/l)	Migration to Ground Water DAF 20 (mg/kg)	Migration to Ground Water DAF 1 (mg/kg)
	1.0E-03 i		1.0E-03 r	0	0.10	88-85-7	Dinoseb	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc		
	2.0E-02 h		2.0E-02 r	0	0.10	117-84-0	di-n-Octyl phthalate	1.3E+03 nc	1.0E+04 sat	7.3E+01 nc	7.3E+02 nc	1.0E+04	1.0E+04
1.1E-02 i		1.1E-02 r		0	0.10	123-91-1	1,4-Dioxane	4.0E+01 ca	1.7E+02 ca	6.1E-01 ca	6.1E+00 ca		
	3.0E-02 i		3.0E-02 r	0	0.10	957-51-7	Diphenamid	2.0E+03 nc	2.0E+04 nc	1.1E+02 nc	1.1E+03 nc		
	2.5E-02 i		2.5E-02 r	0	0.10	122-39-4	Diphenylamine	1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc		
8.0E-01 i		7.7E-01 i		0	0.10	122-66-7	1,2-Diphenylhydrazine	5.6E-01 ca	2.4E+00 ca	8.7E-03 ca	8.4E-02 ca		
	2.2E-03 i		2.2E-03 r	0	0.10	85-00-7	Diquat	1.4E+02 nc	1.5E+03 nc	8.0E+00 nc	8.0E+01 nc		
8.0E+00 h		8.0E+00 r		0	0.10	1937-37-7	Direct black 38	5.2E-02 ca	2.2E-01 ca	7.8E-04 ca	7.8E-03 ca		
6.1E+00 h		6.1E+00 r		0	0.10	2602-46-2	Direct blue 6	5.5E-02 ca	2.4E-01 ca	8.3E-04 ca	8.3E-03 ca		
6.3E+00 h		6.3E+00 r		0	0.10	16071-86-6	Direct brown 95	4.8E-02 ca	2.1E-01 ca	7.2E-04 ca	7.2E-03 ca		
	4.0E-05 i		4.0E-05 r	0	0.10	298-04-4	Disulfoton	2.6E+00 nc	2.7E+01 nc	1.5E-01 nc	1.5E+00 nc		
	1.0E-02 i		1.0E-02 r	0	0.10	505-29-3	1,4-Dithiane	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc		
	2.0E-03 i		2.0E-03 r	0	0.10	330-54-1	Diuron	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc		
	4.0E-03 i		4.0E-03 r	0	0.10	2439-10-3	Dodine	2.6E+02 nc	2.7E+03 nc	1.5E+01 nc	1.5E+02 nc		
	6.0E-03 i		6.0E-03 r	0	0.10	115-29-7	Endosulfan	3.9E+02 nc	4.1E+03 nc	2.2E+01 nc	2.2E+02 nc	1.8E+01	9.0E-01
	2.0E-02 i		2.0E-02 r	0	0.10	145-73-3	Endothall	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc		
	3.0E-04 i		3.0E-04 r	0	0.10	72-20-8	Endrin	2.0E+01 nc	2.0E+02 nc	1.1E+00 nc	1.1E+01 nc	1.0E+00	5.0E-02
9.9E-03 i	2.0E-03 h	4.2E-03 i	2.9E-04 i	1	0.10	106-89-8	Epichlorohydrin	7.5E+00 nc	2.5E+01 nc	1.0E+00 nc	2.0E+00 nc		
	5.7E-03 r		5.7E-03 i	0	0.10	106-88-7	1,2-Epoxybutane	3.7E+02 nc	3.9E+03 nc	2.1E+01 nc	2.1E+02 nc		
	2.5E-02 i		2.5E-02 r	0	0.10	759-94-4	EPTC (S-Ethyl dipropylthiocarbamate)	1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc		
	5.0E-03 i		5.0E-03 r	0	0.10	16672-87-0	Ethephon (2-chloroethyl phosphonic acid)	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc		
	5.0E-04 i		5.0E-04 r	0	0.10	563-12-2	Ethion	3.3E+01 nc	3.4E+02 nc	1.8E+00 nc	1.8E+01 nc		
	4.0E-01 h		5.7E-02 i	0	0.10	110-80-5	2-Ethoxyethanol	2.6E+04 nc	1.0E+05 max	2.1E+02 nc	1.5E+04 nc		
	3.0E-01 h		3.0E-01 r	0	0.10	111-15-9	2-Ethoxyethanol acetate	2.0E+04 nc	1.0E+05 max	1.1E+03 nc	1.1E+04 nc		
	9.0E-01 i		9.0E-01 r	1	0.10	141-78-6	Ethyl acetate	1.8E+04 nc	1.0E+05 max	3.3E+03 nc	5.5E+03 nc		
4.8E-02 h		4.8E-02 r		1	0.10	140-88-5	Ethyl acrylate	2.1E-01 ca	4.5E-01 ca	1.4E-01 ca	2.3E-01 ca		
	1.0E-01 i		2.9E-01 i	1	0.10	100-41-4	Ethylbenzene	2.3E+02 sat	2.3E+02 sat	1.1E+03 nc	1.3E+03 nc	1.3E+01	7.0E-01
	3.0E-01 h		3.0E-01 r	0	0.10	109-78-4	Ethylene cyanohydrin	2.0E+04 nc	1.0E+05 max	1.1E+03 nc	1.1E+04 nc		
	2.0E-02 h		2.0E-02 r	0	0.10	107-15-3	Ethylene diamine	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc		
	2.0E+00 i		2.0E+00 r	0	0.10	107-21-1	Ethylene glycol	1.3E+05 nc	1.0E+05 max	7.3E+03 nc	7.3E+04 nc		
	5.7E-03 r		5.7E-03 h	0	0.10	111-76-2	Ethylene glycol, monobutyl ether	3.7E+02 nc	3.9E+03 nc	2.1E+01 nc	2.1E+02 nc		
1.0E+00 h		3.5E-01 h		1	0.10	75-21-8	Ethylene oxide	1.3E-01 ca	3.2E-01 ca	1.9E-02 ca	2.4E-02 ca		
1.1E-01 h	8.0E-05 i	1.1E-01 r	8.0E-05 r	0	0.10	96-45-7	Ethylene thiourea (ETU)	4.0E+00 ca**	1.7E+01 ca*	6.1E-02 ca*	6.1E-01 ca*		
	2.0E-02 n		2.9E+00 i	1	0.10	75-00-3	Ethyl chloride	1.1E+03 nc	1.6E+03 sat	1.0E+04 nc	7.1E+02 nc		
	2.0E-01 i		2.0E-01 r	1	0.10	60-29-7	Ethyl ether	1.8E+03 sat	1.8E+03 sat	7.3E+02 nc	1.2E+03 nc		
	8.0E-02 h		8.0E-02 r	1	0.10	97-63-2	Ethyl methacrylate	1.4E+02 sat	1.4E+02 sat	3.3E+02 nc	5.5E+02 nc		
	1.0E-05 i		1.0E-05 r	0	0.10	2104-64-5	Ethyl p-nitrophenyl phenylphosphorothioate	6.5E-01 nc	6.8E+00 nc	3.7E-02 nc	3.7E-01 nc		
	3.0E+00 i		3.0E+00 r	0	0.10	84-72-0	Ethylphthalyl ethyl glycolate	1.0E+05 max	1.0E+05 max	1.1E+04 nc	1.1E+05 nc		
	8.0E-03 i		8.0E-03 r	0	0.10	101200-48-0	Express	5.2E+02 nc	5.5E+03 nc	2.9E+01 nc	2.9E+02 nc		
	2.5E-04 i		2.5E-04 r	0	0.10	22224-92-6	Fenamiphos	1.6E+01 nc	1.7E+02 nc	9.1E-01 nc	9.1E+00 nc		
	1.3E-02 i		1.3E-02 r	0	0.10	2164-17-2	Fluometuron	8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc		
	6.0E-02 i		6.0E-02 r	0	0.10	7782-41-4	Fluorine (soluble fluoride)	3.9E+03 nc	4.1E+04 nc	2.2E+02 nc	2.2E+03 nc		
	6.0E-02 i		6.0E-02 r	0	0.10	59756-60-4	Fluoridone	5.2E+03 nc	5.5E+04 nc	2.9E+02 nc	2.9E+03 nc		
	2.0E-02 i		2.0E-02 r	0	0.10	56425-91-3	Flurprimidol	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc		
	8.0E-02 i		8.0E-02 r	0	0.10	66332-96-5	Flutolanil	3.9E+03 nc	4.1E+04 nc	2.2E+02 nc	2.2E+03 nc		
	1.0E-02 i		1.0E-02 r	0	0.10	69409-94-5	Fluvalinate	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc		
3.5E-03 i	1.0E-01	3.9E-03 r	1.0E-01 r	0	0.10	133-07-3	Folpet	1.3E+02 ca*	5.5E+02 ca	1.9E+00 ca	1.9E+01 ca		

Key: i=IRIS h=HEAST n=NCEA w=WITHDRAWN r=ROUTE EXTRAPOLATION ca=CANCER PRG nc=NONCANCER PRG sat=SOIL SATURATION max=CEILING LIMIT *(where: nc < 100X ca) **(where: nc < 10X ca)

FOR PLANNING PURPOSES

TOXICITY INFORMATION								CONTAMINANT	PRELIMINARY REMEDIAL GOALS (PRGs)				SOIL SCREENING LEVELS	
RfDo (mg/kg-d)	SFo (mg/kg-d)-1	RfDi (mg/kg-d)	V O C	skin abs. soils	CAS No.				Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m^3)	Tap Water (ug/l)	Migration to Ground Water DAF 20 (mg/kg)	Migration to Ground Water DAF 1 (mg/kg)
9E-01 i	1.9E-01 r		0	0.10	72178-02-0	Fomesafen			2.3E+00 ca	1.0E+01 ca	3.5E-02 ca	3.5E-01 ca		
2.0E-03 i		2.0E-03 r	0	0.10	944-22-9	Fonofos			1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc		
1.5E-01 i	4.6E-02 i		0	0.10	50-00-0	Formaldehyde			9.8E+03 nc	1.0E+05 nc	1.5E-01 ca	5.5E+03 nc		
2.0E+00 h		2.0E+00 r	0	0.10	64-18-6	Formic Acid			1.0E+05 max	1.0E+05 max	7.3E+03 nc	7.3E+04 nc		
3.0E+00 i		3.0E+00 r	0	0.10	39148-24-8	Fosetyl-al			1.0E+05 max	1.0E+05 max	1.1E+04 nc	1.1E+05 nc		
1.0E-03 i		1.0E-03 r	1	0.10	110-00-9	Furan			2.5E+00 nc	8.5E+00 nc	3.7E+00 nc	6.1E+00 nc		
8E+00 h	3.8E+00 r		0	0.10	87-45-9	Furazolidone			1.2E-01 ca	5.0E-01 ca	1.6E-03 ca	1.6E-02 ca		
3.0E-03 i		1.4E-02 h	0	0.10	98-01-1	Furfural			2.0E+02 nc	2.0E+03 nc	5.2E+01 nc	1.1E+02 nc		
0E+01 h	5.0E+01 r		0	0.10	531-82-8	Furium			8.9E-03 ca	3.8E-02 ca	1.3E-04 ca	1.3E-03 ca		
0E-02 i	3.0E-02 r		0	0.10	60568-05-0	Furmecyclox			1.5E+01 ca	6.4E+01 ca	2.2E-01 ca	2.2E+00 ca		
4.0E-04 i		4.0E-04 r	0	0.10	77182-82-2	Glufosinate-ammonium			2.6E+01 nc	2.7E+02 nc	1.5E+00 nc	1.5E+01 nc		
4.0E-04 i		2.9E-04 h	0	0.10	765-34-4	Glycidaldehyde			2.6E+01 nc	2.7E+02 nc	1.0E+00 nc	1.5E+01 nc		
1.0E-01 i		1.0E-01 r	0	0.10	1071-83-6	Glyphosate			6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc		
5.0E-05 i		5.0E-05 r	0	0.10	69806-40-2	Haloxyfop-methyl			3.3E+00 nc	3.4E+01 nc	1.8E-01 nc	1.8E+00 nc		
1.3E-02 i		1.3E-02 r	0	0.10	79277-27-3	Harmony			8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc		
5.0E-04 i	4.6E+00 i	5.0E-04 r	0	0.10	76-44-8	Heptachlor			9.9E-02 ca	4.2E-01 ca	1.5E-03 ca	1.5E-02 ca	2.3E+01	1.0E+00
1.3E-05 i	9.1E+00 i	1.3E-05 r	0	0.10	1024-57-3	Heptachlor epoxide			4.9E-02 ca**	2.1E-01 ca*	7.4E-04 ca*	7.4E-03 ca*	7.0E-01	3.0E-02
2.0E-03 i		2.0E-03 r	0	0.10	87-82-1	Hexabromobenzene			1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc		
8.0E-04 i	1.6E+00 i	8.0E-04 r	0	0.10	118-74-1	Hexachlorobenzene			2.8E-01 ca*	1.2E+00 ca	4.2E-03 ca	4.2E-02 ca	2.0E+00	1.0E-01
2.0E-04 h	7.7E-02 i	2.0E-04 r	0	0.10	87-68-3	Hexachlorobutadiene			5.7E+00 ca**	2.4E+01 ca*	8.7E-02 ca*	8.6E-01 ca*	2.0E+00	1.0E-01
	8.3E+00 i		0	0.10	319-84-6	HCH (alpha)			7.1E-02 ca	3.0E-01 ca	1.1E-03 ca	1.1E-02 ca	5.0E-04	3.0E-05
	1.8E+00 i		0	0.10	319-85-7	HCH (beta)			2.5E-01 ca	1.1E+00 ca	3.7E-03 ca	3.7E-02 ca	3.0E-03	1.0E-04
3.0E-04 i	1.3E+00 r	3.0E-04 r	0	0.10	58-89-9	HCH (gamma) Lindane			3.4E-01 ca*	1.5E+00 ca	5.2E-03 ca	5.2E-02 ca	9.0E-03	5.0E-04
	1.8E+00 i		0	0.10	58-89-9	HCH-technical			2.5E-01 ca	1.1E+00 ca	3.8E-03 ca	3.7E-02 ca	3.0E-03	1.0E-04
7.0E-03 i		2.0E-05 h	0	0.10	77-47-4	Hexachlorocyclopentadiene			4.5E+02 nc	4.6E+03 nc	7.3E-02 nc	2.6E+02 nc	4.0E+02	2.0E+01
	4.6E+03 i		0	0.10	19408-74-3	Hexachlorodibenzo-p-dioxin mixture (HxCDD)			7.2E-05 ca	3.1E-04 ca	1.5E-06 ca	1.1E-05 ca		
1.0E-03 i	1.4E-02 i	1.0E-03 r	0	0.10	67-72-1	Hexachloroethane			3.2E+01 ca**	1.4E+02 ca**	4.8E-01 ca**	4.8E+00 ca**	5.0E-01	2.0E-02
3.0E-04 i		3.0E-04 r	0	0.10	70-30-4	Hexachlorophene			2.0E+01 nc	2.0E+02 nc	1.1E+00 nc	1.1E+01 nc		
3.0E-03 i	1.1E-01 i	3.0E-03 r	0	0.10	121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine			4.0E+00 ca*	1.7E+01 ca	6.1E-02 ca	6.1E-01 ca		
2.9E-06 r		2.9E-06 i	0	0.10	822-06-0	1,6-Hexamethylene diisocyanate					1.0E-02 nc	1.0E-01 nc		
6.0E-02 h		5.7E-02 i	1	0.10	110-54-3	n-Hexane			1.1E+02 sat	1.1E+02 sat	2.1E+02 nc	3.5E+02 nc		
3.3E-02 i		3.3E-02 r	0	0.10	51235-04-2	Hexazinone			2.2E+03 nc	2.2E+04 nc	1.2E+02 nc	1.2E+03 nc		
3.0E+00 i	1.7E+01 i		0	0.10	302-01-2	Hydrazine, hydrazine sulfate			1.5E-01 ca	6.4E-01 ca	3.9E-04 ca	2.2E-02 ca		
		5.7E-03 i	0	0.10	7647-01-0	Hydrogen chloride					2.1E+01 nc			
3.0E-03 i		2.9E-04 i	1	0.10	7783-06-4	Hydrogen sulfide					1.0E+00 nc	2.0E+00 nc		
4.0E-02 h		4.0E-02 r	0	0.10	123-31-9	p-Hydroquinone			2.6E+03 nc	2.7E+04 nc	1.5E+02 nc	1.5E+03 nc		
1.3E-02 i		1.3E-02 r	0	0.10	35554-44-0	Imazalil			8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc		
2.5E-01 i		2.5E-01 r	0	0.10	81335-37-7	Imazaquin			1.6E+04 nc	1.0E+05 max	9.1E+02 nc	9.1E+03 nc		
4.0E-02 i		4.0E-02 r	0	0.10	36734-19-7	Iprodione			2.6E+03 nc	2.7E+04 nc	1.5E+02 nc	1.5E+03 nc		
3.0E-01 i		3.0E-01 r	1	0.10	78-83-1	Isobutanol			1.1E+04 nc	1.0E+05 max	1.1E+03 nc	1.8E+03 nc		
2.0E-01 i	9.5E-04 r	2.0E-01 r	0	0.10	78-59-1	Isophorone			4.7E+02 ca*	2.0E+03 ca*	7.1E+00 ca	7.1E+01 ca	5.0E-01	3.0E-02
1.5E-02 i		1.5E-02 r	0	0.10	33820-53-0	Isopropalin			9.8E+02 nc	1.0E+04 nc	5.5E+01 nc	5.5E+02 nc		
1.0E-01 i		1.1E-01 r	0	0.10	1832-54-8	Isopropyl methyl phosphonic acid			6.5E+03 nc	6.8E+04 nc	4.0E+02 nc	3.7E+03 nc		
5.0E-02 i		5.0E-02 r	0	0.10	82558-50-7	Isoxaben			3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc		
	1.8E+01 n		0	0.10	143-50-0	Kepone			2.5E-02 ca	1.1E-01 ca	3.7E-04 ca	3.7E-03 ca		
2.0E-03 i		2.0E-03 r	0	0.10	77501-63-4	Lactofen			1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc		

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FOR PLANNING PURPOSES

TOXICITY INFORMATION						CONTAMINANT	PRELIMINARY REMEDIAL GOALS (PRGs)				SOIL SCREENING LEVELS	
SFo 1/(mg/kg-d)	RfDo (mg/kg-d)	SFi 1/(mg/kg-d)	RfDi (mg/kg-d)	V O C	skin abs. soils	CAS No.	Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m^3)	Tap Water (ug/l)	Migration to Ground Water DAF 20 (mg/kg)	DAF 1 (mg/kg)
Residential PRG Based on Uptake Biokinetic Model												
				0	n/a	7439-92-1	Lead					
							"CAL-Modified PRG" (PEA, 1994)	4.0E+02 nc	1.0E+03 nc			
1.0E-07 i				0	0.10	78-00-2	Lead (tetraethyl)	1.3E+02			4.0E+00 nc	
2.0E-03 i		2.0E-03 r		0	0.10	330-55-2	Linuron	6.5E-03 nc	6.8E-02 nc			
2.0E-02 n				0	0.01	7439-93-2	Lithium	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	3.7E-03 nc	
2.0E-01 i		2.0E-01 r		0	0.10	83055-99-6	Londax	1.5E+03 nc	3.4E+04 nc		7.3E+01 nc	
2.0E-02 i		2.0E-02 r		0	0.10	121-75-5	Malathion	1.3E+04 nc	1.0E+05 max	7.3E+02 nc	7.3E+02 nc	
1.0E-01 i		1.0E-01 r		0	0.10	108-31-6	Maleic anhydride	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+03 nc	
5.0E-01 i		5.0E-01 r		1	0.10	123-33-1	Maleic hydrazide	6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	7.3E+02 nc	
2.0E-05 h		2.0E-05 r		0	0.10	109-77-3	Malononitrile	1.7E+03 nc	2.4E+03 sat	1.8E+03 nc	3.7E+03 nc	
3.0E-02 h		3.0E-02 r		0	0.10	8018-01-7	Mancozeb	1.3E+00 nc	1.4E+01 nc	7.3E-02 nc	3.0E+03 nc	
5.0E-03 i		5.0E-03 r		0	0.10	12427-38-2	Maneb	2.0E+03 nc	2.0E+04 nc	1.1E+02 nc	7.3E-01 nc	
4.7E-02 i		1.4E-05 i		0	0.01	7439-96-5	Manganese and compounds	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.1E+03 nc	
9.0E-05 h		9.0E-05 r		0	0.10	950-10-7	Mephosfolan	3.2E+03 nc	4.3E+04 nc	5.1E-02 nc	1.8E+02 nc	
3.0E-02 i		3.0E-02 r		0	0.10	34407-20-4	Mepiquat	5.9E+00 nc	6.1E+01 nc	3.3E-01 nc	1.7E+03 nc	
3.0E-04 i				0	0.01	7439-97-6	Mercuric chloride	2.0E+03 nc	2.0E+04 nc	1.1E+02 nc	3.3E+00 nc	
		8.6E-05 i	n/a	n/a		7439-97-6	Mercury (elemental)	2.3E+01 nc	5.1E+02 nc		1.1E+03 nc	
1.0E-04 i				0	0.10	22967-92-6	Mercury (methyl)			3.1E-01 nc	1.1E+01 nc	
3.0E-05 i		3.0E-05 r		0	0.10	150-50-5	Merphos	6.5E+00 nc	6.8E+01 nc			
3.0E-05 i		3.0E-05 r		0	0.10	78-48-8	Merphos oxide	2.0E+00 nc	2.0E+01 nc	1.1E-01 nc	3.7E+00 nc	
8.0E-02 i		8.0E-02 r		0	0.10	57837-19-1	Metalaxyl	2.0E+00 nc	2.0E+01 nc	1.1E-01 nc	1.1E+00 nc	
1.0E-04 i		2.0E-04 h		1	0.10	126-98-7	Methacrylonitrile	3.9E+03 nc	4.1E+04 nc	2.2E+02 nc	1.1E+00 nc	
5.0E-05 i		5.0E-05 r		0	0.10	10265-92-6	Methamidophos	2.0E+00 nc	8.1E+00 nc	7.3E-01 nc	2.2E+03 nc	
5.0E-01 i		5.0E-01 r		0	0.10	67-56-1	Methanol	3.3E+00 nc	3.4E+01 nc	1.8E-01 nc	1.0E+00 nc	
1.0E-03 i		1.0E-03 r		0	0.10	950-37-8	Methidathion	3.3E+04 nc	1.0E+05 max	1.8E+03 nc	1.8E+00 nc	
2.5E-02 i		2.5E-02 r		1	0.10	16752-77-5	Methomyl	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	1.8E+04 nc	
5.0E-03 i		5.0E-03 r		0	0.10	72-43-5	Methoxychlor	4.4E+01 nc	1.5E+02 nc	9.1E+01 nc	3.7E+01 nc	
1.0E-03 h		5.7E-03 i		0	0.10	109-86-4	2-Methoxyethanol	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.5E+02 nc	
2.0E-03 h		2.0E-03 r		0	0.10	110-49-6	2-Methoxyethanol acetate	6.5E+01 nc	6.8E+02 nc	2.1E+01 nc	1.8E+02 nc	1.8E+02 8.0E+00
4.0E-02 h	4.0E-02 r			0	0.10	99-59-2	2-Methoxy-5-nitroaniline	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	3.7E+01 nc	
1.0E+00 h		1.0E+00 r		1	0.10	79-20-9	Methyl acetate	9.7E+00 ca	4.1E+01 ca	1.5E-01 ca	7.3E+01 nc	
3.0E-02 h		3.0E-02 r		1	0.10	96-33-3	Methyl acrylate	2.1E+04 nc	8.8E+04 nc	3.7E+03 nc	1.5E+00 ca	
2.4E-01 h	2.4E-01 r			0	0.10	100-61-8	2-Methylaniline (o-toluidine)	6.9E+01 nc	2.3E+02 nc	1.1E+02 nc	6.1E+03 nc	
1.8E-01 h	1.8E-01 r			0	0.10	636-21-5	2-Methylaniline hydrochloride	1.9E+00 ca	7.9E+00 ca	2.8E-02 ca	1.8E+02 nc	
1.0E+00 x		1.0E+00 r		0	0.10	79-22-1	Methyl chlorocarbonate	2.5E+00 ca	1.1E+01 ca	3.7E-02 ca	2.8E-01 ca	
5.0E-04 i		5.0E-04 r		0	0.10	94-74-6	2-Methyl-4-chlorophenoxyacetic acid	6.5E+04 nc	1.0E+05 max	3.7E+03 nc	3.7E-01 ca	
1.0E-02 i		1.0E-02 r		0	0.10	94-81-5	4-(2-Methyl-4-chlorophenoxy) butyric acid	3.3E+01 nc	3.4E+02 nc	1.8E+00 nc	3.7E+04 nc	
1.0E-03 i		1.0E-03 r		0	0.10	93-65-2	2-(2-Methyl-4-chlorophenoxy) propionic acid	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	1.8E+01 nc	
1.0E-03 i		1.0E-03 r		0	0.10	16484-77-8	2-(2-Methyl-1,4-chlorophenoxy) propionic acid	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+02 nc	
8.0E-01 r		8.0E-01 h		0	0.10	108-87-2	Methylcyclohexane	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc	
2.5E-01 h	2.5E-01 r			0	0.10	101-77-9	4,4'-Methylenebisbenzeneamine	5.6E+04 nc	1.0E+05 max	3.1E+03 nc	3.7E+01 nc	
1.3E-01 h	7.0E-04 h	1.3E-01 h	7.0E-04 r	0	0.10	101-14-4	4,4'-Methylene bis(2-chloroaniline)	1.8E+00 ca	7.6E+00 ca	2.7E-02 ca	3.1E+04 nc	
4.6E-02 i	4.6E-02 r			0	0.10	101-61-1	4,4'-Methylene bis(N,N'-dimethyl)aniline	3.4E+00 ca*	1.5E+01 ca*	5.2E-02 ca*	2.7E-01 ca	
1.0E-02 h		1.0E-02 r		0	0.10	74-95-3	Methylene bromide	9.7E+00 ca	4.1E+01 ca	1.5E-01 ca	5.2E-01 ca*	
7.5E-03 i	6.0E-02 i	1.6E-03 i	6.6E-01 h	1	0.10	75-09-2	Methylene chloride	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	1.5E+00 ca	
		5.7E-09 i		0	n/a	101-68-8	4,4'-Methylenediphenyl isocyanate	7.8E+00 ca	1.8E+01 ca	4.1E+00 ca	3.7E+02 nc	
6.0E-01 i		2.0E-01 i		1	0.10	78-93-3	Methyl ethyl ketone	7.1E+03 nc	2.7E+04 nc	2.1E-02 nc	4.3E+00 ca	2.0E-02 1.0E-03
										1.0E+03 nc	1.9E+03 nc	

Key: I=IRIS h=HEAST n=NCEA z=WITHDRAWN r=ROUTE EXTRAPOLATION ca=CANCER PRG nc=NONCANCER PRG sat=SOIL SATURATION max=CEILING LIMIT *(where: nc < 100X ca) **(where: nc < 10X ca)

FOR PLANNING PURPOSES

TOXICITY INFORMATION							CONTAMINANT	PRELIMINARY REMEDIAL GOALS (PRGs)				SOIL SCREENING LEVELS	
RfDo (mg/kg-d)		SFo 1/(mg/kg-d)	RfDi (mg/kg-d)		V O C	skin abs. soils	CAS No.		Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m^3)	Tap Water (ug/l)	Migration to Ground Water DAF 20 (mg/kg)	DAF 1 (mg/kg)
1E+00 h		1.1E+00 r			0	0.10	60-34-4	Methyl hydrazine	4.0E-01 ca	1.7E+00 ca	6.1E-03 ca	6.1E-02 ca		
	8.0E-02 h		2.3E-02 h		1	0.10	108-10-1	Methyl isobutyl ketone	7.7E+02 nc	2.8E+03 nc	8.3E+01 nc	1.6E+02 nc		
	8.0E-02 h		8.0E-02 r		1	0.10	80-62-6	Methyl methacrylate	7.6E+02 nc	2.8E+03 nc	2.9E+02 nc	4.9E+02 nc		
3E-02 h		3.3E-02 r			0	0.10	99-55-8	2-Methyl-5-nitroaniline	1.3E+01 ca	5.8E+01 ca	2.0E-01 ca	2.0E+00 ca		
	2.5E-04 i		2.5E-04 r		0	0.10	298-00-0	Methyl parathion	1.6E+01 nc	1.7E+02 nc	9.1E-01 nc	9.1E+00 nc		
	5.0E-02 x		5.0E-02 r		0	0.10	95-48-7	2-Methylphenol	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc	1.5E+01	8.0E-01
	5.0E-02 x		5.0E-02 r		0	0.10	108-39-4	3-Methylphenol	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc		
	5.0E-03 h		5.0E-03 r		0	0.10	106-44-5	4-Methylphenol	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc		
	8.0E-03 h		1.1E-02 h		1	0.10	25013-15-4	Methyl styrene (mixture)	1.2E+02 nc	5.2E+02 nc	4.2E+01 nc	6.0E+01 nc		
	7.0E-02 h		7.0E-02 r		1	0.10	98-83-9	Methyl styrene (alpha)	6.8E+02 sat	6.8E+02 sat	2.6E+02 nc	4.3E+02 nc		
	5.0E-03 n		8.6E-01 i		1	0.10	1634-04-4	Methyl tertbutyl ether (MTBE)			3.1E+03 nc	1.8E+02 nc		
	1.5E-01 i		1.5E-01 r		0	0.10	51218-45-2	Metolachlor (Dual)	9.8E+03 nc	1.0E+05 max	5.5E+02 nc	5.5E+03 nc		
	2.5E-02 i		2.5E-02 r		0	0.10	21087-64-9	Metribuzin	1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc		
0E+00 h	2.0E-04 i	1.8E+00 r	2.0E-04 r		0	0.10	2385-85-5	Mirex	2.5E-01 ca*	1.1E+00 ca	3.7E-03 ca	3.7E-02 ca		
	2.0E-03 i		2.0E-03 r		0	0.10	2212-67-1	Molinate	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc		
	5.0E-03 h				0	0.01	7439-98-7	Molybdenum	3.8E+02 nc	8.5E+03 nc		1.8E+02 nc		
	1.0E-01 h		1.0E-01 h		0	0.10	10599-90-3	Monochloramine	6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc		
	2.0E-03 i		2.0E-03 r		0	0.10	300-76-5	Naled	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc		
	1.0E-01 i		1.0E-01 r		0	0.10	15299-99-7	Napropamide	6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc		
	2.0E-02 i				0	0.01	7440-02-0	Nickel (soluble salts)	1.5E+03 nc	3.4E+04 nc		7.3E+02 nc	1.3E+02	7.0E+00
								"CAL-Modified PRG" (PEA, 1994)	1.5E+02					
		8.4E-01 i			0	0.01	n/a	Nickel refinery dust			8.0E-03 ca			
		1.7E+00 i			0	0.01	12035-72-2	Nickel subsulfide		1.1E+04 ca	4.0E-03 ca			
	1.5E-03 x		1.5E-03 r		0	0.10	1929-82-4	Nitrapyrin	9.8E+01 nc	1.0E+03 nc	5.5E+00 nc	5.5E+01 nc		
	1.6E+00 i				0	0.10	14797-55-8	Nitrate				5.8E+04 nc		
	1.0E-01 x				0	0.10	10102-43-9	Nitric Oxide	6.5E+03 nc	1.0E+05 max		3.7E+03 nc		
	1.0E-01 i				0	0.10	14797-65-0	Nitrite	6.5E+03 nc	1.0E+05 max		3.7E+03 nc		
	8.0E-05 r		5.7E-05 h		0	0.10	88-74-4	2-Nitroaniline	3.9E+00 nc	4.1E+01 nc	2.1E-01 nc	2.2E+00 nc		
					0	0.10	99-09-2	3-Nitroaniline						
					0	0.10	100-01-6	4-Nitroaniline						
	5.0E-04 i		5.7E-04 h		1	0.10	98-95-3	Nitrobenzene	1.8E+01 nc	9.4E+01 nc	2.1E+00 nc	3.4E+00 nc	1.0E-01	7.0E-03
	7.0E-02 h		7.0E-02 r		0	0.10	67-20-9	Nitrofurantoin	4.6E+03 nc	4.8E+04 nc	2.6E+02 nc	2.6E+03 nc		
5E+00 h		8.4E+00 h			0	0.10	59-87-0	Nitrofurazone	3.0E-01 ca	1.3E+00 ca	7.2E-04 ca	4.5E-02 ca		
	1.0E+00 x				0	0.10	101102-44-0	Nitrogen dioxide	6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc		
	1.0E-01 i		1.0E-01 r		0	0.10	556-88-7	Nitroguanidine						
					0	0.10	100-02-7	4-Nitrophenol						
4E+00 r	5.7E-03 r	8.4E+00 h	5.7E-03 i		1	0.10	79-46-9	2-Nitropropane			7.2E-04 ca	3.5E+01 ca		
4E+00 i		5.8E+00 i			1	0.10	924-16-3	N-Nitrosodi-n-butylamine	2.2E-02 ca	5.5E-02 ca	1.2E-03 ca	2.0E-03 ca		
8E+00 i		2.8E+00 r			0	0.10	1116-54-7	N-Nitrosodiethanolamine	1.6E-01 ca	6.8E-01 ca	2.4E-03 ca	2.4E-02 ca		
5E+02 i		1.5E+02 i			0	0.10	55-18-5	N-Nitrosodiethylamine	3.0E-03 ca	1.3E-02 ca	4.5E-05 ca	4.5E-04 ca		
1E+01 i		4.9E+01 i			0	0.10	62-75-9	N-Nitrosodimethylamine	8.7E-03 ca	3.7E-02 ca	1.4E-04 ca	1.3E-03 ca		
9E-03 i		4.9E-03 r			0	0.10	86-30-6	N-Nitrosodiphenylamine	9.1E+01 ca	3.9E+02 ca	1.4E+00 ca	1.4E+01 ca	1.0E+00	6.0E-02
0E+00 i		7.0E+00 r			0	0.10	621-64-7	N-Nitroso di-n-propylamine	6.3E-02 ca	2.7E-01 ca	9.6E-04 ca	9.6E-03 ca	5.0E-05	2.0E-06
2E+01 i		2.2E+01 r			0	0.10	10595-95-6	N-Nitroso-N-methylethylamine	2.0E-02 ca	8.7E-02 ca	3.1E-04 ca	3.1E-03 ca		
1E+00 i		2.1E+00 i			0	0.10	930-55-2	N-Nitrosopyrrolidine	2.1E-01 ca	9.1E-01 ca	3.1E-03 ca	3.2E-02 ca		
	1.0E-02 h		1.0E-02 r		0	0.10	99-08-1	m-Nitrotoluene	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc		
	1.0E-02 h		1.0E-02 r		0	0.10	99-99-0	p-Nitrotoluene	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc		

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FOR PLANNING PURPOSES

TOXICITY INFORMATION							CONTAMINANT	PRELIMINARY REMEDIAL GOALS (PRGs)				SOIL SCREENING LEVELS	
SFo 1/(mg/kg-d)	RfDo (mg/kg-d)	SFi 1/(mg/kg-d)	RfDi (mg/kg-d)	V O C	abs. skin soils	CAS No.		Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m^3)	Tap Water (ug/l)	Migration to Ground Water DAF 20 (mg/kg)	DAF 1 (mg/kg)
	4.0E-02 I		4.0E-02 r	0	0.10	27314-13-2	Norflurazon						
	7.0E-04 I		7.0E-04 r	0	0.10	85509-19-9	NuStar	4.6E+01 nc	4.8E+02 nc	2.6E+00 nc	2.6E+01 nc		
	3.0E-03 I		3.0E-03 r	0	0.10	32536-52-0	Octabromodiphenyl ether	2.0E+02 nc	2.0E+03 nc	1.1E+01 nc	1.1E+02 nc		
	5.0E-02 I		5.0E-02 r	0	0.10	2691-41-0	Octahydro-1357-tetranitro-1357- tetrazocine (HMX)	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc		
	2.0E-03 h		2.0E-03 r	0	0.10	152-16-9	Octamethylpyrophosphoramide	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc		
	5.0E-02 I		5.0E-02 r	0	0.10	19044-88-3	Oryzalin	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc		
	5.0E-03 I		5.0E-03 r	0	0.10	19666-30-9	Oxadiazon	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc		
	2.5E-02 I		2.5E-02 r	0	0.10	23135-22-0	Oxamyl	1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc		
	3.0E-03 I		3.0E-03 r	0	0.10	42874-03-3	Oxyfluorfen	2.0E+02 nc	2.0E+03 nc	1.1E+01 nc	1.1E+02 nc		
	1.3E-02 I		1.3E-02 r	0	0.10	76738-62-0	Paclobutrazol	8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc		
	4.5E-03 I		4.5E-03 r	0	0.10	4685-14-7	Paraquat	2.9E+02 nc	3.1E+03 nc	1.6E+01 nc	1.6E+02 nc		
	6.0E-03 h		6.0E-03 r	0	0.10	56-38-2	Parathion	3.9E+02 nc	4.1E+03 nc	2.2E+01 nc	2.2E+02 nc		
	5.0E-02 h		5.0E-02 r	0	0.10	1114-71-2	Pebulate	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc		
	4.0E-02 I		4.0E-02 r	0	0.10	40487-42-1	Pendimethalin	2.6E+03 nc	2.7E+04 nc	1.5E+02 nc	1.5E+03 nc		
2.3E-02 h		2.3E-02 r		0	0.10	87-84-3	Pentabromo-6-chloro cyclohexane	1.9E+01 ca	8.3E+01 ca	2.9E-01 ca	2.9E+00 ca		
	2.0E-03 I		2.0E-03 r	0	0.10	32534-81-9	Pentabromodiphenyl ether	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc		
	8.0E-04 I		8.0E-04 r	0	0.10	608-93-5	Pentachlorobenzene	5.2E+01 nc	5.5E+02 nc	2.9E+00 nc	2.9E+01 nc		
2.6E-01 h	3.0E-03 I	2.6E-01 r	3.0E-03 r	0	0.10	82-68-8	Pentachloronitrobenzene	1.7E+00 ca*	7.3E+00 ca	2.6E-02 ca	2.6E-01 ca		
1.2E-01 I	3.0E-02 I	1.2E-01 r	3.0E-02 r	0	0.25	87-86-5	Pentachlorophenol	2.5E+00 ca	7.9E+00 ca	5.6E-02 ca	5.6E-01 ca	3.0E-02	1.0E-03
	5.0E-02 I		5.0E-02 r	0	0.10	52645-53-1	Permethrin	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc		
	2.5E-01 I		2.5E-01 r	0	0.10	13684-63-4	Phenmedipham	1.6E+04 nc	1.0E+05 max	9.1E+02 nc	9.1E+03 nc		
	6.0E-01 I		6.0E-01 r	0	0.10	108-95-2	Phenol	3.9E+04 nc	1.0E+05 max	2.2E+03 nc	2.2E+04 nc	1.0E+02	5.0E+00
	6.0E-03 I		6.0E-03 r	0	0.10	108-45-2	m-Phenylenediamine	3.9E+02 nc	4.1E+03 nc	2.2E+01 nc	2.2E+02 nc		
	1.9E-01 h		1.9E-01 r	0	0.10	106-50-3	p-Phenylenediamine	1.2E+04 nc	1.0E+05 max	6.9E+02 nc	6.9E+03 nc		
	8.0E-05 I		8.0E-05 r	0	0.10	62-38-4	Phenylmercuric acetate	5.2E+00 nc	5.5E+01 nc	2.9E-01 nc	2.9E+00 nc		
1.9E-03 h		1.9E-03 r		0	0.10	90-43-7	2-Phenylphenol	2.3E+02 ca	9.8E+02 ca	3.5E+00 ca	3.5E+01 ca*		
	2.0E-04 h		2.0E-04 r	0	0.10	298-02-2	Phorate	1.3E+01 nc	1.4E+02 nc	7.3E-01 nc	7.3E+00 nc		
	2.0E-02 I		2.0E-02 r	0	0.10	732-11-6	Phosmet	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc		
	3.0E-04 h		8.6E-05 I	0	0.10	7803-51-2	Phosphine	2.0E+01 nc	2.0E+02 nc	3.1E-01 nc	1.1E+01 nc		
			2.8E-03 I	n/a	n/a	7664-38-2	Phosphoric acid			1.0E+01 nc			
	2.0E-05 I		2.0E-05 r	0	0.10	7723-14-0	Phosphorus (white)			7.3E-02 nc			
	1.0E+00 h		1.0E+00 r	0	0.10	100-21-0	p-Phthalic acid			3.7E+03 nc			
	2.0E+00 I		3.4E-02 h	0	0.10	85-44-9	Phthalic anhydride			1.2E+02 nc			
	7.0E-02 I		7.0E-02 r	0	0.10	1918-02-1	Picloram	4.6E+03 nc	4.8E+04 nc	2.6E+02 nc	2.6E+03 nc		
	1.0E-02 I		1.0E-02 r	0	0.10	23505-41-1	Pirimiphos-methyl	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc		
6.8E+00 h	7.0E-08 h	6.8E+00 r	7.0E-08 r	0	0.10		Polybrominated biphenyls	5.0E-02 ca**	2.1E-01 ca*	7.6E-04 ca*	7.6E-03 ca*		
7.7E+00 I		7.7E+00 r		0	0.06	1336-36-3	Polychlorinated biphenyls (PCBs)	6.6E-02 ca*	3.4E-01 ca*	8.7E-04 ca*	8.7E-03 ca*		
	7.0E-05 I		7.0E-05 r	0	0.06	12674-11-2	Aroclor 1016 (see PCBs for cancer endpoint)	4.9E+00 nc	6.5E+01 nc	2.6E-01 nc	2.6E+00 nc		
	2.0E-05 I		2.0E-05 r	0	0.06	11097-69-1	Aroclor 1254 (see PCBs for cancer endpoint)	1.4E+00 nc	1.9E+01 nc	7.3E-02 nc	7.3E-01 nc		
					0.10		Polynuclear aromatic hydrocarbons (PAHs)						
	6.0E-02 I		6.0E-02 r	1	0.10	83-32-9	Acenaphthene	1.1E+02 sat	1.1E+02 sat	2.2E+02 nc	3.7E+02 nc	5.7E+02	2.9E+01
	3.0E-01 I		3.0E-01 r	1	0.10	120-12-7	Anthracene	5.7E+00 sat	5.7E+00 sat	1.1E+03 nc	1.8E+03 nc	1.2E+04	5.9E+02
7.3E-01 n		7.3E-01 r		0	0.10	56-55-3	Benz[a]anthracene	6.1E-01 ca	2.6E+00 ca	9.2E-03 ca	9.2E-02 ca	2.0E+00	8.0E-02
7.3E-01 n		7.3E-01 r		0	0.10	205-99-2	Benzo[b]fluoranthene	6.1E-01 ca	2.6E+00 ca	9.2E-03 ca	9.2E-02 ca	5.0E+00	2.0E-01
7.3E-02 n		7.3E-02 r		0	0.10	207-08-9	Benzo[k]fluoranthene	6.1E+00 ca	2.6E+01 ca	9.2E-02 ca	9.2E-01 ca	4.9E+01	2.0E+00
							"CAL-Modified PRG" (PEA, 1994)	6.1E-01					

Key: i=IRIS h=HEAST n=NCEA w=WITHDRAWN r=ROUTE EXTRAPOLATION ca=CANCER PRG nc=NONCANCER PRG sat=SOIL SATURATION max=CEILING LIMIT *(where: nc < 100X ca) **(where: nc < 10X ca)

FOR PLANNING PURPOSES

TOXICITY INFORMATION							CONTAMINANT	PRELIMINARY REMEDIAL GOALS (PRGs)				SOIL SCREENING LEVELS	
SFo (mg/kg-d)	RfDo (mg/kg-d)	SFi 1/(mg/kg-d)	RfDi (mg/kg-d)	V O C	skin abs. soils	CAS No.		Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m^3)	Tap Water (ug/l)	Migration to Ground Water DAF 20 (mg/kg)	DAF 1 (mg/kg)
							PAHs continued						
3E+00 i		7.3E+00 r		0	0.10	50-32-8	Benzo[a]pyrene	6.1E-02 ca	2.6E-01 ca	9.2E-04 ca	9.2E-03 ca	8.0E+00	4.0E-01
							"CAL-Modified PRG" (PEA, 1994)				1.5E-03		
.3E-03 n		7.3E-03 r		0	0.10	218-01-9	Chrysene	7.2E+00 sat	7.2E+00 sat	9.2E-01 ca	9.2E+00 ca	1.6E+02	8.0E+00
							"CAL-Modified PRG" (PEA, 1994)	6.1E+00					
3E+00 n		7.3E+00 r		0	0.10	53-70-3	Dibenz[ah]anthracene	6.1E-02 ca	2.6E-01 ca	9.2E-04 ca	9.2E-03 ca	2.0E+00	8.0E-02
	4.0E-02 i		4.0E-02 r	0	0.10	206-44-0	Fluoranthene	2.6E+03 nc	2.7E+04 nc	1.5E+02 nc	1.5E+03 nc	4.3E+03	2.1E+02
	4.0E-02 i		4.0E-02 r	1	0.10	86-73-7	Fluorene	9.0E+01 sat	9.0E+01 sat	1.5E+02 nc	2.4E+02 nc	5.6E+02	2.8E+01
3E-01 n		7.3E-01 r		0	0.10	193-39-5	Indeno[1,2,3-cd]pyrene	6.1E-01 ca	2.6E+00 ca	9.2E-03 ca	9.2E-02 ca	1.4E+01	7.0E-01
	4.0E-02 n		4.0E-02 r	1	0.10	91-20-3	Naphthalene	2.4E+02 sat	2.4E+02 sat	1.5E+02 nc	2.4E+02 nc	8.4E+01	4.0E+00
	3.0E-02 i		3.0E-02 r	1	0.10	129-00-0	Pyrene	1.0E+02 sat	1.0E+02 sat	1.1E+02 nc	1.8E+02 nc	4.2E+03	2.1E+02
5E-01 i	8.0E-03 i	1.5E-01 r	8.0E-03 r	0	0.10	67747-09-5	Prochloraz	3.0E+00 ca	1.3E+01 ca	4.5E-02 ca	3.3E+02 ca		
	8.0E-03 h		8.0E-03 r	0	0.10	26399-36-0	Profluralin	3.9E+02 nc	4.1E+03 nc	2.2E+01 nc	2.2E+02 nc		
	1.5E-02 i		1.5E-02 r	0	0.10	1610-18-0	Prometon	9.8E+02 nc	1.0E+04 nc	5.5E+01 nc	5.5E+02 nc		
	4.0E-03 i		4.0E-03 r	0	0.10	7287-19-6	Prometryn	2.6E+02 nc	2.7E+03 nc	1.5E+01 nc	1.5E+02 nc		
	7.5E-02 i		7.5E-02 r	0	0.10	23950-58-5	Pronamide	4.9E+03 nc	5.1E+04 nc	2.7E+02 nc	2.7E+03 nc		
	1.3E-02 i		1.3E-02 r	0	0.10	1918-16-7	Propachlor	8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc		
	5.0E-03 i		5.0E-03 r	0	0.10	709-98-8	Propanil	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc		
	2.0E-02 i		2.0E-02 r	0	0.10	2312-35-8	Propargite	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc		
	2.0E-03 i		2.0E-03 r	0	0.10	107-19-7	Propargyl alcohol	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc		
	2.0E-02 i		2.0E-02 r	0	0.10	139-40-2	Propazine	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc		
	2.0E-02 i		2.0E-02 r	0	0.10	122-42-9	Propham	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc		
	1.3E-02 i		1.3E-02 r	0	0.10	60207-90-1	Propiconazole	8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc		
	2.0E+01 h		2.0E+01 r	0	0.10	57-55-6	Propylene glycol	1.0E+05 max	1.0E+05 max	7.3E+04 nc	7.3E+05 nc		
	7.0E-01 h		7.0E-01 r	0	0.10	111-35-3	Propylene glycol, monoethyl ether	4.6E+04 nc	1.0E+05 max	2.6E+03 nc	2.6E+04 nc		
	7.0E-01 h		5.7E-01 i	0	0.10	107-98-2	Propylene glycol, monomethyl ether	4.6E+04 nc	1.0E+05 max	2.1E+03 nc	2.6E+04 nc		
4E-01 i	8.0E-03 r	1.3E-02 i	8.0E-03 i	1	0.10	75-56-9	Propylene oxide			5.2E-01 ca	2.2E-01 ca		
	2.5E-01 i		2.5E-01 r	0	0.10	81335-77-5	Pursuit	1.6E+04 nc	1.0E+05 max	9.1E+02 nc	9.1E+03 nc		
	2.5E-02 i		2.5E-02 r	0	0.10	51630-58-1	Pydrin	1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc		
	1.0E-03 i		1.0E-03 r	0	0.10	110-86-1	Pyridine	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc		
	5.0E-04 i		5.0E-04 r	0	0.10	13593-03-8	Quinalphos	3.3E+01 nc	3.4E+02 nc	1.8E+00 nc	1.8E+01 nc		
2E+01 h		1.2E+01 r		0	0.10	91-22-5	Quinoline	3.7E-02 ca	1.6E-01 ca	5.6E-04 ca	5.6E-03 ca		
1.1E-01 i	3.0E-03 i	1.1E-01 r	3.0E-03 r	0	0.10	121-82-4	RDX (Cyclonite)	4.0E+00 ca*	1.7E+01 ca	6.1E-02 ca	6.1E-01 ca		
	3.0E-02 i		3.0E-02 r	0	0.10	10453-86-8	Resmethrin	2.0E+03 nc	2.0E+04 nc	1.1E+02 nc	1.1E+03 nc		
	5.0E-02 h		5.0E-02 r	0	0.10	299-84-3	Ronnel	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc		
	4.0E-03 i		4.0E-03 r	0	0.10	83-79-4	Rotenone	2.6E+02 nc	2.7E+03 nc	1.5E+01 nc	1.5E+02 nc		
	2.5E-02 i		2.5E-02 r	0	0.10	76578-05-0	Savey	1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc		
	5.0E-03 i			0	0.10	7783-00-8	Selenious Acid	3.3E+02 nc	3.4E+03 nc		1.8E+02 nc		
	5.0E-03 i			0	0.01	7782-49-2	Selenium	3.8E+02 nc	8.5E+03 nc		1.8E+02 nc	5.0E+00	3.0E-01
	5.0E-03 h			0	0.10	630-10-4	Selenourea	3.3E+02 nc	3.4E+03 nc		1.8E+02 nc		
	9.0E-02 i		9.0E-02 r	0	0.10	74051-80-2	Sethoxydim	5.9E+03 nc	6.1E+04 nc	3.3E+02 nc	3.3E+03 nc		
	5.0E-03 i			0	0.01	7440-22-4	Silver and compounds	3.8E+02 nc	8.5E+03 nc		1.8E+02 nc	3.4E+01	2.0E+00
1.2E-01 h	5.0E-03 i	1.2E-01 r	2.0E-03 r	0	0.10	122-34-9	Simazine	3.7E+00 ca*	1.6E+01 ca*	5.6E-02 ca	5.6E-01 ca		
	4.0E-03 i		4.0E-03 r	0	0.10	26628-22-8	Sodium azide	2.6E+02 nc	2.7E+03 nc	1.5E+01 nc	1.5E+02 nc		
2.7E-01 h	3.0E-02 i	2.7E-01 r	3.0E-02 r	0	0.10	148-18-5	Sodium diethyldithiocarbamate	1.6E+00 ca	7.1E+00 ca	2.5E-02 ca	2.5E-01 ca		
	2.0E-05 i		2.0E-05 r	0	0.10	62-74-8	Sodium fluoroacetate	1.3E+00 nc	1.4E+01 nc	7.3E-02 nc	7.3E-01 nc		
	1.0E-03 h		1.0E-03 r	0	0.10	13718-26-8	Sodium metavanadate	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc		

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FOR PLANNING PURPOSES

TOXICITY INFORMATION							CONTAMINANT	PRELIMINARY REMEDIAL GOALS (PRGs)				SOIL SCREENING LEVELS	
SFo 1/(mg/kg-d)	RfDo (mg/kg-d)	SFi 1/(mg/kg-d)	RfDi (mg/kg-d)	V O C	skin abs. soils	CAS No.		Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m^3)	Tap Water (ug/l)	Migration to Ground Water DAF 20 (mg/kg)	DAF 1 (mg/kg)
	8.0E-01 i			0	0.01	7440-24-6	Strontium, stable	4.6E+04 nc	1.0E+05 max		2.2E+04 nc		
	3.0E-04 i		3.0E-04 r	0	0.10	57-24-9	Strychnine	2.0E+01 nc	2.0E+02 nc	1.1E+00 nc	1.1E+01 nc		
	2.0E-01 i		2.0E-01 i	1	0.10	100-42-5	Styrene	6.8E+02 sat	6.8E+02 sat	1.1E+03 nc	1.6E+03 nc	4.0E+00	2.0E-01
	2.5E-02 i		2.5E-02 r	0	0.10	88671-89-0	Systhane	1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc		
1.5E+05 h		1.5E+05 h		0	0.03	1746-01-6	2,3,7,8-TCDD (dioxin)	3.8E-06 ca	2.4E-05 ca	4.5E-08 ca	4.5E-07 ca		
	7.0E-02 i		7.0E-02 r	0	0.10	34014-18-1	Tebuthiuron	4.6E+03 nc	4.8E+04 nc	2.6E+02 nc	2.6E+03 nc		
	2.0E-02 h		2.0E-02 r	0	0.10	3383-96-8	Temephos	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc		
	1.3E-02 i		1.3E-02 r	0	0.10	5902-51-2	Terbacil	8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc		
	2.5E-05 h		2.5E-05 r	0	0.10	13071-79-9	Terbufos	1.6E+00 nc	1.7E+01 nc	9.1E-02 nc	9.1E-01 nc		
	1.0E-03 i		1.0E-03 r	0	0.10	886-50-0	Terbutryn	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc		
	3.0E-04 i		3.0E-04 r	0	0.10	95-94-3	1,2,4,5-Tetrachlorobenzene	2.0E+01 nc	2.0E+02 nc	1.1E+00 nc	1.1E+01 nc		
2.6E-02 i	3.0E-02 i	2.6E-02 i	3.0E-02 r	1	0.10	630-20-6	1,1,1,2-Tetrachloroethane	2.4E+00 ca	5.4E+00 ca	2.6E-01 ca	4.3E-01 ca		
2.0E-01 i		2.0E-01 i		1	0.10	79-34-5	1,1,2,2-Tetrachloroethane	4.5E-01 ca	1.1E+00 ca	3.3E-02 ca	5.5E-02 ca	3.0E-03	2.0E-04
5.2E-02 n	1.0E-02 i	2.0E-03 n	1.0E-02 r	1	0.10	127-18-4	Tetrachloroethylene (PCE)	5.4E+00 ca	1.7E+01 ca	3.3E+00 ca	1.1E+00 ca	6.0E-02	3.0E-03
							"CAL-Modified PRG" (PEA, 1994)			3.2E-01			
	3.0E-02 i		3.0E-02 r	0	0.10	58-90-2	2,3,4,6-Tetrachlorophenol	2.0E+03 nc	2.0E+04 nc	1.1E+02 nc	1.1E+03 nc		
2.0E+01 h		2.0E+01 r		0	0.10	5216-25-1	p,a,a,a-Tetrachlorotoluene	2.2E-02 ca	9.5E-02 ca	3.4E-04 ca	3.4E-03 ca		
2.4E-02 h	3.0E-02 i	2.4E-02 r	3.0E-02 r	0	0.10	961-11-5	Tetrachlorovinphos	1.9E+01 ca	7.9E+01 ca	2.8E-01 ca	2.8E+00 ca		
	8.0E-04 i		8.0E-04 r	0	0.10	3689-24-5	Tetraethyldithiopyrophosphate	3.3E+01 nc	3.4E+02 nc	1.8E+00 nc	1.8E+01 nc		
	7.0E-05 h			0	0.01	1314-32-5	Thallic oxide	5.4E+00 nc	1.2E+02 nc		2.6E+00 nc		
	8.0E-05 i			0	0.01	563-68-8	Thallium acetate	6.9E+00 nc	1.5E+02 nc		3.3E+00 nc	7.0E-01	4.0E-01
	8.0E-05 i			0	0.01	6533-73-9	Thallium carbonate	6.1E+00 nc	1.4E+02 nc		2.9E+00 nc	7.0E-01	4.0E-01
	8.0E-05 i			0	0.01	7791-12-0	Thallium chloride	6.1E+00 nc	1.4E+02 nc		2.9E+00 nc	7.0E-01	4.0E-01
	8.0E-05 i			0	0.01	10102-45-1	Thallium nitrate	6.9E+00 nc	1.5E+02 nc		3.3E+00 nc	7.0E-01	4.0E-01
	8.0E-05 w			0	0.01	12039-52-0	Thallium selenite	6.9E+00 nc	1.5E+02 nc		3.3E+00 nc	7.0E-01	4.0E-01
	8.0E-05 i			0	0.01	7446-18-6	Thallium sulfate	6.1E+00 nc	1.4E+02 nc		2.9E+00 nc	7.0E-01	4.0E-01
	1.0E-02 i		1.0E-02 r	0	0.10	28249-77-6	Thiobencarb	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc		
	3.0E-02 w		3.0E-02 r	0	0.10	3689-24-5	2-(Thiocyanomethylthio)- benzothiazole (TCMTB)	2.0E+03 nc	2.0E+04 nc	1.1E+02 nc	1.1E+03 nc		
	3.0E-04 h		3.0E-04 r	0	0.10	39196-18-4	Thiofanox	2.0E+01 nc	2.0E+02 nc	1.1E+00 nc	1.1E+01 nc		
	8.0E-02 i		8.0E-02 r	0	0.10	23564-05-8	Thiophanate-methyl	5.2E+03 nc	5.5E+04 nc	2.9E+02 nc	2.9E+03 nc		
	5.0E-03 i		5.0E-03 r	0	0.10	137-26-8	Thiram	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc		
	6.0E-01 h			0	0.01	n/a	Tin (inorganic, see tributyltin oxide for organic tin)	4.6E+04 nc	1.0E+05 max		2.2E+04 nc		
	2.0E-01 i		1.1E-01 h	1	0.10	108-88-3	Toluene	7.9E+02 nc	8.8E+02 sat	4.0E+02 nc	7.2E+02 nc	1.2E+01	6.0E-01
3.2E+00 h		3.2E+00 r		0	0.10	95-80-7	Toluene-2,4-diamine	1.4E-01 ca	6.0E-01 ca	2.1E-03 ca	2.1E-02 ca		
	6.0E-01 h		6.0E-01 r	0	0.10	95-70-5	Toluene-2,5-diamine	3.9E+04 nc	1.0E+05 max	2.2E+03 nc	2.2E+04 nc		
	2.0E-01 h		2.0E-01 r	0	0.10	823-40-5	Toluene-2,6-diamine	1.3E+04 nc	1.0E+05 max	7.3E+02 nc	7.3E+03 nc		
1.9E-01 i		1.9E-01 r		0	0.10	106-49-0	p-Toluidine	2.3E+00 ca	1.0E+01 ca	3.5E-02 ca	3.5E-01 ca		
1.1E+00 i		1.1E+00 i		0	0.10	8001-35-2	Toxaphene	4.0E-01 ca	1.7E+00 ca	6.0E-03 ca	6.1E-02 ca	3.1E+01	2.0E+00
	7.5E-03 i		7.5E-03 r	0	0.10	66841-25-6	Tralomethrin	4.9E+02 nc	5.1E+03 nc	2.7E+01 nc	2.7E+02 nc		
	1.3E-02 i		1.3E-02 r	0	0.10	2303-17-5	Trialfate	8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc		
	1.0E-02 i		1.0E-02 r	0	0.10	82097-50-5	Triasulfuron	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc		
	6.0E-03 i		6.0E-03 r	0	0.10	615-54-3	1,2,4-Tribromobenzene	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc		
	3.0E-05 i		3.0E-05 r	0	0.10	56-35-9	Tributyltin oxide (TBTO)	2.0E+00 nc	2.0E+01 nc	1.1E-01 nc	1.1E+00 nc		
3.4E-02 h		3.4E-02 r		0	0.10	634-93-5	2,4,6-Trichloroaniline	1.3E+01 ca	5.6E+01 ca	2.0E-01 ca	2.0E+00 ca		
2.9E-02 h		2.9E-02 r		0	0.10	33663-50-2	2,4,6-Trichloroaniline hydrochloride	1.5E+01 ca	6.6E+01 ca	2.3E-01 ca	2.3E+00 ca		
	1.0E-02 i		5.7E-02 h	1	0.10	120-82-1	1,2,4-Trichlorobenzene	5.7E+02 nc	5.5E+03 sat	2.1E+02 nc	1.9E+02 nc	5.0E+00	3.0E-01
	3.5E-03 n		2.0E-01 w	1	0.10	71-55-6	1,1,1-Trichloroethane	1.2E+03 nc	3.0E+03 sat	1.0E+03 nc	7.9E+02 nc	2.0E+00	1.0E-01

Key: i=IRIS h=HEAST n=HCEA w=WITHDRAWN r=ROUTE EXTRAPOLATION ca=CANCER PRG nc=NONCANCER PRG sat=SOIL SATURATION max=CEILING LIMIT *(where: nc < 100X ca) **(where: nc < 10X ca)

FOR PLANNING PURPOSES

TOXICITY INFORMATION							CONTAMINANT	PRELIMINARY REMEDIAL GOALS (PRGs)				SOIL SCREENING LEVELS	
	RfDo (mg/kg-d)	SFi 1/(mg/kg-d)	RfDi (mg/kg-d)	V O C	skin abs. soils	CAS No.		Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m^3)	Tap Water (ug/l)	Migration to Ground Water DAF 20 (mg/kg)	Migration to Ground Water DAF 1 (mg/kg)
g-d)													
02 i	4.0E-03 i	5.6E-02 i	4.0E-03 r	1	0.10	79-00-5	1,1,2-Trichloroethane	6.5E-01 ca	1.5E+00 ca	1.2E-01 ca	2.0E-01 ca	2.0E-02	9.0E-04
02 n	6.0E-03 n	6.0E-03 n	6.0E-03 r	1	0.10	79-01-6	Trichloroethylene (TCE)	3.2E+00 ca*	7.0E+00 ca*	1.1E+00 ca*	1.6E+00 ca*	6.0E-02	3.0E-03
	3.0E-01 i		2.0E-01 h	1	0.10	75-69-4	Trichlorofluoromethane	3.8E+02 nc	1.3E+03 nc	7.3E+02 nc	1.3E+03 nc		
	1.0E-01 i		1.0E-01 r	0	0.10	95-95-4	2,4,5-Trichlorophenol	6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc	2.7E+02	1.4E+01
02 i		1.1E-02 i		0	0.10	88-06-2	2,4,6-Trichlorophenol	4.0E+01 ca	1.7E+02 ca	6.2E-01 ca	6.1E+00 ca	2.0E-01	8.0E-03
	1.0E-02 i		1.0E-02 r	0	0.10	93-76-5	2,4,5-Trichlorophenoxyacetic Acid	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc		
	8.0E-03 i		8.0E-03 r	0	0.10	93-72-1	2-(2,4,5-Trichlorophenoxy) propionic acid	5.2E+02 nc	5.5E+03 nc	2.9E+01 nc	2.9E+02 nc		
	5.0E-03 i		5.0E-03 r	1	0.10	598-77-6	1,1,2-Trichloropropane	1.5E+01 nc	5.0E+01 nc	1.8E+01 nc	3.0E+01 nc		
00 h	8.0E-03 i	7.0E+00 r	5.0E-03 r	1	0.10	96-18-4	1,2,3-Trichloropropane	1.4E-03 ca	3.1E-03 ca	9.6E-04 ca	1.6E-03 ca		
	5.0E-03 h		5.0E-03 r	1	0.10	96-19-5	1,2,3-Trichloropropene	1.1E+01 nc	3.8E+01 nc	1.8E+01 nc	3.0E+01 nc		
	3.0E+01 i		8.6E+00 h	1	0.10	76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.6E+03 sat	5.6E+03 sat	3.1E+04 nc	5.9E+04 nc		
	3.0E-03 i		3.0E-03 r	0	0.10	58138-08-2	Tridiphane	2.0E+02 nc	2.0E+03 nc	1.1E+01 nc	1.1E+02 nc		
	2.0E-03 r		2.0E-03 i	1	0.10	121-44-8	Triethylamine	2.3E+01 nc	8.4E+01 nc	7.3E+00 nc	1.2E+01 nc		
-03 i	7.5E-03 i	7.7E-03 r	7.5E-03 r	0	0.10	1582-09-8	Trifluralin	5.8E+01 ca**	2.5E+02 ca*	8.7E-01 ca*	8.7E+00 ca*		
-02 h		3.7E-02 r		0	0.10	512-56-1	Trimethyl phosphate	1.2E+01 ca	5.2E+01 ca	1.8E-01 ca	1.8E+00 ca		
	5.0E-05 i		5.0E-05 r	0	0.10	99-35-4	1,3,5-Trinitrobenzene	3.3E+00 nc	3.4E+01 nc	1.8E-01 nc	1.8E+00 nc		
	1.0E-02 h		1.0E-02 r	0	0.10	479-45-8	Trinitrophenylmethylnitramine	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc		
-02 i	5.0E-04 i	3.0E-02 r	5.0E-04 r	0	0.10	118-96-7	2,4,6-Trinitrotoluene	1.5E+01 ca**	6.4E+01 ca**	2.2E-01 ca**	2.2E+00 ca**		
	3.0E-03 i			0	0.01	7440-61-1	Uranium (soluble salts)						
	7.0E-03 h			0	0.01	7440-62-2	Vanadium	5.4E+02 nc	1.2E+04 nc		2.6E+02 nc	6.0E+03	3.0E+02
	9.0E-03 i			0	0.01	1314-62-1	Vanadium pentoxide	6.9E+02 nc	1.5E+04 nc		3.3E+02 nc	8.0E+03	3.0E+02
	2.0E-02 h			0	0.01	13701-70-7	Vanadium sulfate	1.5E+03 nc	3.4E+04 nc		7.3E+02 nc	6.0E+03	3.0E+02
	1.0E-03 i		1.0E-03 r	0	0.10	1929-77-7	Vernam	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc		
	2.5E-02 i		2.5E-02 r	0	0.10	50471-44-8	Vinclozolin	1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc		
	1.0E+00 h		5.7E-02 i	1	0.10	108-05-4	Vinyl acetate	7.8E+02 nc	2.6E+03 nc	2.1E+02 nc	4.1E+02 nc	1.7E+02	8.0E+00
-01 r	9.6E-04 r	1.1E-01 h	8.6E-04 i	1	0.10	593-60-2	Vinyl bromide (bromoethene)	1.9E-01 ca*	4.1E-01 ca*	6.1E-02 ca*	1.0E-01 ca*		
+00 h		3.0E-01 h		1	0.10	75-01-4	Vinyl chloride	1.6E-02 ca	3.5E-02 ca	2.2E-02 ca	2.0E-02 ca	1.0E-02	7.0E-04
	3.0E-04 i		3.0E-04 r	0	0.10	81-81-2	Warfarin	2.0E+01 nc	2.0E+02 nc	1.1E+00 nc	1.1E+01 nc		
	2.0E+00 i		2.0E-01 x	1	0.10	108-38-3	m-Xylene	3.2E+02 sat	3.2E+02 sat	7.3E+02 nc	1.4E+03 nc	2.1E+02	1.0E+01
	2.0E+00 i		2.0E-01 x	1	0.10	95-47-6	o-Xylene	3.2E+02 sat	3.2E+02 sat	7.3E+02 nc	1.4E+03 nc	1.9E+02	9.0E+00
				1	0.10	106-42-3	p-Xylene	3.2E+02 sat	3.2E+02 sat			2.0E+02	1.0E+01
	2.0E+00 i		2.0E-01 x	1	0.10	1330-20-7	Xylene (mixed)	3.2E+02 sat	3.2E+02 sat	7.3E+02 nc	1.4E+03 nc	2.0E+02	1.0E+01
	3.0E-01 i			0	0.01	7440-66-6	Zinc	2.3E+04 nc	1.0E+05 max		1.1E+04 nc	1.2E+04	6.2E+02
	3.0E-04 i			0	0.01	1314-84-7	Zinc phosphide	2.3E+01 nc	5.1E+02 nc		1.1E+01 nc		
	5.0E-02 i		5.0E-02 r	0	0.10	12122-67-7	Zineb	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc		

H. D. Lm

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

August 1, 1996

Subject: Region 9 Preliminary Remediation Goals (PRGs) 1996

From: Stanford J. Smucker, Ph.D.
Regional Toxicologist (H-9-3)
Technical Support Team

To: PRG Table Mailing List

Please find the annual update to the Region 9 PRG table. The table has been revised to reflect the most current EPA toxicological and risk assessment information. Updates to EPA toxicity values were obtained from IRIS through July 1996, HEAST through May 1995, and EPA's National Center for Environmental Assessment (NCEA, formerly ECAO).

Region 9 PRGs are "evergreen" and have evolved as new methodologies and parameters have been developed. In several cases the models, equations, and assumptions presented in RAGS HHEM, *Part B, Development of Risk-Based Preliminary Remediation Goals* (1991) have been replaced with new information that is consistent with the document, *Soil Screening Guidance*, recently issued by the Office of Solid Waste and Emergency Response (OSWER), dated April 1996.

The updated PRG table also contains soil screening levels (SSLs) for protection of groundwater. The SSLs were obtained directly from EPA/OSWER's *Soil Screening Guidance* document which is available from NTIS as EPA/540/R-96/018 and EPA/540/R-95/128. Please note that because R 9 PRGs currently evaluate intermedia transfer of volatile organic chemicals (VOCs) and heavy metals from soil to air, the PRG table does not include a separate list of SSLs for the air pathway.

To help users rapidly identify substances with new PRGs, these contaminants are printed in boldface type. Changes in PRG values are either due to new toxicity constants or new physico-chemical information. This version of the table contains revised toxicity values for acetaldehyde, chlorine cyanide, 1,3-dichlorobenzene, 2-dichloroethane, endosulfan, manganese, phosphoric acid, and 1,1,1-trichloroethane. Also, 23 additional VOCs have been identified and evaluated for inhalation exposures resulting from intermedia transfer from soil and water to air.

EPA Region 9 has established a homepage on the World Wide Web which you can find at http://www.epa.gov/region 9/. Our homepage will soon include the PRG table in downloadable form. The electronic table contains additional information not presented in the printed table (e.g. physico-chemical constants, non-cancer PRGs for carcinogens, pathway-specific PRGs, and volatilization factors for VOCs). Meanwhile, we still provide the electronic PRG table (PRG96.zip) on California Regional Water Board's BBS (510.286.0404) for those of you who have a modem.

Before relying on any number in the table, it is recommended that the user verify the numbers with an agency toxicologist or risk assessor because the toxicity / exposure information in the table may contain errors or default assumptions that need to be refined based on further evaluation. If you find an error please send me a note via email at Smucker.Stan@epamail.epa.gov or fax at 415.744.1916.

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DISCLAIMER

Preliminary remediation goals (PRGs) focus on common exposure pathways and may not consider all exposure pathways encountered at CERCLA / RCRA sites (Exhibit 1-1). PRGs do not consider impact to groundwater or address ecological concerns. PRGs are specifically not intended as a (1) stand-alone decision-making tool, (2) as a substitute for EPA guidance for preparing baseline risk assessments, or (3) a rule to determine if a waste is hazardous under RCRA.

The guidance set out in this document is not final Agency action. It is not intended, nor can it be relied upon to create any rights enforceable by any party in litigation with the United States. EPA officials may decide to follow the guidance provided herein, or act at variance with the guidance, based on an analysis of specific circumstances. The Agency also reserves the right to change this guidance at any time without public notice.

1.0 INTRODUCTION

The Region 9 PRG table combines current EPA toxicity values with "standard" exposure factors to estimate contaminant concentrations in environmental media (soil, air, and water) that are protective of humans, including sensitive groups, over a lifetime. Chemical concentrations above these levels would not automatically designate a site as "dirty" or trigger a response action. However, exceeding a PRG suggests that further evaluation of the potential risks that may be posed by site contaminants is appropriate. Further evaluation may include additional sampling, consideration of ambient levels in the environment, or a reassessment of the assumptions contained in these screening-level estimates (e.g. appropriateness of route-to-route extrapolations).

The PRG concentrations presented in the table can be used to screen pollutants in environmental media, trigger further investigation, and provide an initial cleanup goal if applicable. When considering PRGs as preliminary goals, residential concentrations should be used for maximum beneficial uses of a property. Industrial concentrations are included in the table as an alternative cleanup goal for soils, but it is not recommended that industrial concentrations be used for screening sites.

Before applying PRGs as screening tools or initial goals, the user of the table should consider whether the exposure pathways and exposure scenarios at the site are fully accounted for in the PRG calculation. Region 9 PRG concentrations are based on exposure pathways for which generally accepted methods, models, and assumptions have been developed (i.e. ingestion, dermal contact, and inhalation) for specific land-use conditions and do not consider impact to groundwater or ecological receptors (see Developing a Conceptual Site Model below).

EXHIBIT 1-1
TYPICAL EXPOSURE PATHWAYS BY MEDIUM FOR RESIDENTIAL AND INDUSTRIAL LAND USES*

EXPOSURE PATHWAYS, ASSUMING:		
MEDIUM	RESIDENTIAL LAND USE	INDUSTRIAL LAND USE
Ground Water	***Ingestion from drinking***	Ingestion from drinking
	Inhalation of volatiles	Inhalation of volatiles
	Dermal absorption from bathing	Dermal absorption
Surface Water	***Ingestion from drinking***	Ingestion from drinking
	Inhalation of volatiles	Inhalation of volatiles
	Dermal absorption from bathing	Dermal absorption
	Ingestion during swimming	
	Ingestion of contaminated fish	
Soil	***Ingestion***	***Ingestion***
	Inhalation of particulates	***Inhalation of particulates***
	Inhalation of volatiles	***Inhalation of volatiles***
	Exposure to indoor air from soil gas	Exposure to indoor air from soil gas
	Exposure to ground water contaminated by soil leachate	Exposure to ground water contaminated by soil leachate
	Ingestion via plant, meat, or dairy products	Inhalation of particulates from trucks and heavy equipment
	Dermal absorption	***Dermal absorption***

Footnote:
*Exposure pathways considered in the PRG calculations are indicated in boldface italics.

2.0 READING THE PRG TABLE

2.1 General Considerations

With the exceptions described below, PRGs are chemical concentrations that correspond to fixed levels of risk (i.e.either a one-in-one million [10^{-6}] cancer risk or a noncarcinogenic hazard quotient of one, whichever occurs at a lower concentration) in soil, air, and water. In most cases, where a substance causes both cancer and noncancer or systemic effects, the 10^{-6} cancer risk will result in a more stringent criteria and consequently this value is presented in the table. PRG concentrations based on cancer risk are indicated by "ca". PRG concentrations based on noncarcinogenic health threats are indicated by "nc".

If the risk-based concentrations are to be used to screen sites, it is recommended that both cancer and noncancer-based PRGs be obtained even though the printed list contains only the more restrictive of the two values. To obtain additional values (e.g. noncancer PRGs for a carcinogenic substance), the user has the following options:

- download an electronic copy of the PRG table from EPA Region 9's homepage at http://www.epa.gov/region 9/
- download the file (PRG96.zip) from California Regional Water Board's BBS at 510.286.0404
- use the equations presented in Section 4.0 to calculate additional PRG values

It has come to my attention that some users have been multiplying the cancer PRG concentrations by 10 or 100 to set "action levels" for triggering remediation or to set less stringent cleanup levels for a specific site after considering non-risk-based factors such as (ambient levels, detection limits, or technological feasibility). This practice recognizes that there may be a range of values that may be "acceptable" for carcinogenic risk (EPA's cancer risk range is from 10^{-6} to 10^{-4}). However, this practice could lead one to overlook serious noncancer health threats and it is strongly recommended that the user consult with a toxicologist or Regional risk assessor before doing this. For carcinogens, I have indicated by asterisk ("ca*") in the PRG table where the noncancer PRGs would be exceeded if the cancer value that is listed is multiplied by 100. Two stars ("ca**") indicate that the noncancer values would be exceeded if the cancer PRG were multiplied by 10. There is no range of "acceptable" noncarcinogenic "risk" so that under no circumstances should noncancer PRGs be multiplied by 10 or 100, when setting final cleanup criteria.

In general, PRG concentrations in the table are risk-based but for soil there are two important exceptions: (1) for several volatile chemicals, PRGs are based on the soil saturation equation ("sat") and (2) for relatively less toxic inorganic and semivolatile contaminants, a non-risk based "ceiling limit" concentration is given as 10^{+5} mg/kg ("max"). PRG concentrations that are not risk-based (i.e. either "sat" or "max") should be segregated before screening multiple

pollutant risks.

In addition to Region 9 PRGs, the PRG table also includes California EPA PRGs ("CAL-Modified PRGs") for specific chemicals where CAL-EPA values may be more restrictive than the federal values; and, soil screening levels (SSLs) for protection of groundwater (see Section 2.3 below).

2.2 Toxicity Values

EPA toxicity values, known as noncarcinogenic reference doses (RfD) and carcinogenic slope factors (SF) were obtained from IRIS through July 1996, HEAST through May 1995, and EPA's National Center for Environmental Assessment (NCEA, formerly ECAO). The priority among sources of toxicological constants used are as follows: (1) IRIS (indicated by "i"), (2) HEAST ("h"), (3) NCEA ("n"), and (4) withdrawn from IRIS or HEAST and under review ("x").

Route-to-route extrapolations ("r") were frequently used when there were no toxicity values available for a given route of exposure. Oral cancer slope factors ("SFo") and reference doses ("RfDo") were used for both oral and inhaled exposures for organic compounds lacking inhalation values. Inhalation slope factors ("SFi") and inhalation reference doses ("RfDi") were used for both inhaled and oral exposures for organic compounds lacking oral values. An additional route extrapolation is the use of oral toxicity values for evaluating dermal exposures. **Although route-to-route methods are a useful screening procedure, the appropriateness of these default assumptions for specific contaminants should be verified by a toxicologist.**

To help users rapidly identify substances with new PRGs, these contaminants are printed in boldface type. This version of the table contains revised toxicity values for acetaldehyde, chlorine cyanide, 1,3-dichlorobenzene, 2-dichloroethane, endosulfan, manganese, phosphoric acid, and 1,1,1-trichloroethane.

2.3 Soil Screening Levels

Generic soil screening levels (SSLs) for the protection of groundwater have been included in the PRG table for 100 of the most common contaminants at Superfund sites. Generic SSLs are derived using default values in standardized equations presented in *Soil Screening Guidance* (available from NTIS as document numbers PB96-963502 and PB96-963505 or EPA/540/R-95/128 and EPA/540/R-96/018).

The SSLs were developed using a default dilution-attenuation factor (DAF) of 20 to account for natural processes that reduce contaminant concentrations in the subsurface. Also included are generic SSLs that assume no dilution or attenuation between the source and the receptor well (i.e., a DAF of 1). These values can be used at sites where little or no dilution or attenuation of soil leachate concentrations is expected at a site (e.g., sites with shallow water

tables, fractured media, karst topography, or source size greater than 30 acres).

Generally, if an SSL is not exceeded for the migration to groundwater pathway, the user may eliminate this pathway from further investigation.

2.4 Miscellaneous

Volatile organic chemicals (VOCs) are indicated by "1" in the VOC column of the table and are defined as those chemicals having a Henry's Law constant greater than 10^{-5} (atm-m^3/mol) and a molecular weight less than 200 g/mole). These contaminants are evaluated for potential volatilization from soil / water to air using volatilization factors (see Section 4.1). Since the 1995 PRG table, 23 additional VOCs have been identified and evaluated for inhalation exposures resulting from intermedia transfer from soil and water to air. These are indicated in boldface type.

Chemical-specific dermal absorption values for contaminants in soil and dust are presented for arsenic, cadmium, pentachlorophenol, PCBs, and dioxin as recommended by EPA's Office of Research and Development (USEPA 1992a). Otherwise, default skin absorption fractions are assumed to be 0.01 and 0.10, for inorganics and organics, respectively.

3.0 USING THE PRG TABLE

The decision to use PRGs at a site will be driven by the potential benefits of having generic risk-based concentrations in the absence of site-specific risk assessments. The original intended use of PRGs was to provide initial cleanup goals for individual chemicals given specific medium and land-use combinations (see RAGS Part B, 1991), however risk-based PRGs actually have several uses in addition to providing initial goals. These include:

- Screening sites to determine further evaluation
- Prioritizing areas of concern at megasites (e.g. federal facilities)
- Calculating risks associated with multiple contaminants

A few basic procedures are recommended for using PRGs properly. These are briefly described below. Potential problems with the use of PRGs are also identified.

3.1 Developing a Conceptual Site Model

The primary condition for use of PRGs is that exposure pathways of concern and conditions at the site match those taken into account by the PRG framework. Thus, it is always necessary to develop a conceptual site model (CSM) to identify likely contaminant source areas, exposure pathways, and potential receptors. This information can be used to determine the applicability of PRGs at the site and the need for additional information. For those pathways not covered by PRGs, a risk assessment specific to these additional pathways may be necessary. Nonetheless, the PRG lookup values will still be useful in such situations for focusing further investigative efforts on the exposure pathways not addressed.

To develop a site-specific CSM, perform an extensive records search and compile existing data (e.g. available site sampling data, historical records, aerial photographs, and hydrogeologic information). Once this information is obtained, CSM worksheets such as those provided in ASTM's *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites* (1995) can be used to tailor the generic worksheet model to a site-specific CSM. The final CSM diagram represents linkages among contaminant sources, release mechanisms, exposure pathways and routes and receptors. It summarizes our understanding of the contamination problem.

As a final check, the CSM should answer the following questions:

- Are there potential ecological concerns?
- Is there potential for land use other than those covered by the PRGs (that is, residential and industrial)?
- Are there other likely human exposure pathways that were not considered in development of the PRGs (e.g. impact to groundwater, local fish consumption; raising beef, dairy, or other livestock)?
- Are there unusual site conditions (e.g. large areas of contamination, high fugitive dust levels, potential for indoor air contamination)?

If any of these four conditions exist, the PRG may need to be adjusted to reflect this new information. Suggested references for evaluating pathways not currently evaluated by Region 9 PRG's are presented in Exhibit 3-1.

EXHIBIT 3-1
SUGGESTED READINGS FOR EVALUATING SOIL CONTAMINANT PATHWAYS NOT CURRENTLY ADDRESSED BY REGION 9 PRGs

EXPOSURE PATHWAY	REFERENCE
Migration of contaminants to an underlying potable aquifer	*Soil Screening Guidance: User's Guide and Technical Background Document* (USEPA 1996a,b)
Ingestion via plant uptake	*Technical Support Document for Land Application of Sewage Sludge (USEPA 1992a)*
Ingestion via meat or dairy products	*Estimating Exposure to Dioxin-Like Compounds - Review Draft* (1994a)
Inhalation of volatiles that have migrated into basements	*Soil Screening Guidance: User's Guide and Technical Background Document* (USEPA 1996a,b)
Terrestrial environmental pathways	*Role of the Ecological Risk Assessment in the Baseline Risk Assessment* (USEPA 1994b)

3.2 Background Levels Evaluation

A necessary step in determining the usefulness of Region 9 PRGs is the consideration of background contaminant concentrations. EPA may be concerned with two types of background at sites: naturally occurring and anthropogenic. Natural background is usually limited to metals whereas anthropogenic (i.e. human-made) background includes both organic and inorganic contaminants. Before embarking on an extensive sampling and analysis program to determine local background concentrations in the area, one should first compile existing data on the subject. Far too often there is pertinent information in the literature that gets ignored, resulting in needless expenditures of time and money.

Generally EPA does not clean up below natural background. If natural background concentrations are higher than the PRGs, the generic PRGs may not be the best tool for site decisionmaking. Or, an adjustment of the PRG may be needed. For example, naturally occurring arsenic frequently is higher than the soil PRG set equal to a one-in-one-million cancer risk (the point of departure), thus an alternative PRG for arsenic is provided in the lookup tables based on non-cancer endpoints that is still protective of cancer risks as well (i.e. falls within EPA's "acceptable" risk range). Because of the problems associated with adjusting PRGs to an alternate risk level, this procedure is not recommended without first

consulting a staff toxicologist at state and / or federal regulatory agencies.

Where anthropogenic background levels exceed PRGs and EPA has determined that a response action is necessary and feasible, EPA's goal will be to develop a comprehensive response to the widespread contamination. This will often require coordination with different authorities that have jurisdiction over the sources of contamination in the area.

3.3 Risk Screening

A suggested stepwise approach for screening sites with PRGs is as follows:

- Perform an extensive records search and compile existing data.

- Identify site contaminants in the PRG Table. Record the PRG concentrations for various media and note whether PRG is based on cancer risk (indicated by "ca") or noncancer hazard (indicated by "nc"). Segregate cancer PRGs from non-cancer PRGs and exclude (but don't eliminate) non-risk based PRGs ("sat" or "max").

- For cancer risk estimates, take the site-specific concentration (maximum or 95 UCL) and divide by the PRG concentrations that are designated for cancer evaluation ("ca"). Multiply this ratio by 10^{-6} to estimate chemical-specific risk. For multiple pollutants, simply add the risk for each chemical :

$$Risk = [(\frac{conc_x}{PRG_x}) + (\frac{conc_y}{PRG_y}) + (\frac{conc_z}{PRG_z})] \times 10^{-6}$$

- For non-cancer hazard estimates. Divide concentration term by its respective non-cancer PRG designated as "nc" and sum the ratios for multiple contaminants. [Note that carcinogens may also have an associated non-cancer PRG that is not listed in the printed copy of the table and these will also need to be obtained in order to complete the non-cancer evaluation.] The non-cancer ratio represents a hazard index (HI). A hazard index of 1 or less is generally considered safe . A ratio greater than 1 suggests further evaluation:

$$Hazard\ Index = [(\frac{conc_x}{PRG_x}) + (\frac{conc_y}{PRG_y}) + (\frac{conc_z}{PRG_z})]$$

For more information on screening site risks, the reader should contact EPA Region 9's Technical Support Team.

3. 4 Potential Problems

As with any risk-based tool, the potential exists for misapplication. In most cases the root cause will be a lack of understanding of the intended use of Region 9 PRGs. In order to prevent misuse of PRGs, the following should be avoided:

- Applying PRGs to a site without adequately developing a conceptual site model that identifies relevant exposure pathways and exposure scenarios,
- Not considering background concentrations when choosing PRGs as cleanup goals,
- Use of PRGs as cleanup levels without the nine-criteria analysis specified in the National Contingency Plan (or, comparable analysis for programs outside of Superfund),
- Use of PRGs as cleanup levels without verifying numbers with a toxicologist,
- Use of antiquated PRG tables that have been superseded by more recent publications,
- Not considering the effects of additivity when screening multiple chemicals, and
- Adjusting PRGs upward by factors of 10 or 100 without consulting a toxicologist.

4.0 TECHNICAL SUPPORT DOCUMENTATION

Region 9 PRGs consider human exposure hazards to chemicals from contact with contaminated soils, air, and water. The emphasis of the PRG equations and technical discussion are aimed at developing initial goals for soils, since this is an area where few standards exist. For air and water, additional reference concentrations or standards are available for many chemicals (e.g. non-zero MCLGs, AWQC, and NAAQS) and consequently the discussion of these media are brief.

4.1 Inhalation of Volatiles and Fugitive Dusts

Agency toxicity criteria indicate that risks from exposure to some chemicals via inhalation far outweigh the risk via ingestion; therefore soil PRGs have been designed to address this pathway as well. The models used to calculate PRGs for inhalation of volatiles / particulates are updates of risk assessment methods presented in RAGS Part B (USEPA 1991a) and are consistent with the *Soil Screening Guidance: User's Guide and Technical Background*

Document (USEPA 1996a,b).

To address the soil-to-air pathways the PRG calculations incorporate volatilization factors (VF_s) for volatile contaminants and particulate emission factors (PEF) for nonvolatile contaminants. These factors relate soil contaminant concentrations to air contaminant concentrations that may be inhaled on-site. The VF_s and PEF equations can be broken into two separate models: an emission model to estimate emissions of the contaminant from the soil and a dispersion model to simulate the dispersion of the contaminant in the atmosphere.

It should be noted that the box model in RAGS Part B has been replaced with a dispersion term (Q/C) derived from a modeling exercise using meteorological data from 29 locations across the United States because the box model may not be applicable to a broad range of site types and meteorology and does not utilize state-of-the-art techniques developed for regulatory dispersion modeling. The dispersion model for both volatiles and particulates is the AREA-ST, an updated version of the Office of Air Quality Planning and Standards, Industrial Source Complex Model, ISC2. However, different Q/C terms are used in the VF and PEF equations. Los Angeles was selected as the 90th percentile data set for volatiles and Minneapolis was selected as the 90th percentile data set for fugitive dusts (USEPA 1996 a,b). A default source size of 0.5 acres was chosen for the PRG calculations. This is consistent with the default exposure area over which Region 9 typically averages contaminant concentrations in soils. If unusual site conditions exist such that the area source is substantially larger than the default source size assumed here, an alternative Q/C could be applied (see USEPA 1996a,b).

Volatilization Factor for Soils

Volatile chemicals, defined as those chemicals having a Henry's Law constant greater than 10^{-5} (atm-m^3/mol) and a molecular weight less than 200 g/mole, were screened for inhalation exposures using a volatilization factor for soils (VF_s). Please note that VF_s's are available in the electronic version of the PRG table.

The emission terms used in the VF_s are chemical-specific and were calculated from physical-chemical information obtained from a number of sources including *Superfund Exposure Assessment Manual* (SEAM, EPA 1988), *Subsurface Contamination Reference Guide* (EPA 1990a), *Fate and Exposure Data* (Howard 1991), and *Superfund Chemical Data Matrix* (USEPA 1994c). In those cases where Diffusivity Coefficients (Di) were not provided in existing literature, Di's were calculated using Fuller's Method described in SEAM. A surrogate term was required for some chemicals that lacked physico-chemical information. In these cases, a proxy chemical of similar structure was used that may over- or under-estimate the PRG for soils. Physico-chemical information is available in the electronic version of the PRG table. To access this information, the user should display the hidden columns in the table.

Equation 4-9 forms the basis for deriving generic soil PRGs for the inhalation pathway. The following parameters in the standardized equation can be replaced with specific site data to

develop a simple site-specific PRG

- Source area
- Average soil moisture content
- Average fraction organic carbon content
- Dry soil bulk density

The basic principle of the VF_s model is applicable only if the soil contaminant concentration is at or below soil saturation. Above this level, the model cannot predict an accurate VF_s. If the PRG calculated using VF_s was greater than the calculated "sat" (Equation 4-10), the PRG was set equal to "sat" in accordance with *Soil Screening Guidance* (USEPA 1996 a,b).

Volatilization Factor for Tap Water

For tap water, an upperbound volatilization constant (VF_w) is used that is based on all uses of household water (e.g showering, laundering, and dish washing). Certain assumptions were made. For example, it is assumed that the volume of water used in a residence for a family of four is 720 L/day, the volume of the dwelling is 150,000 L and the air exchange rate is 0.25 air changes/hour (Andelman in RAGS Part B). Furthermore, it is assumed that the average transfer efficiency weighted by water use is 50 percent (i.e. half of the concentration of each chemical in water will be transferred into air by all water uses). Note: the range of transfer efficiencies extends from 30% for toilets to 90% for dishwashers.

Particulate Emission Factor for Soils

Inhalation of chemicals adsorbed to respirable particles (PM_{10}) were assessed using a default PEF equal to 1.316×10^9 m^3/kg that relates the contaminant concentration in soil with the concentration of respirable particles in the air due to fugitive dust emissions from contaminated soils. The generic PEF was derived using default values in Equation 4-11, which corresponds to a receptor point concentration of approximately 0.76 ug/m^3. The relationship is derived by Cowherd (1985) for a rapid assessment procedure applicable to a typical hazardous waste site where the surface contamination provides a relatively continuous and constant potential for emission over an extended period of time (e.g. years). This represents an annual average emission rate based on wind erosion that should be compared with chronic health criteria; it is not appropriate for evaluating the potential for more acute exposures.

The impact of the PEF on the resultant PRG concentration (that combines soil exposure pathways for ingestion, skin contact, and inhalation) can be assessed by downloading the PRG tables and displaying the hidden columns. With the exception of specific heavy metals, the PEF does not appear to significantly affect most soil PRGs. Equation 4-11 forms the basis for deriving a generic PEF for the inhalation pathway. For more details regarding specific parameters used in the PEF model, the reader is referred to *Soil Screening Guidance: Technical Background Document* (USEPA 1996a).

Note: the generic PEF evaluates windborne emissions and does not consider dust emissions from traffic or other forms of mechanical disturbance that could lead to greater emissions than assumed here.

4.2 Dermal Contact with Contaminants in Soil

Much uncertainty surrounds the determination of hazards associated with skin contact with soils. One important data gap is the lack of EPA verified toxicity values for the dermal route. For screening purposes it is assumed that dermal toxicity values can be route-to-route extrapolated from oral values but this may not always be an appropriate assumption and should be checked.

Thus far, chemical-specific absorption values for skin have been recommended for only five chemicals (arsenic, cadmium, pentachlorophenol, PCBs, and dioxin) by EPA's Office of Research and Development. For all other chemicals, default absorption values for inorganics and organics are assumed to be 1 and 10 percent, respectively. At 10 % skin absorption, the dermal dose is estimated to equal an ingestion dose for adults, using the best estimate default values in *Dermal Exposure Assessment: Principles and Applications* (EPA 1992). At 1 % absorption, the dermal dose is estimated to be 10% of the oral dose (i.e. based on an adult ingestion rate of 100 mg per day). Note: worker and children intake rates (50 and 200 mg per day, respectively) yield somewhat different results.

dermal dose = ingestion dose

$$C_{soil} \times ABS \times AF \times SA = C_{soil} \times IR$$

$$ABS = \frac{(100 mg/day)}{[(0.2 mg/cm^2\text{-}day)(5000 cm^2)]} = 0.10$$

4.3 SSLs for the Migration to Groundwater Pathway

The methodology for calculating SSLs for the migration to groundwater was developed to identify chemical concentrations in soil that have the potential to contaminate groundwater. Migration of contaminants from soil to groundwater can be envisioned as a two-stage process: (1) release of contaminant in soil leachate and (2) transport of the contaminant through the underlying soil and aquifer to a receptor well. The SSL methodology considers both of these fate and transport mechanisms.

SSLs are backcalculated from acceptable ground water concentrations (i.e. nonzero MCLGs, MCLs, or risk-based PRGs). First, the acceptable groundwater concentration is multiplied by a dilution factor to obtain a target leachate concentration. For example, if the dilution factor

is 10 and the acceptable ground water concentration is 0.05 mg/L, the target soil leachate concentration would be 0.5 mg/L. The partition equation (presented in the *Soil Screening Guidance* document) is then used to calculate the total soil concentration (i.e. SSL) corresponding to this soil leachate concentration.

The SSL methodology was designed for use during the early stages of a site evaluation when information about subsurface conditions may be limited. Because of this constraint, the methodology is based on conservative, simplifying assumptions about the release and transport of contaminants in the subsurface. For more on SSLs, and how to calculate site-specific SSLs versus generic SSLs presented in the PRG table, the reader is referred to the *Soil Screening Guidance* document (USEPA 1996a,b).

4.4 Exposure Factors

Default exposure factors were obtained primarily from RAGS Supplemental Guidance Standard Default *Exposure Factors* (OSWER Directive, 9285.6-03) dated March 25, 1991 and more recent information from U.S. EPA's Office of Solid Waste and Emergency Response, U.S. EPA's Office of Research and Development, and California EPA's Department of Toxic Substances Control (see Exhibit 4-1).

Because contact rates may be different for children and adults, carcinogenic risks during the first 30 years of life were calculated using age-adjusted factors ("adj"). Use of age-adjusted factors are especially important for soil ingestion exposures, which are higher during childhood and decrease with age. However, for purposes of combining exposures across pathways, additional age-adjusted factors are used for inhalation and dermal exposures. These factors approximate the integrated exposure from birth until age 30 combining contact rates, body weights, and exposure durations for two age groups - small children and adults. Age-adjusted factors were obtained from RAGS PART B or developed by analogy (see derivations next page).

For soils only, noncarcinogenic contaminants are evaluated in children separately from adults. No age-adjustment factor is used in this case. The focus on children is considered protective of the higher daily intake rates of soil by children and their lower body weight. For maintaining consistency when evaluating soils, dermal and inhalation exposures are also based on childhood contact rates.

(1) ingestion([mg•yr]/[kg•d]:

$$IFS_{adj} = \frac{ED_c \times IRS_c}{BW_c} + \frac{(ED_r - ED_c) \times IRS_a}{BW_a}$$

(2) skin contact([mg•yr]/[kg•d]):

$$SFS_{adj} = \frac{ED_c \times AF \times SA_c}{BW_c} + \frac{(ED_r - ED_c) \times AF \times SA_a}{BW_a}$$

(3) inhalation ([m³•yr]/[kg•d]):

$$InhF_{adj} = \frac{ED_c \times IRA_c}{BW_c} + \frac{(ED_r - ED_c) \times IRA_a}{BW_a}$$

4.5 PRG Equations

The equations used to calculate the PRGs for carcinogenic and noncarcinogenic contaminants are presented in Equations 4-1 through 4-8. The PRG equations update RAGS Part B equations. Briefly, PRGs are risk assessments run in reverse. The methodology backcalculates a soil, air, or water concentration level from a target risk (for carcinogens) or hazard quotient (for noncarcinogens). For completeness, the soil equations combine risks from ingestion, skin contact, and inhalation simultaneously. Note: the electronic version of the table also includes pathway-specific PRGs, should the user decide against combining specific exposure pathways; or, the user wants to identify the relative contribution of each pathway to exposure.

To calculate PRGs for volatile chemicals in soil, a chemical-specific volatilization factor is calculated per Equation 4-9. Because of its reliance on Henry's law, the VF_s model is applicable only when the contaminant concentration in soil is at or below saturation (i.e. there is no free-phase contaminant present). Soil saturation ("sat") corresponds to the contaminant concentration in soil at which the adsorptive limits of the soil particles and the solubility limits of the available soil moisture have been reached. Above this point, pure liquid-phase contaminant is expected in the soil. If the PRG calculated using VF_s was greater than the calculated sat, the PRG was set equal to sat, in accordance with *Soil Screening Guidance* (USEPA 1996 a,b). The updated equation for deriving sat is presented in Equation 4-10.

EXHIBIT 4-1
STANDARD DEFAULT FACTORS

Symbol	Definition (units)	Default	Reference
CSFo	Cancer slope factor oral (mg/kg-d)-1	–	IRIS, HEAST, or NCEA
CSFI	Cancer slope factor inhaled (mg/kg-d)-1	–	IRIS, HEAST, or NCEA
RfDo	Reference dose oral (mg/kg-d)	–	IRIS, HEAST, or NCEA
RfDI	Reference dose inhaled (mg/kg-d)	–	IRIS, HEAST, or NCEA
TR	Target cancer risk	10^{-4}	–
THQ	Target hazard quotient	1	–
BWa	Body weight, adult (kg)	70	RAGS (Part A), EPA 1989 (EPA/540/1-89/002)
BWc	Body weight, child (kg)	15	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
ATc	Averaging time - carcinogens (days)	25550	RAGS(Part A), EPA 1989 (EPA/540/1-89/002)
ATn	Averaging time - noncarcinogens (days)	ED*365	
SAa	25% Surface area, adult (cm^2/day)	5000	Dermal Assessment, EPA 1992 (EPA/600/8-91/011B)
SAc	25% Surface area, child (cm^2/day)	2000	Dermal Assessment, EPA 1992 (EPA/ 600/8-9/011B)
AF	Adherence factor (mg/cm^2)	0.2	Dermal Assessment, EPA 1992 (EPA/ 600/8-9/011B)
ABS	Skin absorption (unitless):		
	– organics	0.1	PEA, Cal-EPA (DTSC, 1994)
	–inorganics	0.01	PEA, Cal-EPA (DTSC, 1994)
IRAa	Inhalation rate - adult (m^3/day)	20	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
IRAc	Inhalation rate - child (m^3/day)	10	RAGS (Part A), EPA 1989 (EPA/540/1-89/002)
IRWa	Drinking water ingestion - adult (L/day	2	RAGS(Part A), EPA 1989 (EPA/540/1-89/002)
IRWc	Drinking water ingestion - child (L/day)	1	PEA, Cal-EPA (DTSC, 1994)
IRSa	Soil ingestion - adult (mg/day)	100	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
IRSc	Soil ingestion - child (mg/day),	200	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
IRSo	Soil ingestion - occupational (mg/day)	50	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
EFr	Exposure frequency - residential (d/y)	350	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
EFo	Exposure frequency - occupational (d/y)	250	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
EDr	Exposure duration - residential (years)	30*	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
EDc	Exposure duration - child (years)	6	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
EDo	Exposure duration - occupational (years)	25	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
	Age-adjusted factors for carcinogens:		
IFSadj	Ingestion factor, soils ([mg•yr]/[kg•d])	114	RAGS(Part B) , EPA 1991 (OSWER No. 9285.7-01B)
SFSadj	Skin contact factor, soils ([mg•yr]/[kg•d])	503	By analogy to RAGS (Part B)
InhFadj	Inhalation factor ([m^3•yr]/[kg•d])	11	By analogy to RAGS (Part B)
IFWadj	Ingestion factor, water ([l•yr]/[kg•d])	1.1	By analogy to RAGS (Part B)
VFw	Volatilization factor for water (L/m^3)	0.5	RAGS(Part B) , EPA 1991 (OSWER No. 9285.7-01B)
PEF	Particulate emission factor (m^3/kg)	See below	Soil Screening Guidance (EPA 1996a,b)
VFs	Volatilization factor for soil (m^3/kg)	See below	Soil Screening Guidance (EPA 1996a,b)
sat	Soil saturation concentration (mg/kg)	See below	Soil Screening Guidance (EPA 1996a,b)

Footnote:
*Exposure duration for lifetime residents is assumed to be 30 years total. For carcinogens, exposures are combined for children and adults (24 years) .

PRG EQUATIONS

Soil Equations: For soils, equations were based on three exposure routes (ingestion, skin contact, and inhalation).

Equation 4-1: Combined Exposures to Carcinogenic Contaminants in Residential Soil

$$C(mg/kg) = \frac{TR \times AT_c}{EF_r \left[\left(\frac{IFS_{adj} \times CSF_o}{10^6 mg/kg} \right) + \left(\frac{SFS_{adj} \times ABS \times CSF_o}{10^6 mg/kg} \right) + \left(\frac{InhF_{adj} \times CSF_i}{VF_s^a} \right) \right]}$$

Equation 4-2: Combined Exposures to Noncarcinogenic Contaminants in Residential Soil

$$C(mg/kg) = \frac{THQ \times BW_c \times AT_n}{EF_r \times ED_c \left[\left(\frac{1}{RfD_o} \times \frac{IRS_c}{10^6 mg/kg} \right) + \left(\frac{1}{RfD_o} \times \frac{SA_c \times AF \times ABS}{10^6 mg/kg} \right) + \left(\frac{1}{RfD_i} \times \frac{IRA_c}{VF_s^a} \right) \right]}$$

Equation 4-3: Combined Exposures to Carcinogenic Contaminants in Industrial Soil

$$C(mg/kg) = \frac{TR \times BW_a \times AT_c}{EF_o \times ED_o \left[\left(\frac{IRS_o \times CSF_o}{10^6 mg/kg} \right) + \left(\frac{SA_a \times AF \times ABS \times CSF_o}{10^6 mg/kg} \right) + \left(\frac{IRA_a \times CSF_i}{VF_s^a} \right) \right]}$$

Equation 4-4: Combined Exposures to Noncarcinogenic Contaminants in Industrial Soil

$$C(mg/kg) = \frac{THQ \times BW_a \times AT_n}{EF_o \times ED_o \left[\left(\frac{1}{RfD_o} \times \frac{IRS_o}{10^6 mg/kg} \right) + \left(\frac{1}{RfD_o} \times \frac{SA_a \times AF \times ABS}{10^6 mg/kg} \right) + \left(\frac{1}{RfD_i} \times \frac{IRA_a}{VF_s^a} \right) \right]}$$

Footnote:
[a]Use VF_s for volatile chemicals (defined as having a Henry's Law Constant [atm-m^3/mol] greater than 10^{-6} and a molecular weight less tha 200 grams/mol) or PEF for non-volatile chemicals.

Tap Water Equations:

Equation 4-5: Ingestion and Inhalation Exposures to Carcinogenic Contaminants in Water

$$C(ug/L) = \frac{TR \times AT_c \times 1000ug/mg}{EF_r\ [(IFW_{adj} \times CSF_o) + (VF_w \times InhF_{adj} \times CSF_i)]}$$

Equation 4-6: Ingestion and Inhalation Exposures to Noncarcinogenic Contaminants in Water

$$C(ug/L) = \frac{THQ \times BW_a \times AT_n \times 1000ug/mg}{EF_r \times ED_r\ [(\frac{IRW_a}{RfD_o}) + (\frac{VF_w \times IRA_a}{RfD_i})]}$$

Air Equations:

Equation 4-7: Inhalation Exposures to Carcinogenic Contaminants in Air

$$C(ug/m^3) = \frac{TR \times AT_c \times 1000ug/mg}{EF_r \times InhF_{adj} \times CSF_i}$$

Equation 4-8: Inhalation Exposures to Noncarcinogenic Contaminants in Air

$$C(ug/m^3) = \frac{THQ \times RfD_i \times BW_a \times AT_n \times 1000ug/mg}{EF_r \times ED_r \times IRA_a}$$

SOIL-TO-AIR VOLATILIZATION FACTOR (VF_s)

Equation 4-9: Derivation of the Volatilization Factor

$$VF_s(m^3/kg) = (Q/C) \times \frac{(3.14 \times D_\lambda \times T)^{1/2}}{(2 \times \rho_b \times D_\lambda)} \times 10^{-4}(m^2/cm^2)$$

where:

$$D_\lambda = \frac{[(\Theta_a^{10/3} D_i H' + \Theta_w^{10/3} D_w)/n^2]}{\rho_B K_d + \Theta_w + \Theta_a H'}$$

Parameter	Definition (units)	Default
VF_s	Volatilization factor (m^3/kg)	–
D_λ	Apparent diffusivity (cm^2/s)	–
Q/C	Inverse of the mean conc. at the center of a 0.5-acre square source (g/m^2-s per kg/m^3)	68.81
T	Exposure interval (s)	9.5×10^8
ρ_b	Dry soil bulk density (g/cm^3)	1.5
Θ_a	Air filled soil porosity (L_{air}/L_{soil})	0.28 or n-Θ_w
n	Total soil porosity (L_{pore}/L_{soil})	0.43 or 1 - (ρ_b/ρ_s)
Θ_w	Water-filled soil porosity (L_{water}/L_{soil})	0.15
ρ_s	Soil particle density (g/cm^3)	2.65
Di	Diffusivity in air (cm^2/s)	Chemical-specific
H	Henry's Law constant (atm-m^3/mol)	Chemical-specific
H'	Dimensionless Henry's Law constant	Calculated from H by multiplying by 41 (USEPA 1991a)
D_w	Diffusivity in water (cm^2/s)	Chemical-specific
K_d	Soil-water partition coefficient (cm^3/g) = $K_{oc}f_{oc}$	Chemical-specific
K_{oc}	Soil organic carbon-water partition coefficient (cm^3/g)	Chemical-specific
f_{oc}	Fraction organic carbon in soil (g/g)	0.006 (0.6%)

SOIL SATURATION CONCENTRATION (sat)

Equation 4-10: Derivation of the Soil Saturation Limit

$$sat = \frac{S}{\rho_b} \left(K_d \rho_b + \Theta_w + H' \Theta_a\right)$$

Parameter	Definition (units)	Default
sat	Soil saturation concentration (mg/kg)	–
S	Solubility in water (mg/L-water)	Chemical-specific
ρ_b	Dry soil bulk density (kg/L)	1.5
n	Total soil porosity (L_{pore}/L_{soil})	0.43 or 1 - (ρ_b/ρ_s)
ρ_s	Soil particle density (kg/L)	2.65
K_d	Soil-water partition coefficient (L/kg)	K_{oc} x f_{oc} (chemical-specific)
k_{oc}	Soil organic carbon/water partition coefficient (L/kg)	Chemical-specific
f_{oc}	Fraction organic carbon content of soil (g/g)	0.006 or site-specific
Θ_w	Water-filled soil porosity (L_{water}/L_{soil})	0.15
Θ_a	,il porosity (L_{air}/L_{soil})	0.28 or n-Θ_w
w	, soil moisture content $_w$/kg_{soil} or L_{water}/kg_{soil})	0.1
H	ıry's Law constant (atm-m^3/mol)	Chemical-specific
H'	,ensionless Henry's Law constant	H x 41, where 41 is a units conversion factor

SOIL-TO-AIR PARTICULATE EMISSION FACTOR (PEF)

Equation 4-11: Derivation of the Particulate Emission Factor

$$PEF(m^3/kg) = Q/C \times \frac{3600 s/h}{0.036 \times (1-V) \times (U_m/U_t)^3 \times F(x)}$$

Parameter	Definition (units)	Default
PEF	Particulate emission factor (m^3/kg)	1.316×10^8
Q/C	Inverse of the mean concentration at the center of a 0.5-acre-square source (g/m^2-s per kg/m^3)	90.80
V	Fraction of vegetative cover (unitless)	0.5
U_m	Mean annual windspeed (m/s)	4.69
U_t	Equivalent threshold value of windspeed at 7 m (m/s)	11.32
F(x)	Function dependent on U_m/U_t derived using Cowherd (1985) (unitless)	0.194

REFERENCES

ASTM. 1995. *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites.* Designation E 1739 - 95. Philadelphia, Pennsylvania.

California EPA. 1994. *Preliminary Endangerment Assessment Guidance Manual.* Department of Toxic Substances Control, Sacramento, California.

Cowherd, C., G. Muleski, P. Engelhart, and D. Gillette. 1985. *Rapid Assessment of Exposure to Particulat Emission from Surface Contamination.* EPA/600/8-85/002. Prepared for Office of Health and Environmental Assessment, U.S. Environmental Protection Agency, Washington, DC. NTIS PB85-192219 7AS.

Howard, P.H. 1990. *Handbook of Environmental Fate and Exposure Data for Organic Chemicals.* Lewis Publishers, Chelsea Michigan.

U.S. EPA. 1988. *Superfund Exposure Assessment Manual.* EPA/540/1-88/001. Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA. 1990a. *Subsurface Contamination Reference Guide.* EPA/540/2-90/011. Office of Emergency Remedial Response, Washington, DC.

U.S. EPA 1990b. *Exposure Factors Handbook.* EPA/600/8089/043. Office of Health and Environment Assessment, Washington, DC.

U.S. EPA. 1991a. *Risk Assessment Guidance for Superfund Volume 1: Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals).* Publication 9285.7-01B. Office of Emergency and Remedial Response, Washington, DC. NTIS PB92-963333.

U.S. EPA. 1991b. *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors.* Publication 9285.6-03. Office of Emergency and Remedial Response, Washington, DC. NTI PB91-921314.

U.S. EPA. 1992a *Technical Support Document for Land Application of Sewage Sludge; Volumes I and II.* Offic of Water, Washington, DC. 822/R-93-001a,b.

U.S. EPA. 1992b *Dermal Exposure Assessment: Principles and Applications.* EPA/600/8-91/011B. Office of Health and Environmental Assessment, Washington, DC.

U.S. EPA 1994a. *Estimating Exposure to Dioxin-Like Compounds.* U.S. EPA Office of Research and Development, EPA/600/6-88/005B.

U.S. EPA 1994b. *Role of Ecological Assessment in the Baseline Risk Assessment.* OSWER Directive No. 9285.7-17. Office of Solid Waste and Emergency Response, Washington, DC.

U.S. EPA 1994c. *Superfund Chemical Data Matrix.* EPA/540/R-94/009. Office of Solid Waste and Emergenc Response, Washington, DC. PB94-963506.

U.S. EPA. 1995. *Health Effects Assessment Summary Tables* (HEAST): Annual Update, FY 1994. Environmental Criteria Assessment Office, Office of Health and Environmental Assessment, Office Research and Development, Cincinnati, OH.

U.S. EPA. 1996a. *Soil Screening Guidance: Technical Background Document.* EPA/540/R-95/128. Office o Emergency and Remedial Response, Washington, DC. PB96-963502.

U.S. EPA. 1996b. *Soil Screening Guidance: User's Guide.* EPA/540/R-96/018. Office of Emergency and Remedial Response, Washington, DC. PB96-963505.

U.S. EPA. 1996c. *Integrated Risk Information System* (IRIS). Duluth, MN.

APPENDIX F

CH2M HILL COLLECTED DUPLICATE SAMPLE ANALYSES

CLi Testing and Data Management Services

Analytical Report

1101 Richfield Road ▪ Placentia, CA 92870 ▪ (714) 572-3270 ▪ Fax (714) 572-3274

CASE NARRATIVE

SDG #: 9803.0132-HB

REPORT DATE: 4/14/98

REPORTED TO: CH2M HILL
3 HUTTON CENTRE DRIVE
SUITE 200
SANTA ANA, CA 92707

ATTN.: MR. ROB LOWEY

PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

DATE SAMPLED: 3/19-20/98
DATE RECEIVED: 3/20/98
 # OF SAMPLES: 13
SAMPLE MATRIX: SOIL, WATER
CLIENT SAMPLE ID:

SOIL	WATER	
HG20-01/CH	HG068-10-W/CH	HG20-10-W/CH
HG20-02/CH	HG08-10-W/CH	HG20-11-W/CH
HG19-01/CH	HG05-10-W/CH	HG19-10-W/CH
HG19-02/CH	HG05-11-W/CH	EB0320/CH
HG19-03/CH		

NOTE: All metals are on hold as per client request.

IMPORTANT

Holding time has been exceeded for 8260A soil samples. Data is hereby released at no charge. Data may be used as an approximate value. The water samples were run within holding time.

SAMPLE HANDLING & CONTROL STATEMENT

The above mentioned samples were received in appropriate containers accompanied by a fully signed and dated chain-of-custody record. The containers were assigned unique identification numbers and had sufficient amount for the test requested unless otherwise noted in the accompanying laboratory report. The ice chest(s) were received under appropriate custody seals. There were no site specific quality control requirements made at the time of sample submittal.

QUALITY CONTROL SUMMARY STATEMENT

Laboratory Quality Control parameters and results of instrument calibration standards were all within control limits and the analytical data hereby submitted falls within acceptable limits of accuracy and precision unless otherwise indicated. Please see the Quality Control Data submitted in this report for additional information. In addition, necessary information regarding instrument calibration, MS/MSD, LCS/LCSD, method blank, and all other pertinent Quality Control measures are hereby enclosed for review.

SUBMITTED BY:

Girma Selassie
Director

CERTIFICATE OF APPROVED ANALYSIS

The information contained in this cover sheet is an integral part of the attached analytical report.

DOHS Lab Certificate #: 1552
Expiration Date: June 30, 1999

A2LA Certificate #: 0389.01
Expiration Date: September 30, 1996 (Re-Accreditation in process)

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CLi Testing and Data Management Services
1101 Richfield Road ▪ Placentia, CA 92870 ▪ (714) 572-3270 ▪ Fax (714) 572-3274

Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES
ATTN.: MR. ROB LOWEY

SDG #: 9803.0132-HB

PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX: LIQUID
UNIT: µg/l

Prepared: 3/20/98
Analyzed: 4/2/98
Analyst: DLB

VOLATILE ORGANICS, 8260A

COMPOUNDS	Lab ID: / Client Sample ID: / D.F.	CL0669B Method Blank 1	CL15131 HG08-10-W/CH 1	CL15132 HG05-10-W/CH 1	CL15133 HG05-11-W/CH 1	CL15134 HG20-10-W/CH 1	Reporting Limit
1,1,1,2-tetrachloroethane		ND	ND	ND	ND	ND	1.0
1,1,2,2-tetrachloroethane		ND	ND	ND	ND	ND	1.0
1,1,1-trichloroethane		ND	ND	ND	ND	ND	1.0
1,1,2-trichloroethane		ND	ND	ND	ND	ND	1.0
1,2,3-trichlorobenzene		ND	ND	ND	ND	ND	1.0
1,2,3-trichloropropane		ND	ND	ND	ND	ND	1.0
1,2,4-trichlorobenzene		ND	ND	ND	ND	ND	1.0
1,2,4-trimethylbenzene		ND	ND	ND	ND	ND	1.0
1,3,5-trimethylbenzene		ND	ND	ND	ND	ND	1.0
1,1-dichloroethane		ND	ND	1.1	1.1	ND	1.0
1,1-dichloroethene		ND	ND	ND	ND	ND	1
1,1-dichloropropene		ND	ND	ND	ND	ND	
1,2-dibromo-3-chloro-propane (DBCP)		ND	ND	ND	ND	ND	20
1,2-dibromoethane (EDB)		ND	ND	ND	ND	ND	1.0
1,2-dichlorobenzene		ND	ND	ND	ND	ND	1.0
1,2-dichloroethane		ND	ND	ND	ND	ND	1.0
1,2-dichloropropane		ND	ND	ND	ND	ND	1.0
1,3-dichlorobenzene		ND	ND	ND	ND	ND	1.0
1,3-dichloropropane		ND	ND	ND	ND	ND	1.0
1,4-dichlorobenzene		ND	ND	ND	ND	ND	1.0
2,2-dichloropropane		ND	ND	ND	ND	ND	1.0
2-butanone		ND	ND	ND	ND	ND	5.0
2-chloroethyl vinyl ether		ND	ND	ND	ND	ND	10
2-chlorotoluene		ND	ND	ND	ND	ND	1.0
2-hexanone		ND	ND	ND	ND	ND	5.0
4-chlorotoluene		ND	ND	ND	ND	ND	1.0
4-methyl-2-pentanone		ND	ND	ND	ND	ND	5.0
acetone		ND	ND	ND	ND	ND	10
benzene		ND	ND	ND	ND	ND	1.0
bromobenzene		ND	ND	ND	ND	ND	1.0
bromochloromethane		ND	ND	ND	ND	ND	1.0
bromodichloromethane		ND	ND	ND	ND	ND	1.0
bromoform		ND	ND	ND	ND	ND	1.0
bromomethane		ND	ND	ND	ND	ND	2.0
carbon disulfide		ND	ND	ND	ND	ND	5
carbon tetrachloride		ND	ND	ND	ND	ND	1.0
chlorobenzene		ND	ND	ND	ND	ND	1.0
chloroethane		ND	ND	ND	ND	ND	2.0
chloroform		ND	ND	ND	ND	ND	

Continued on next page...

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES

ATTN.: MR. ROB LOWEY

SDG #: 9803.0132-HB

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX:	LIQUID
UNIT:	µg/l

Prepared:	3/20/98
Analyzed:	4/2/98
Analyst:	DLB

VOLATILE ORGANICS, 8260A Continued...

COMPOUNDS	Lab ID: / Client Sample ID: / D.F.	CL06698 Method Blank 1	CL15131 HG08-10-W/CH 1	CL15132 HG05-10-W/CH 1	CL15133 HG05-11-W/CH 1	CL15134 HG20-10-W/CH 1	Reporting Limit
chloromethane		ND	ND	ND	ND	ND	2.0
cis-1,2-dichloroethene		ND	ND	44	43	ND	0.50
cis-1,3-dichloropropene		ND	ND	ND	ND	ND	1.0
dibromochloromethane		ND	ND	ND	ND	ND	1.0
dibromomethane		ND	ND	ND	ND	ND	1.0
dichlorodifluoromethane		ND	ND	ND	ND	ND	2.0
dichlorofluoromethane		ND	ND	ND	ND	ND	1.0
ethylbenzene		ND	ND	ND	ND	ND	1.0
hexachlorobutadiene		ND	ND	ND	ND	ND	1.0
isopropylbenzene		ND	ND	ND	ND	ND	1.0
isopropyltoluene		ND	ND	ND	ND	ND	0.50
m-&p-xylenes		ND	ND	ND	ND	ND	5.0
methylene chloride		ND	ND	ND	ND	ND	20
methyl t-butyl ether [mtbe]		ND	ND	ND	ND	ND	1.0
n-butylbenzene		ND	ND	ND	ND	ND	1.0
n-propylbenzene		ND	ND	ND	ND	ND	1.0
naphthalene		ND	ND	ND	ND	ND	0.50
o-xylene		ND	ND	ND	ND	ND	1.0
sec-butylbenzene		ND	ND	ND	ND	ND	1.0
tetrachloroethene		ND	ND	ND	ND	ND	1.0
toluene		ND	ND	ND	ND	ND	1.0
trans-1,2-dichloroethene		ND	ND	16	16	ND	0.50
trans-1,3-dichloropropene		ND	ND	ND	ND	ND	1.0
trichloroethene		ND	ND	ND	ND	ND	1.0
trichlorofluoromethane		ND	ND	ND	ND	ND	2.0
vinyl acetate		ND	ND	ND	ND	ND	10
vinyl chloride		ND	ND	ND	ND	ND	2.0

SURROGATE SPIKE	% SURROGATE RECOVERY					Control Limit
dibromofluoromethane	103	103	105	104	105	80-120
toluene-d8	98	96	98	97	97	80-120
4-bromofluorobenzene	92	87	84	86	89	80-120

NOTES:

ND denotes Not Detected at the indicated Reporting limit.

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES
ATTN.: MR. ROB LOWEY

SDG #: 9803.0132-HB

PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX: LIQUID
UNIT: µg/l

Prepared: 3/20/98
Analyzed: 4/2/98
Analyst: DLB

VOLATILE ORGANICS, 8260A

COMPOUNDS	Lab ID: CL15135	CL15138	CL15142	Reporting Limit
	Client Sample ID: HG20-11-W/CH	HG19-10-W/CH	EB0320/CH	
	D.F. 1	1	1	
1,1,1,2-tetrachloroethane	ND	ND	ND	1.0
1,1,2,2-tetrachloroethane	ND	ND	ND	1.0
1,1,1-trichloroethane	ND	ND	ND	1.0
1,1,2-trichloroethane	ND	ND	ND	1.0
1,2,3-trichlorobenzene	ND	ND	ND	1.0
1,2,3-trichloropropane	ND	ND	ND	1.0
1,2,4-trichlorobenzene	ND	ND	ND	1.0
1,2,4-trimethylbenzene	ND	ND	ND	1.0
1,3,5-trimethylbenzene	ND	ND	ND	1.0
1,1-dichloroethane	ND	ND	ND	1.0
1,1-dichloroethene	ND	ND	ND	1.0
1,1-dichloropropene	ND	ND	ND	
1,2-dibromo-3-chloro-propane (DBCP)	ND	ND	ND	20
1,2-dibromoethane (EDB)	ND	ND	ND	1.0
1,2-dichlorobenzene	ND	ND	ND	1.0
1,2-dichloroethane	ND	ND	ND	1.0
1,2-dichloropropane	ND	ND	ND	1.0
1,3-dichlorobenzene	ND	ND	ND	1.0
1,3-dichloropropane	ND	ND	ND	1.0
1,4-dichlorobenzene	ND	ND	ND	1.0
2,2-dichloropropane	ND	ND	ND	1.0
2-butanone	ND	ND	ND	5.0
2-chloroethyl vinyl ether	ND	ND	ND	10
2-chlorotoluene	ND	ND	ND	1.0
2-hexanone	ND	ND	ND	5.0
4-chlorotoluene	ND	ND	ND	1.0
4-methyl-2-pentanone	ND	ND	ND	5.0
acetone	ND	ND	ND	10
benzene	ND	ND	ND	1.0
bromobenzene	ND	ND	ND	1.0
bromochloromethane	ND	ND	ND	1.0
bromodichloromethane	ND	ND	ND	1.0
bromoform	ND	ND	ND	1.0
bromomethane	ND	ND	ND	2.0
carbon disulfide	ND	ND	ND	5
carbon tetrachloride	ND	ND	ND	1.0
chlorobenzene	ND	ND	ND	1.0
chloroethane	ND	ND	ND	
chloroform	ND	ND	ND	

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Testing and Data Management Services

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES

ATTN.: MR. ROB LOWEY

SDG #: 9803.0132-HB

PROJECT #: 137125.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX:	LIQUID
UNIT:	µg/l

Prepared:	3/20/98
Analyzed:	4/2/98
Analyst:	DLB

VOLATILE ORGANICS, 8260A Continued...

COMPOUNDS	Lab ID: CL15135	CL15138	CL15142	Reporting Limit
	Client Sample ID: HG20-11-W/CH	HG19-10-W/CH	EB0320/CH	
	D.F. 1	1	1	
chloromethane	ND	ND	ND	2.0
cis-1,2-dichloroethene	ND	ND	ND	0.50
cis-1,3-dichloropropene	ND	ND	ND	1.0
dibromochloromethane	ND	ND	ND	1.0
dibromomethane	ND	ND	ND	1.0
dichlorodifluoromethane	ND	ND	ND	2.0
dichlorofluoromethane	ND	ND	ND	1.0
ethylbenzene	ND	ND	ND	1.0
hexachlorobutadiene	ND	ND	ND	1.0
isopropylbenzene	ND	ND	ND	1.0
isopropyltoluene	ND	ND	ND	0.50
m-&p-xylenes	ND	ND	ND	5.0
methylene chloride	ND	ND	ND	20
methyl t-butyl ether [mtbe]	ND	ND	ND	1.0
n-butylbenzene	ND	ND	ND	1.0
n-propylbenzene	ND	ND	ND	1.0
naphthalene	ND	ND	ND	0.50
o-xylene	ND	ND	ND	1.0
sec-butylbenzene	ND	ND	ND	1.0
tetrachloroethene	ND	ND	ND	1.0
toluene	ND	ND	ND	1.0
trans-1,2-dichloroethene	ND	ND	ND	0.50
trans-1,3-dichloropropene	ND	ND	ND	1.0
trichloroethene	ND	ND	ND	1.0
trichlorofluoromethane	ND	ND	ND	2.0
vinyl acetate	ND	ND	ND	10
vinyl chloride	ND	ND	ND	2.0

SURROGATE SPIKE	% SURROGATE RECOVERY			Control Limit
dibromofluoromethane	107	97	102	80-120
toluene-d8	99	98	97	80-120
4-bromofluorobenzene	88	89	88	80-120

NOTES:

ND denotes Not Detected at the indicated Reporting limit.

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES
ATTN.: MR. ROB LOWEY

SDG #: 9803.0132-HB

PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX: LIQUID
UNIT: µg/l

Prepared: 3/20/98
Analyzed: 4/2/98
Analyst: DLB

QUALITY CONTROL DATA, 8260A

LABORATORY CONTROL STANDARD/DUPLICATE	SPK CONC. (µg/l)	LCS (µg/l)	LCSD (µg/l)	% LCS	% LCSD	ACP % LCS	RPD	ACP % RPD
	ACCURACY						PRECISION	
1,1-dichloroethene	50.0	50.5	48.3	101	97	61-145	5	0-20
mtbe	50.0	55.1	53.4	110	107	76-127	3	0-15
benzene	50.0	48.9	48.8	98	98	71-120	0	0-20
trichloroethene	50.0	49.1	48.9	98	98	76-125	0	0-18
toluene	50.0	49.3	49.8	98	99	75-130	1	0-18
chlorobenzene	50.0	49.4	49.3	99	99	60-145	0	0-20

AUDIT DATA	LAB ID	BATCH #	QC STD #	ANALYZED
	LABORATORY CONTROL STD.	BB00395	152 EPA 8260 STD	4/2/98

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE	SPK CONC. (µg/l)	MS (µg/l)	MSD (µg/l)	% MS	% MSD	ACP % MS	RPD	ACP % RPD
	ACCURACY						PRECISION	
1,1-dichloroethene	50.0	50.7	49.6	101	99	61-145	2	0-20
mtbe	50.0	43.1	43.4	86	86	76-127	1	0-15
benzene	50.0	48.8	48.8	97	97	71-120	0	0-20
trichloroethene	50.0	50.5	49.5	101	99	76-125	2	0-18
toluene	50.0	49.6	50.2	99	100	75-130	1	0-18
chlorobenzene	50.0	48.7	49.2	97	98	60-145	1	0-20

AUDIT DATA	LAB ID	SAMPLE ID	BATCH #	QC STD #	ANALYZED
	CL06481S.D	AG3B2-10-W/CH	BB00376	141 EPA 8260 STD	3/21/98

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES
ATTN.: MR. ROB LOWEY

SDG #: 9803.0132-HB

PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX: SOIL
UNIT: µg/kg

Prepared: 4/7/98
Analyzed: 4/7/98
Analyst: DLB

VOLATILE ORGANICS, 8260A

COMPOUNDS	Lab ID: CL067698	CL15136	CL15137	CL15139	CL15140	Reporting Limit
Client Sample ID:	Method Blank	HG20-01/CH	HG20-02/CH	HG19-01/CH	HG19-02/CH	
D.F.	1	1	1	1	1	
1,1,1,2-tetrachloroethane	ND	ND	ND	ND	ND	5.0
1,1,2,2-tetrachloroethane	ND	ND	ND	ND	ND	5.0
1,1,1-trichloroethane	ND	ND	ND	ND	ND	5.0
1,1,2-trichloroethane	ND	ND	ND	ND	ND	5.0
1,2,3-trichlorobenzene	ND	ND	ND	ND	ND	5.0
1,2,3-trichloropropane	ND	ND	ND	ND	ND	5.0
1,2,4-trichlorobenzene	ND	ND	ND	ND	ND	5.0
1,2,4-trimethylbenzene	ND	ND	ND	ND	ND	5.0
1,3,5-trimethylbenzene	ND	ND	ND	ND	ND	5.0
1,1-dichloroethane	ND	ND	ND	ND	ND	5.0
1,1-dichloroethene	ND	ND	ND	ND	ND	5.0
1,1-dichloropropene	ND	ND	ND	ND	ND	5.0
1,2-dibromo-3-chloro-propane (DBCP)	ND	ND	ND	ND	ND	10
1,2-dibromoethane (EDB)	ND	ND	ND	ND	ND	5.0
1,2-dichlorobenzene	ND	ND	ND	ND	ND	5.0
1,2-dichloroethane	ND	ND	ND	ND	ND	5.0
1,2-dichloropropane	ND	ND	ND	ND	ND	5.0
1,3-dichlorobenzene	ND	ND	ND	ND	ND	5.0
1,3-dichloropropane	ND	ND	ND	ND	ND	5.0
1,4-dichlorobenzene	ND	ND	ND	ND	ND	5.0
2,2-dichloropropane	ND	ND	ND	ND	ND	5.0
2-butanone	ND	ND	ND	ND	ND	10
2-chloroethyl vinyl ether	ND	ND	ND	ND	ND	10
2-chlorotoluene	ND	ND	ND	ND	ND	5.0
2-hexanone	ND	ND	ND	ND	ND	10
4-chlorotoluene	ND	ND	ND	ND	ND	5.0
4-methyl-2-pentanone	ND	ND	ND	ND	ND	10
acetone	ND	ND	ND	ND	ND	20
benzene	ND	ND	ND	ND	ND	5.0
bromobenzene	ND	ND	ND	ND	ND	5.0
bromochloromethane	ND	ND	ND	ND	ND	5.0
bromodichloromethane	ND	ND	ND	ND	ND	5.0
bromoform	ND	ND	ND	ND	ND	5.0
bromomethane	ND	ND	ND	ND	ND	10
carbon disulfide	ND	ND	ND	ND	ND	5.0
carbon tetrachloride	ND	ND	ND	ND	ND	5.0
chlorobenzene	ND	ND	ND	ND	ND	5.0
chloroethane	ND	ND	ND	ND	ND	10
chloroform	ND	ND	ND	ND	ND	5.0

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CLI Testing and Data Management Services

Analytical Report

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CLIENT: CH2M HILL ANALYTICAL SERVICES

ATTN.: MR. ROB LOWEY

SDG #: 9803.0132-HB

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX: SOIL
UNIT: µg/kg

Prepared: 4/7/98
Analyzed: 4/7/98
Analyst: DLB

VOLATILE ORGANICS, 8260A Continued...

COMPOUNDS	Lab ID: CL067698 Client Sample ID: Method Blank D.F. 1	CL15136 HG20-01/CH 1	CL15137 HG20-02/CH 1	CL15139 HG19-01/CH 1	CL15140 HG19-02/CH 1	Reporting Limit
chloromethane	ND	ND	ND	ND	ND	10
cis-1,2-dichloroethene	ND	ND	ND	ND	ND	5.0
cis-1,3-dichloropropene	ND	ND	ND	ND	ND	5.0
dibromochloromethane	ND	ND	ND	ND	ND	5.0
dibromomethane	ND	ND	ND	ND	ND	5.0
dichlorodifluoromethane	ND	ND	ND	ND	ND	10
dichlorofluoromethane	ND	ND	ND	ND	ND	5.0
ethylbenzene	ND	ND	ND	ND	ND	5.0
hexachlorobutadiene	ND	ND	ND	ND	ND	[illegible]
isopropylbenzene	ND	ND	ND	ND	ND	[illegible]
isopropyltoluene	ND	ND	ND	ND	ND	5.0
m-&p-xylenes	ND	ND	ND	ND	ND	5.0
methylene chloride	ND	ND	ND	ND	ND	20
methyl t-butyl ether [mtbe]	ND	ND	ND	ND	ND	20
n-butylbenzene	ND	ND	ND	ND	ND	5.0
n-propylbenzene	ND	ND	ND	ND	ND	5.0
naphthalene	ND	ND	ND	ND	ND	5.0
o-xylene	ND	ND	ND	ND	ND	5.0
sec-butylbenzene	ND	ND	ND	ND	ND	5.0
tetrachloroethene	ND	ND	ND	ND	ND	5.0
toluene	ND	ND	ND	ND	ND	5.0
trans-1,2-dichloroethene	ND	ND	ND	ND	ND	5.0
trans-1,3-dichloropropene	ND	ND	ND	ND	ND	5.0
trichloroethene	ND	ND	ND	ND	ND	5.0
trichlorofluoromethane	ND	ND	ND	ND	ND	5.0
vinyl acetate	ND	ND	ND	ND	ND	50
vinyl chloride	ND	ND	ND	ND	ND	10

SURROGATE SPIKE	% SURROGATE RECOVERY					Control Limit
dibromofluoromethane	103	101	102	101	103	80-120
toluene-d8	88	87	88	89	88	80-120
4-bromofluorobenzene	91	90	84	88	79*	80-120

NOTES:

ND denotes Not Detected at the indicated Reporting limit.

** Out of criteria due to sample matrix interference. The Laboratory Control Standard (LCS) is a control sample of known interference free matrix that is [illegible] using the same reagents, preparation and analytical methods employed for this set of samples. The LCS percent recovery data verifies method and [illegible] performance and is used for validation of sample batch results. The MS/MSD results are not used to determine the acceptance or rejection of batch analyses data due to the potential impact of matrix effects arising from sample matrix interference. These results are included as sample related information only and should be evaluated accordingly.*

This report is preceded by a cover sheet that contains vital information.

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CLi Testing and Data Management Services

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES

ATTN.: MR. ROB LOWEY

SDG #: 9803.0132-HB

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX:	SOIL
UNIT:	µg/kg

Prepared:	4/7/98
Analyzed:	4/7/98
Analyst:	DLB

VOLATILE ORGANICS, 8260A

COMPOUNDS	Lab ID: CL15141 Client Sample ID: HG19-03/CH D.F. 1	Reporting Limit
1,1,1,2-tetrachloroethane	ND	5.0
1,1,2,2-tetrachloroethane	ND	5.0
1,1,1-trichloroethane	ND	5.0
1,1,2-trichloroethane	ND	5.0
1,2,3-trichlorobenzene	ND	5.0
1,2,3-trichloropropane	ND	5.0
1,2,4-trichlorobenzene	ND	5.0
1,2,4-trimethylbenzene	ND	5.0
1,3,5-trimethylbenzene	ND	5.0
1,1-dichloroethane	ND	5.0
1,1-dichloroethene	ND	5.0
1,1-dichloropropene	ND	5.0
1,2-dibromo-3-chloro-propane (DBCP)	ND	10
1,2-dibromoethane (EDB)	ND	5.0
1,2-dichlorobenzene	ND	5.0
1,2-dichloroethane	ND	5.0
1,2-dichloropropane	ND	5.0
1,3-dichlorobenzene	ND	5.0
1,3-dichloropropane	ND	5.0
1,4-dichlorobenzene	ND	5.0
2,2-dichloropropane	ND	5.0
2-butanone	ND	10
2-chloroethyl vinyl ether	ND	10
2-chlorotoluene	ND	5.0
2-hexanone	ND	10
4-chlorotoluene	ND	5.0
4-methyl-2-pentanone	ND	10
acetone	ND	20
benzene	ND	5.0
bromobenzene	ND	5.0
bromochloromethane	ND	5.0
bromodichloromethane	ND	5.0
bromoform	ND	5.0
bromomethane	ND	10
carbon disulfide	ND	5.0
carbon tetrachloride	ND	5.0
chlorobenzene	ND	5.0
chloroethane	ND	10
chloroform	ND	5.0

Continued on next page...

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES

ATTN.: MR. ROB LOWEY

SDG #: 9803.0132-HB

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX: SOIL
UNIT: µg/kg

Prepared: 4/7/98
Analyzed: 4/7/98
Analyst: DLB

VOLATILE ORGANICS, 8260A Continued...

COMPOUNDS	Lab ID: CL15141 Client Sample ID: HG19-03/CH D.F. 1	Reporting Limit
chloromethane	ND	10
cis-1,2-dichloroethene	ND	5.0
cis-1,3-dichloropropene	ND	5.0
dibromochloromethane	ND	5.0
dibromomethane	ND	5.0
dichlorodifluoromethane	ND	10
dichlorofluoromethane	ND	5.0
ethylbenzene	ND	5.0
hexachlorobutadiene	ND	[illegible]
isopropylbenzene	ND	[illegible]
isopropyltoluene	ND	5.0
m-&p-xylenes	ND	5.0
methylene chloride	ND	20
methyl t-butyl ether [mtbe]	ND	20
n-butylbenzene	ND	5.0
n-propylbenzene	ND	5.0
naphthalene	ND	5.0
o-xylene	ND	5.0
sec-butylbenzene	ND	5.0
tetrachloroethene	ND	5.0
toluene	ND	5.0
trans-1,2-dichloroethene	ND	5.0
trans-1,3-dichloropropene	ND	5.0
trichloroethene	ND	5.0
trichlorofluoromethane	ND	5.0
vinyl acetate	ND	50
vinyl chloride	ND	10

SURROGATE SPIKE	% SURROGATE RECOVERY	Control Limit
dibromofluoromethane	103	80-120
toluene-d8	89	80-120
4-bromofluorobenzene	88	80-120

NOTES:

ND denotes Not Detected at the indicated Reporting limit.

This report is preceded by a cover sheet that contains vital information.

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES

ATTN.: MR. ROB LOWEY

SDG #: 9803.0132-HB

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX:	SOIL
UNIT:	µg/kg

Prepared:	4/7/98
Analyzed:	4/7/98
Analyst:	DLB

QUALITY CONTROL DATA, 8260A

LABORATORY CONTROL STANDARD/DUPLICATE	SPK CONC. (µg/kg)	LCS (µg/kg)	LCSD (µg/kg)	ACCURACY % LCS	% LCSD	ACP % LCS	PRECISION RPD	ACP % RPD
1,1-dichloroethene	50.0	45.1	45.4	90	91	61-145	0	0-20
mtbe	50.0	58.1	64.8	116	129	61-145	11	0-20
benzene	50.0	49.8	49.7	99	99	75-130	0	0-15
trichloroethene	50.0	51.5	51.4	103	103	70-130	0	0-20
toluene	50.0	50.4	51.2	100	102	70-130	1	0-18
chlorobenzene	50.0	49.9	49.3	99	98	75-130	1	0-18

AUDIT DATA	LAB ID	BATCH #	QC STD #	ANALYZED
	LABORATORY CONTROL STD.	BB00400	152 EPA 8260 STD	4/7/98

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE	SPK CONC. (µg/kg)	MS (µg/kg)	MSD (µg/kg)	ACCURACY % MS	% MSD	ACP % MS	PRECISION RPD	ACP % RPD
1,1-dichloroethene	50.0	45.5	45.9	91	92	61-145	1	0-14
mtbe	50.0	60.8	59.7	121	119	61-145	2	0-14
benzene	50.0	48.2	47.8	96	95	75-130	1	0-11
trichloroethene	50.0	52.7	51.5	105	103	70-130	2	0-14
toluene	50.0	47.3	46.1	94	92	70-130	3	0-14
chlorobenzene	50.0	44.6	45.3	89	90	75-130	1	0-13

AUDIT DATA	LAB ID	SAMPLE ID	BATCH #	QC STD #	ANALYZED
	CL15092	HG10-01/CHMS	BB00397	156 EPA 8260 STD	4/7/98

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Analytical Report

CASE NARRATIVE

SDG #: 9803.0125

REPORT DATE: 4/14/98

REPORTED TO: CH2M HILL
3 HUTTON CENTRE DRIVE
SUITE 200
SANTA ANA, CA 92707

ATTN.: MR. ROB LOWEY

PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

DATE SAMPLED: 3/19/98
DATE RECEIVED: 3/19/98
 # OF SAMPLES: 31
SAMPLE MATRIX: SOIL, WATER
CLIENT SAMPLE ID:

SOIL		WATER
HG09-01/CH	HG18-01/CH2.5'-3.0'	HG09-10-W/CH
HG09-02/CH	HG18-01/CH5.0'-5.5'	HG06A-10-W/CH
HG06B-01/CH	HG18-02/CH11.0'-11.5'	EB0319/CH
HG06B-02/CH	HG18-02/CH11.5'-12.0'	HG18-10-W/CH
HG06A-01/CH	HG16-01/CH2.5'-3.0'	HG18-11-W/CH2
HG06A-02/CH	HG16-01/CH3.0'-3.5'	HG16-10-W/CH
HG05-01/CH	HG16-03/CH	HG16-10-W/CHMS/MSD
HG05-02/CH	HG10-01/CH2.5'-3.0'	RBHG-10-W/CH
HG08-01/CH	HG10-01/CH5.0'-5.5'	
HG08-02/CH	HG10-02/CH5.5'-6.0'	
HG08-03/CH	HG02/CH10.5'-11.0'	

NOTE: All metals are on hold as per client request.

IMPORTANT

Holding time has been exceeded for 8260A soil samples. Data is hereby released at no charge. Data may be used as an approximate value. The water samples were run within holding time.

SAMPLE HANDLING & CONTROL STATEMENT

The above mentioned samples were received in appropriate containers accompanied by a fully signed and dated chain-of-custody record. The containers were assigned unique identification numbers and had sufficient amount for the test requested unless otherwise noted in the accompanying laboratory report. The ice chest(s) were received under appropriate custody seals. There were no site specific quality control requirements made at the time of sample submittal. The samples did not exceed the holding time for the requested test parameters.

QUALITY CONTROL SUMMARY STATEMENT

Laboratory Quality Control parameters and results of instrument calibration standards were all within control limits and the analytical data hereby submitted falls within acceptable limits of accuracy and precision unless otherwise indicated. Please see the Quality Control Data submitted in this report for additional information. In addition, necessary information regarding instrument calibration, MS/MSD, LCS/LCSD, method blank, and all other pertinent Quality Control measures are hereby enclosed for review.

SUBMITTED BY:

Girma Selassie
Director

CERTIFICATE OF APPROVED ANALYSIS

The information contained in this cover sheet is an integral part of the attached analytical report.

DOHS Lab Certificate #: 1552
Expiration Date: June 30, 1999

A2LA Certificate #: 0389.01
Expiration Date: September 30, 1996 (Re-Accreditation in process)

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES

ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX: SOIL

UNIT: µg/kg

Prepared: 4/6/98

Analyzed: 4/6/98

Analyst: DLB

VOLATILE ORGANICS, 8260A

COMPOUNDS	Lab ID: CL067298	CL15087	CL15088	CL15089	CL15092	Reporting Limit
Client Sample ID:	Method Blank	HG16-01/CH6.0'-3.5'	HG16-03/CH	HG16-02/CH	HG10-01/CH5.0'-5.5'	
D.F.	1	1	1	1	1	
1,1,1,2-tetrachloroethane	ND	ND	ND	ND	ND	5.0
1,1,2,2-tetrachloroethane	ND	ND	ND	ND	ND	5.0
1,1,1-trichloroethane	ND	ND	ND	ND	ND	5.0
1,1,2-trichloroethane	ND	ND	ND	ND	ND	5.0
1,2,3-trichlorobenzene	ND	ND	ND	ND	ND	5.0
1,2,3-trichloropropane	ND	ND	ND	ND	ND	5.0
1,2,4-trichlorobenzene	ND	ND	ND	ND	ND	5.0
1,2,4-trimethylbenzene	ND	ND	ND	ND	ND	5.0
1,3,5-trimethylbenzene	ND	ND	ND	ND	ND	5.0
1,1-dichloroethane	ND	ND	ND	ND	ND	5.0
1,1-dichloroethene	ND	ND	ND	ND	ND	5.0
1,1-dichloropropene	ND	ND	ND	ND	ND	5.0
1,2-dibromo-3-chloro-propane (DBCP)	ND	ND	ND	ND	ND	10
1,2-dibromoethane (EDB)	ND	ND	ND	ND	ND	5.0
1,2-dichlorobenzene	ND	ND	ND	ND	ND	5.0
1,2-dichloroethane	ND	ND	ND	ND	ND	5.0
1,2-dichloropropane	ND	ND	ND	ND	ND	5.0
1,3-dichlorobenzene	ND	ND	ND	ND	ND	5.0
1,3-dichloropropane	ND	ND	ND	ND	ND	5.0
1,4-dichlorobenzene	ND	ND	ND	ND	ND	5.0
2,2-dichloropropane	ND	ND	ND	ND	ND	5.0
2-butanone	ND	ND	ND	ND	ND	10
2-chloroethyl vinyl ether	ND	ND	ND	ND	ND	10
2-chlorotoluene	ND	ND	ND	ND	ND	5.0
2-hexanone	ND	ND	ND	ND	ND	10
4-chlorotoluene	ND	ND	ND	ND	ND	5.0
4-methyl-2-pentanone	ND	ND	ND	ND	ND	10
acetone	ND	ND	ND	ND	ND	20
benzene	ND	ND	ND	ND	ND	5.0
bromobenzene	ND	ND	ND	ND	ND	5.0
bromochloromethane	ND	ND	ND	ND	ND	5.0
bromodichloromethane	ND	ND	ND	ND	ND	5.0
bromoform	ND	ND	ND	ND	ND	5.0
bromomethane	ND	ND	ND	ND	ND	10
carbon disulfide	ND	ND	ND	ND	ND	5.0
carbon tetrachloride	ND	ND	ND	ND	ND	5.0
chlorobenzene	ND	ND	ND	ND	ND	5.0
chloroethane	ND	ND	ND	ND	ND	10
chloroform	ND	ND	ND	ND	ND	5.0

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES
ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 137125.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX: SOIL
UNIT: µg/kg

Prepared: 4/6/98
Analyzed: 4/6/98
Analyst: DLB

VOLATILE ORGANICS, 8260A Continued...

COMPOUNDS	Lab ID: CL067298	CL15087	CL15088	CL15089	CL15092	Reporting Limit
	Client Sample ID: Method Blank	HG16-01/CH6.0'-3.5'	HG16-03/CH	HG16-02/CH	HG10-01/CH5.0'-5.5'	
	D.F. 1	1	1	1	1	
chloromethane	ND	ND	ND	ND	ND	10
cis-1,2-dichloroethene	ND	ND	ND	ND	ND	5.0
cis-1,3-dichloropropene	ND	ND	ND	ND	ND	5.0
dibromochloromethane	ND	ND	ND	ND	ND	5.0
dibromomethane	ND	ND	ND	ND	ND	5.0
dichlorodifluoromethane	ND	ND	ND	ND	ND	10
dichlorofluoromethane	ND	ND	ND	ND	ND	5.0
ethylbenzene	ND	ND	ND	ND	ND	[illegible]
hexachlorobutadiene	ND	ND	ND	ND	ND	5.0
isopropylbenzene	ND	ND	ND	ND	ND	5.0
isopropyltoluene	ND	ND	ND	ND	ND	5.0
m-&p-xylenes	ND	ND	ND	ND	ND	5.0
methylene chloride	ND	ND	ND	ND	ND	20
methyl t-butyl ether [mtbe]	ND	ND	ND	ND	ND	20
n-butylbenzene	ND	ND	ND	ND	ND	5.0
n-propylbenzene	ND	ND	ND	ND	ND	5.0
naphthalene	ND	ND	ND	ND	ND	5.0
o-xylene	ND	ND	ND	ND	ND	5.0
sec-butylbenzene	ND	ND	ND	ND	ND	5.0
tetrachloroethene	ND	ND	ND	ND	ND	5.0
toluene	ND	ND	ND	ND	ND	5.0
trans-1,2-dichloroethene	ND	ND	ND	ND	ND	5.0
trans-1,3-dichloropropene	ND	ND	ND	ND	ND	5.0
trichloroethene	ND	ND	ND	ND	ND	5.0
trichlorofluoromethane	ND	ND	ND	ND	ND	5.0
vinyl acetate	ND	ND	ND	ND	ND	50
vinyl chloride	ND	ND	ND	ND	ND	10

SURROGATE SPIKE	% SURROGATE RECOVERY					Control Limit
dibromofluoromethane	101	101	102	89	102	80-120
toluene-d8	88	89	86	82	88	80-120
4-bromofluorobenzene	84	84	81	88	85	80-120

NOTES:
ND denotes Not Detected at the indicated Reporting limit.

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES

ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX:	SOIL
UNIT:	µg/kg

Prepared:	4/6/98
Analyzed:	4/6/98
Analyst:	DLB

VOLATILE ORGANICS, 8260A

COMPOUNDS	Lab ID: CL15094 Client Sample ID: HG10-02/CH10.5'-11.0' D.F. 1	Reporting Limit
1,1,1,2-tetrachloroethane	ND	5.0
1,1,2,2-tetrachloroethane	ND	5.0
1,1,1-trichloroethane	ND	5.0
1,1,2-trichloroethane	ND	5.0
1,2,3-trichlorobenzene	ND	5.0
1,2,3-trichloropropane	ND	5.0
1,2,4-trichlorobenzene	ND	5.0
1,2,4-trimethylbenzene	ND	5.0
1,3,5-trimethylbenzene	ND	5.0
1,1-dichloroethane	ND	5.0
1,1-dichloroethene	ND	5.0
1,1-dichloropropene	ND	5.0
1,2-dibromo-3-chloro-propane (DBCP)	ND	10
1,2-dibromoethane (EDB)	ND	5.0
1,2-dichlorobenzene	ND	5.0
1,2-dichloroethane	ND	5.0
1,2-dichloropropane	ND	5.0
1,3-dichlorobenzene	ND	5.0
1,3-dichloropropane	ND	5.0
1,4-dichlorobenzene	ND	5.0
2,2-dichloropropane	ND	5.0
2-butanone	ND	10
2-chloroethyl vinyl ether	ND	10
2-chlorotoluene	ND	5.0
2-hexanone	ND	10
4-chlorotoluene	ND	5.0
4-methyl-2-pentanone	ND	10
acetone	ND	20
benzene	ND	5.0
bromobenzene	ND	5.0
bromochloromethane	ND	5.0
bromodichloromethane	ND	5.0
bromoform	ND	5.0
bromomethane	ND	10
carbon disulfide	ND	5.0
carbon tetrachloride	ND	5.0
chlorobenzene	ND	5.0
chloroethane	ND	10
chloroform	ND	5.0

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES

ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX: SOIL
UNIT: µg/kg

Prepared: 4/6/98
Analyzed: 4/6/98
Analyst: DLB

VOLATILE ORGANICS, 8260A Continued...

Lab ID: CL15094
Client Sample ID: HG10-02/CH10.5'-11.0'
D.F. 1

COMPOUNDS		Reporting Limit
chloromethane	ND	10
cis-1,2-dichloroethene	ND	5.0
cis-1,3-dichloropropene	ND	5.0
dibromochloromethane	ND	5.0
dibromomethane	ND	5.0
dichlorodifluoromethane	ND	10
dichlorofluoromethane	ND	5.0
ethylbenzene	ND	5.0
hexachlorobutadiene	ND	
isopropylbenzene	ND	5.0
isopropyltoluene	ND	5.0
m-&p-xylenes	ND	20
methylene chloride	ND	20
methyl t-butyl ether [mtbe]	ND	5.0
n-butylbenzene	ND	5.0
n-propylbenzene	ND	5.0
naphthalene	ND	5.0
o-xylene	ND	5.0
sec-butylbenzene	ND	5.0
tetrachloroethene	ND	5.0
toluene	ND	5.0
trans-1,2-dichloroethene	ND	5.0
trans-1,3-dichloropropene	ND	5.0
trichloroethene	ND	5.0
trichlorofluoromethane	ND	5.0
vinyl acetate	ND	50
vinyl chloride	ND	10

SURROGATE SPIKE	% SURROGATE RECOVERY	Control Limit
dibromofluoromethane	102	80-120
toluene-d8	83	80-120
4-bromofluorobenzene	79*	80-120

NOTES:

ND denotes Not Detected at the indicated Reporting limit.

* Out of criteria due to sample matrix interference. The Laboratory Control Standard (LCS) is a control sample of known interference free matrix that is a[illegible]d using the same reagents, preparation and analytical methods employed for this set of samples. The LCS percent recovery data verifies method and system performance and is used for validation of sample batch results. The MS/MSD results are not used to determine the acceptance or rejection of batch analyses data due to the potential impact of matrix effects arising from sample matrix interference. These results are included as sample related information only and should be evaluated accordingly.

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES

ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX:	SOIL
UNIT:	µg/kg

Prepared:	4/6/98
Analyzed:	4/6/98
Analyst:	DLB

QUALITY CONTROL DATA, 8260A

LABORATORY CONTROL STANDARD/DUPLICATE	SPK CONC. (µg//kg)	LCS (µg/kg)	LCSD (µg/kg)	% LCS	% LCSD	ACP % LCS	RPD	ACP % RPD
	ACCURACY						PRECISION	
1,1-dichloroethene	50.0	46.2	45.3	92	91	61-145	2	0-20
mtbe	50.0	67.4	63.3	134	126	61-145	6	0-20
benzene	50.0	49.6	48.6	99	97	75-130	2	0-15
trichloroethene	50.0	52.6	51.6	105	103	70-130	2	0-20
toluene	50.0	50..4	49.1	101	98	70-130	2	0-18
chlorobenzene	50.0	49.2	46.4	98	93	75-130	6	0-18

AUDIT DATA	LAB ID	BATCH #	QC STD #	ANALYZED
	LABORATORY CONTROL STD.	8800397	156 EPA 8260A STD	4/6/98

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE	SPK CONC. (µg/kg)	MS (µg/kg)	MSD (µg/kg)	% MS	% MSD	ACP % MS	RPD	ACP % RPD
	ACCURACY						PRECISION	
1,1-dichloroethene	50.0	45.5	45.9	91	92	61-145	1	0-14
mtbe	50.0	60.8	59.7	121	119	61-145	2	0-14
benzene	50.0	48.2	47.8	96	95	75-130	1	0-11
trichloroethene	50.0	52.7	51.5	105	103	70-130	2	0-14
toluene	50.0	47.3	46.1	94	92	70-130	3	0-14
chlorobenzene	50.0	44.6	45.3	89	90	75-130	1	0-13

AUDIT DATA	LAB ID	SAMPLE ID	BATCH #	QC STD #	ANALYZED
	CL15092	HG10-01/CHMS	8800397	156 EPA 8260 STD	4/6/98

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES

ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX: LIQUID

UNIT: µg/l

Prepared: 3/19/98

Analyzed: 4/2/98

Analyst: DLB

VOLATILE ORGANICS, 8260A

Lab ID:	CL0669B	CL15066	CL15077	CL15084	
Client Sample ID:	Method Blank	HG09-10-W/CH	EB0319/CH	HG16-10-W/CH	Reporting Limit
COMPOUNDS / D.F.	1	1	1	1	
1,1,1,2-tetrachloroethane	ND	ND	ND	ND	1.0
1,1,2,2-tetrachloroethane	ND	ND	ND	ND	1.0
1,1,1-trichloroethane	ND	ND	ND	ND	1.0
1,1,2-trichloroethane	ND	ND	ND	ND	1.0
1,2,3-trichlorobenzene	ND	ND	ND	ND	1.0
1,2,3-trichloropropane	ND	ND	ND	ND	1.0
1,2,4-trichlorobenzene	ND	ND	ND	ND	1.0
1,2,4-trimethylbenzene	ND	ND	ND	ND	1.0
1,3,5-trimethylbenzene	ND	ND	ND	ND	1.0
1,1-dichloroethane	ND	ND	ND	ND	1.0
1,1-dichloroethene	ND	ND	ND	ND	1.0
1,1-dichloropropene	ND	ND	ND	ND	1.0
1,2-dibromo-3-chloro-propane (DBCP)	ND	ND	ND	ND	20
1,2-dibromoethane (EDB)	ND	ND	ND	ND	1.0
1,2-dichlorobenzene	ND	ND	ND	ND	1.0
1,2-dichloroethane	ND	ND	ND	ND	1.0
1,2-dichloropropane	ND	ND	ND	ND	1.0
1,3-dichlorobenzene	ND	ND	ND	ND	1.0
1,3-dichloropropane	ND	ND	ND	ND	1.0
1,4-dichlorobenzene	ND	ND	ND	ND	1.0
2,2-dichloropropane	ND	ND	ND	ND	1.0
2-butanone	ND	ND	ND	ND	5.0
2-chloroethyl vinyl ether	ND	ND	ND	ND	10
2-chlorotoluene	ND	ND	ND	ND	1.0
2-hexanone	ND	ND	ND	ND	5.0
4-chlorotoluene	ND	ND	ND	ND	1.0
4-methyl-2-pentanone	ND	ND	ND	ND	5.0
acetone	ND	ND	ND	ND	10
benzene	ND	ND	ND	ND	1.0
bromobenzene	ND	ND	ND	ND	1.0
bromochloromethane	ND	ND	ND	ND	1.0
bromodichloromethane	ND	ND	ND	ND	1.0
bromoform	ND	ND	ND	ND	1.0
bromomethane	ND	ND	ND	ND	2.0
carbon disulfide	ND	ND	ND	ND	5
carbon tetrachloride	ND	ND	ND	ND	1.0
chlorobenzene	ND	ND	ND	ND	1.0
chloroethane	ND	ND	ND	ND	2.0
chloroform	ND	ND	ND	ND	1.0

Continued on next page...

Testing and Data Management Services

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES

ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX: LIQUID

UNIT: µg/l

Prepared: 3/19/98

Analyzed: 4/2/98

Analyst: DLB

VOLATILE ORGANICS, 8260A Continued...

COMPOUNDS	Lab ID: CL06698	CL15066	CL15077	CL15084	Reporting Limit
	Client Sample ID: Method Blank	HG09-10-W/CH	EB0319/CH	HG16-10-W/CH	
	D.F. 1	1	1	1	
chloromethane	ND	ND	ND	ND	2.0
cis-1,2-dichloroethene	ND	ND	ND	ND	0.50
cis-1,3-dichloropropene	ND	ND	ND	ND	1.0
dibromochloromethane	ND	ND	ND	ND	1.0
dibromomethane	ND	ND	ND	ND	1.0
dichlorodifluoromethane	ND	ND	ND	ND	2.0
dichlorofluoromethane	ND	ND	ND	ND	1.0
ethylbenzene	ND	ND	ND	ND	1.0
hexachlorobutadiene	ND	ND	ND	ND	1.0
isopropylbenzene	ND	ND	ND	ND	1.0
isopropyltoluene	ND	ND	ND	ND	0.50
m-&p-xylenes	ND	ND	ND	ND	5.0
methylene chloride	ND	ND	ND	ND	20
methyl t-butyl ether [mtbe]	ND	ND	ND	ND	1.0
n-butylbenzene	ND	ND	ND	ND	1.0
n-propylbenzene	ND	ND	ND	ND	1.0
naphthalene	ND	ND	ND	ND	0.50
o-xylene	ND	ND	ND	ND	1.0
sec-butylbenzene	ND	ND	ND	ND	1.0
tetrachloroethene	ND	ND	ND	ND	1.0
toluene	ND	ND	ND	ND	1.0
trans-1,2-dichloroethene	ND	ND	ND	ND	0.50
trans-1,3-dichloropropene	ND	ND	ND	ND	1.0
trichloroethene	ND	ND	ND	ND	1.0
trichlorofluoromethane	ND	ND	ND	ND	2.0
vinyl acetate	ND	ND	ND	ND	10
vinyl chloride	ND	ND	ND	ND	2.0

SURROGATE SPIKE	% SURROGATE RECOVERY				Control Limit
dibromofluoromethane	103	104	104	104	80-120
toluene-d8	98	98	98	98	80-120
4-bromofluorobenzene	92	93	93	97	80-120

NOTES:

ND denotes Not Detected at the indicated Reporting limit.

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES
ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX: LIQUID
UNIT: µg/l

Prepared: 3/19/98
Analyzed: 4/2/98
Analyst: DLB

QUALITY CONTROL DATA, 8260A

LABORATORY CONTROL STANDARD/DUPLICATE	SPK CONC. (µg/l)	LCS (µg/l)	LCSD (µg/l)	% LCS	% LCSD	ACP % LCS	RPD	ACP % RPD
	ACCURACY						PRECISION	
1,1-dichloroethene	50.0	50.5	48.3	101	97	61-145	5	0-20
mtbe	50.0	55.1	53.4	110	107	76-127	3	0-15
benzene	50.0	48.9	48.8	98	98	71-120	0	0-20
trichloroethene	50.0	49.1	48.9	98	98	76-125	0	0-18
toluene	50.0	49.3	49.8	98	99	75-130	1	0-18
chlorobenzene	50.0	49.4	49.3	99	99	60-145	0	0-20

AUDIT DATA	LAB ID	BATCH #	QC STD #	ANALYZED
	LABORATORY CONTROL STD.	8B00395	152 EPA 8260 STD	4/2/98

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE	SPK CONC. (µg/l)	MS (µg/l)	MSD (µg/l)	% MS	% MSD	ACP % MS	RPD	ACP % RPD
	ACCURACY						PRECISION	
1,1-dichloroethene	50.0	50.7	49.6	101	99	61-145	2	0-20
mtbe	50.0	43.1	43.4	86	86	76-127	1	0-15
benzene	50.0	48.8	48.8	97	97	71-120	0	0-20
trichloroethene	50.0	50.5	49.5	101	99	76-125	2	0-18
toluene	50.0	49.6	50.2	99	100	75-130	1	0-18
chlorobenzene	50.0	48.7	49.2	97	98	60-145	1	0-20

AUDIT DATA	LAB ID	SAMPLE ID	BATCH #	QC STD #	ANALYZED
	CL06481S.D	AG382-10-W/CH	8B00376	141 EPA 8260 STD	3/21/98

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES

ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX:	LIQUID
UNIT:	µg/l

Prepared:	3/18/98
Analyzed:	3/21/98
Analyst:	DLB

VOLATILE ORGANICS, 8260A

Lab ID:	CL064808	CL15078	CL5079	CL15085	CL15090	Reporting Limit
Client Sample ID:	Method Blank	HG18-10-W/CH	HG18-11-W/CH	HG16-10-W/CHMS/MSD	RBHG-10-W/CH	
COMPOUNDS D.F.	1	1	1	1	1	
1,1,1,2-tetrachloroethane	ND	ND	ND	ND	ND	1.0
1,1,2,2-tetrachloroethane	ND	ND	ND	ND	ND	1.0
1,1,1-trichloroethane	ND	ND	ND	ND	ND	1.0
1,1,2-trichloroethane	ND	ND	ND	ND	ND	1.0
1,2,3-trichlorobenzene	ND	ND	ND	ND	ND	1.0
1,2,3-trichloropropane	ND	ND	ND	ND	ND	1.0
1,2,4-trichlorobenzene	ND	ND	ND	ND	ND	1.0
1,2,4-trimethylbenzene	ND	ND	ND	ND	ND	1.0
1,3,5-trimethylbenzene	ND	ND	ND	ND	ND	1.0
1,1-dichloroethane	ND	ND	ND	ND	ND	1.0
1,1-dichloroethene	ND	ND	ND	ND	ND	1.0
1,1-dichloropropene	ND	ND	ND	ND	ND	1.0
1,2-dibromo-3-chloro-propane (DBCP)	ND	ND	ND	ND	ND	20
1,2-dibromoethane (EDB)	ND	ND	ND	ND	ND	1.0
1,2-dichlorobenzene	ND	ND	ND	ND	ND	1.0
1,2-dichloroethane	ND	ND	ND	ND	ND	1.0
1,2-dichloropropane	ND	ND	ND	ND	ND	1.0
1,3-dichlorobenzene	ND	ND	ND	ND	ND	1.0
1,3-dichloropropane	ND	ND	ND	ND	ND	1.0
1,4-dichlorobenzene	ND	ND	ND	ND	ND	1.0
2,2-dichloropropane	ND	ND	ND	ND	ND	1.0
2-butanone	ND	ND	ND	ND	ND	5.0
2-chloroethyl vinyl ether	ND	ND	ND	ND	ND	10
2-chlorotoluene	ND	ND	ND	ND	ND	1.0
2-hexanone	ND	ND	ND	ND	ND	5.0
4-chlorotoluene	ND	ND	ND	ND	ND	1.0
4-methyl-2-pentanone	ND	ND	ND	ND	ND	5.0
acetone	ND	ND	ND	ND	ND	10
benzene	ND	ND	ND	ND	ND	1.0
bromobenzene	ND	ND	ND	ND	ND	1.0
bromochloromethane	ND	ND	ND	ND	ND	1.0
bromodichloromethane	ND	ND	ND	ND	ND	1.0
bromoform	ND	ND	ND	ND	ND	1.0
bromomethane	ND	ND	ND	ND	ND	2.0
carbon disulfide	ND	ND	ND	ND	ND	5
carbon tetrachloride	ND	ND	ND	ND	ND	1.0
chlorobenzene	ND	ND	ND	ND	ND	1.0
chloroethane	ND	ND	ND	ND	ND	2.0
chloroform	ND	ND	ND	ND	ND	1.0

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES
ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX: LIQUID
UNIT: µg/l

Prepared: 3/18/98
Analyzed: 3/21/98
Analyst: DLB

VOLATILE ORGANICS, 8260A Continued...

COMPOUNDS	Lab ID: CL064808	CL15078	CL5079	CL15085	CL15090	Reporting Limit
Client Sample ID:	Method Blank	HG18-10-W/CH	HG18-11-W/CH	HG16-10-W/CHMS/MSD	RBHG-10-W/CH	
D.F.	1	1	1	1	1	
chloromethane	ND	ND	ND	ND	ND	2.0
cis-1,2-dichloroethene	ND	ND	ND	ND	ND	0.50
cis-1,3-dichloropropene	ND	ND	ND	ND	ND	1.0
dibromochloromethane	ND	ND	ND	ND	ND	1.0
dibromomethane	ND	ND	ND	ND	ND	1.0
dichlorodifluoromethane	ND	ND	ND	ND	ND	2.0
dichlorofluoromethane	ND	ND	ND	ND	ND	1.0
ethylbenzene	ND	ND	ND	ND	ND	1.0
hexachlorobutadiene	ND	ND	ND	ND	ND	1.0
isopropylbenzene	ND	ND	ND	ND	ND	1.0
isopropyltoluene	ND	ND	ND	ND	ND	0.50
m-&p-xylenes	ND	ND	ND	ND	ND	[illegible]
methylene chloride	ND	ND	ND	ND	ND	1.0
methyl t-butyl ether [mtbe]	ND	ND	ND	ND	ND	1.0
n-butylbenzene	ND	ND	ND	ND	ND	1.0
n-propylbenzene	ND	ND	ND	ND	ND	0.50
naphthalene	ND	ND	ND	ND	ND	1.0
o-xylene	ND	ND	ND	ND	ND	1.0
sec-butylbenzene	ND	ND	ND	ND	ND	1.0
tetrachloroethene	ND	ND	ND	ND	ND	1.0
toluene	ND	ND	ND	ND	ND	0.50
trans-1,2-dichloroethene	ND	ND	ND	ND	ND	1.0
trans-1,3-dichloropropene	ND	ND	ND	ND	ND	1.0
trichloroethene	ND	ND	ND	ND	ND	2.0
trichlorofluoromethane	ND	ND	ND	ND	ND	10
vinyl acetate	ND	ND	ND	ND	ND	2.0
vinyl chloride	ND	ND	ND	ND	ND	

SURROGATE SPIKE	% SURROGATE RECOVERY					Control Limit
dibromofluoromethane	103	107	107	107	107	80-120
toluene-d8	100	98	99	98	100	80-120
4-bromofluorobenzene	91	107	97	105	99	80-120

NOTES:
ND denotes Not Detected at the indicated Reporting limit.

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CLi Testing and Data Management Services

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Analytical Report

CLIENT: CH2M HILL ANALYTICAL SERVICES

ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON–HUNTINGTON BEACH GEN. STATION

MATRIX: LIQUID

UNIT: µg/l

Prepared: 3/18/98

Analyzed: 3/21/98

Analyst: DLB

QUALITY CONTROL DATA, 8260A

LABORATORY CONTROL STANDARD/DUPLICATE	SPK CONC. (µg/l)	LCS (µg/l)	LCSD (µg/l)	% LCS	% LCSD	ACP % LCS	RPD	ACP % RPD
	ACCURACY						PRECISION	
1,1-dichloroethene	50.0	49.0	48.9	98	98	61-145	0	0-20
mtbe	50.0	39.5	43.9	79	88	76-127	11	0-15
benzene	50.0	48.3	48.2	96	96	71-120	0	0-20
trichloroethene	50.0	49.4	49.8	99	100	76-125	1	0-18
toluene	50.0	49.1	49.8	97	99	75-130	1	0-18
chlorobenzene	50.0	48.1	48.3	96	96	60-145	0	0-20

AUDIT DATA	LAB ID	BATCH #	QC STD #	ANALYZED
	LABORATORY CONTROL STD.	8800376	141 EPA 8260 STD	3/21/98

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE	SPK CONC. (µg/l)	MS (µg/l)	MSD (µg/l)	% MS	% MSD	ACP % MS	RPD	ACP % RPD
	ACCURACY						PRECISION	
1,1-dichloroethene	50.0	50.7	49.6	101	99	61-145	2	0-20
mtbe	50.0	43.1	43.4	86	86	76-127	1	0-15
benzene	50.0	48.8	48.8	97	97	71-120	0	0-20
trichloroethene	50.0	50.5	49.5	101	99	76-125	2	0-18
toluene	50.0	49.6	50.2	99	100	75-130	1	0-18
chlorobenzene	50.0	48.7	49.2	97	98	60-145	1	0-20

AUDIT DATA	LAB ID	SAMPLE ID	BATCH #	QC STD #	ANALYZED
	CL06481S.D	AG382-10-W/CH	8800376	141 EPA 8260 STD	3/21/98

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Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 137125.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0125

MATRIX: SOIL
UNIT: µg/kg

Prepared: 4/2/98
Analyzed: 4/4/98
Analyst: JC

PCBs, - 8080

Lab ID	Client Sample ID	D.F.	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260	Surrogate Spike: Tetrachloro-xylene (TCX) (75-125)	Surrogate Spike: Decachlorobiphen (DCB) (75-125)
MB80404/3550	METHOD BLANK	1	ND	ND	ND	ND	ND	ND	ND	84	84
CL15067	HG06B-01/CH	1	ND	ND	ND	ND	ND	ND	ND	93	108
CL15068	HG06B-02/CH	1	ND	ND	ND	ND	ND	ND	ND	112	112
CL15069	HG06A-01/CH	1	ND	ND	ND	ND	ND	ND	ND	95	87
CL15070	HG06A-02/CH	1	ND	ND	ND	ND	ND	ND	ND	88	90
Reporting Limit			4	8	4	4	4	4	4		

QUALITY CONTROL DATA, -8080

LABORATORY CONTROL STANDARD/DUPLICATE	ACCURACY: SPK CONC. (µg/kg)	MS (µg/kg)	% MS	MSD (µg/kg)	% MSD	ACP % MS	PRECISION: RPD	ACP % RPD
PCB-1248	50	54	108	59	118	80-120	5	0-25

AUDIT DATA	LAB ID	BATCH #	QC STD #	ANALYZED
	LABORATORY CONTROL STANDARD	CB-040498	PCB1248	4/4/98

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE	ACCURACY: SPK. CONC (µg/kg)	MS CONC. (µg/kg)	MS (µg/kg)	% MS	MSD (µg/kg)	% MSD	ACP % MS	PRECISION: RPD	ACP % RPD
PCB-1248	4.6	50.0	53.4	98	50.6	92	80-120	5	0-25

AUDIT DATA	LAB ID	SAMPLE ID	BATCH #	QC STD #	ANALYZED
	CL14996	AG07-01	CB-040498	PCB1248	4/4/98

NOTES:
ND denotes Not Detected at the indicated detection limit.

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Analytical Report

CLIENT: CH2M HILL

ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

MATRIX: WATER

UNIT: µg/l

Prepared: 4/2/98

Analyzed: 4/4/98

Analyst: JC

PCBs, - 8080

Lab ID	Client Sample ID	D.F.	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260	Surrogate Spike: Tetrachloro-xylene (TCX) (75-125)	Surrogate Spike: Decachlorobiphe (DCB) (75-125)
MB80404/3510	METHOD BLANK	1	ND	ND	ND	ND	ND	ND	ND	119	117
CL15077T	HG06A-10-W/CH.	1	ND	ND	ND	ND	ND	ND	ND	102	116
CL15077	EB0319/CH	1	ND	ND	ND	ND	ND	ND	ND	106	86
Reporting Limit			4	8	4	4	4	4	4		

QUALITY CONTROL DATA, -8080

LABORATORY CONTROL STANDARD/DUPLICATE	ACCURACY: SPK CONC. (µg/l)	MS (µg/l)	% MS	MSD (µg/l)	% MSD	ACP % MS	PRECISION: RPD	ACP % RPD
PCB-1248	1.00	1.12	112	1.18	118	80-120	5	0-25

AUDIT DATA	LAB ID	BATCH #	QC STD #	ANALYZED
	LABORATORY CONTROL STANDARD	CB-040498	PCB1248	4/4/98

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE	ACCURACY: SPK. CONC (µg/kg)	MS CONC. (µg/kg)	MS (µg/kg)	% MS	MSD (µg/kg)	% MSD	ACP % MS	PRECISION: RPD	ACP % RPD
PCB-1248	4.6	50.0	53.4	98	50.6	92	80-120	5	0-25

AUDIT DATA	LAB ID	SAMPLE ID	BATCH #	QC STD #	ANALYZED
	CL14996	AG07-01	CB-040498	PCB1248	4/4/98

NOTES:

ND denotes Not Detected at the indicated detection limit.

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Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0125

MATRIX: SOIL
UNIT: µg/kg

Prepared: 4/4/98
Analyzed: 4/7/98
Analyst: SDS

SEMI-VOLATILE ORGANICS, EPA-8270

Lab ID:	CL022418	CL15064	CL15065	CL15067	CL15068	
Client Sample ID:	Method Blank	HG09-01/CH	HG09-02/CH	HG06B-01/CH	HG06B-02/CH	Detection Limits
COMPOUNDS: D.F.	1	1	1	1	1	
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND	1600
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	330
2,6-Dichlorophenol	ND	ND	ND	ND	ND	330
2,4-Dimethylphenol	ND	ND	ND	ND	ND	330
2,4-Dinitrophenol	ND	ND	ND	ND	ND	1600
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	330
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	330
2-Chloronaphthalene	ND	ND	ND	ND	ND	330
2-Chlorophenol	ND	ND	ND	ND	ND	330
2-Methylnaphthalene	ND	ND	ND	ND	ND	330
2-Methylphenol	ND	ND	ND	ND	ND	330
2-Nitroaniline	ND	ND	ND	ND	ND	1600
2-Nitrophenol	ND	ND	ND	ND	ND	330
3,3'-Dichlorobenzidine	ND	ND	ND	ND	ND	660
3-Nitroaniline	ND	ND	ND	ND	ND	1600
4,6-Dinitro-2-methylphenol	ND	ND	ND	ND	ND	1600
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	330
4-Chloro-3-methylphenol	ND	ND	ND	ND	ND	650
4-Chloroaniline	ND	ND	ND	ND	ND	330
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	330
4-Methylphenol	ND	ND	ND	ND	ND	330
4-Nitroaniline	ND	ND	ND	ND	ND	1600
4-Nitrophenol	ND	ND	ND	ND	ND	1600
Acenaphthene	ND	ND	ND	ND	ND	330
Acenaphthylene	ND	ND	ND	ND	ND	330
Anthracene	ND	ND	ND	ND	ND	330
Benzo [a] anthracene	ND	ND	ND	ND	ND	330
Benzo [a] pyrene	ND	ND	ND	ND	ND	330
Benzo [b] fluoranthane	ND	ND	ND	ND	ND	330
Benzo [g,h,i] perylene	ND	ND	ND	ND	ND	330
Benzo [k] fluoranthene	ND	ND	ND	ND	ND	330
bis-(2-Chloroethoxy)-methane	ND	ND	ND	ND	ND	330
bis-(2-Chloroethyl)	ND	ND	ND	ND	ND	330
bis (2-Ethylhexyl)-phthalate	ND	ND	ND	ND	ND	330
Butyl benzyl phthalate	ND	ND	ND	ND	ND	330
Carbazole	ND	ND	ND	ND	ND	330

Continued on next page...

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Testing and Data Management Services

1101 Richfield Road ▪ Placentia, CA 92870 ▪ (714) 572-3270 ▪ Fax (714) 572-3274

Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0125

MATRIX:	SOIL
UNIT:	µg/kg

Prepared:	4/4/98
Analyzed:	4/7/98
Analyst:	SDS

SEMI-VOLATILE ORGANICS, EPA-8270 Continued...

Lab ID:	CL022418	CL15064	CL15065	CL15067	CL15068	Detection Limits
Client Sample ID:	Method Blank	HG09-01/CH	HG09-02/CH	HG068-01/CH	HG068-02/CH	
COMPOUNDS: D.F.:	1	1	1	1	1	
Chrysene	ND	ND	ND	ND	ND	330
Di-n-butyl phthalate	ND	ND	ND	ND	ND	330
Di-n-octyl phthalate	ND	ND	ND	ND	ND	330
Dibenz [a,h] anthracene	ND	ND	ND	ND	ND	330
Dibenzofuran	ND	ND	ND	ND	ND	330
Diethyl phthalate	ND	ND	ND	ND	ND	330
Dimethyl phthalate	ND	ND	ND	ND	ND	330
Fluoranthene	ND	ND	ND	ND	ND	330
Fluorene	ND	ND	ND	ND	ND	330
Hexachlorobenzene	ND	ND	ND	ND	ND	330
Hexachlorobutadiene	ND	ND	ND	ND	ND	330
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	1600
Hexachlorethane	ND	ND	ND	ND	ND	330
Indeno [1,2,3-c,d]pyrene	ND	ND	ND	ND	ND	330
Isophorone	ND	ND	ND	ND	ND	330
N-Nitroso-di-n-propylamine	ND	ND	ND	ND	ND	330
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	330
Naphthalene	ND	ND	ND	ND	ND	330
Nitrobenzene	ND	ND	ND	ND	ND	330
Pentachlorophenol	ND	ND	ND	ND	ND	1600
Phenanthrene	ND	ND	ND	ND	ND	330
Pyrene	ND	ND	ND	ND	ND	330
Phenol	ND	ND	ND	ND	ND	330

SURROGATE SPIKE	% SURROGATE RECOVERY					Control Limit
2-Fluorophenol	70	54	61	61	56	25-121
Phenol-d5	70	58	62	65	60	24-113
Nitrobenzene-d5	75	61	66	70	59	23-120
2-Fluorobiphenyl	84	68	73	76	70	30-115
2,4,6-Tribromophenol	80	81	82	82	83	19-122
Terphenyl-d14	97	89	80	87	83	18-137

NOTES:

ND denotes Not Detected at the indicated detection limit.

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CLi Testing and Data Management Services
1101 Richfield Road ■ Placentia, CA 92870 ■ (714) 572-3270 ■ Fax (714) 572-3274

Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0125

MATRIX: SOIL
UNIT: µg/kg

Prepared: 4/4/98
Analyzed: 4/7/98
Analyst: SDS

SEMI-VOLATILE ORGANICS, EPA-8270

Lab ID:	CL15069	CL15070	CL15072	CL15073	CL15074	Detection Limits
Client Sample ID:	HG06A-01/CH	HG06A-02/CH	HG05-01/CH	HG05-02/CH	HG08-01/CH	
COMPOUNDS: D.F.	1	1	1	1	1	
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND	1600
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	330
2,6-Dichlorophenol	ND	ND	ND	ND	ND	330
2,4-Dimethylphenol	ND	ND	ND	ND	ND	330
2,4-Dinitrophenol	ND	ND	ND	ND	ND	1600
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	330
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	330
2-Chloronaphthalene	ND	ND	ND	ND	ND	330
2-Chlorophenol	ND	ND	ND	ND	ND	330
2-Methylnaphthalene	ND	ND	ND	ND	ND	330
2-Methylphenol	ND	ND	ND	ND	ND	330
2-Nitroaniline	ND	ND	ND	ND	ND	1600
2-Nitrophenol	ND	ND	ND	ND	ND	330
3,3'-Dichlorobenzidine	ND	ND	ND	ND	ND	660
3-Nitroaniline	ND	ND	ND	ND	ND	1600
4,6-Dinitro-2-methylphenol	ND	ND	ND	ND	ND	1600
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	330
4-Chloro-3-methylphenol	ND	ND	ND	ND	ND	650
4-Chloroaniline	ND	ND	ND	ND	ND	330
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	330
4-Methylphenol	ND	ND	ND	ND	ND	330
4-Nitroaniline	ND	ND	ND	ND	ND	1600
4-Nitrophenol	ND	ND	ND	ND	ND	1600
Acenaphthene	ND	ND	ND	ND	ND	330
Acenaphthylene	ND	ND	ND	ND	ND	330
Anthracene	ND	ND	ND	ND	ND	330
Benzo [a] anthracene	ND	ND	ND	ND	ND	330
Benzo [a] pyrene	ND	ND	ND	ND	ND	330
Benzo [b] fluoranthene	ND	ND	ND	ND	ND	330
Benzo [g,h,i] perylene	ND	ND	ND	ND	ND	330
Benzo [k] fluoranthene	ND	ND	ND	ND	ND	330
bis-(2-Chloroethoxy)-methane	ND	ND	ND	ND	ND	330
bis-(2-Chloroethyl)	ND	ND	ND	ND	ND	330
bis (2-Ethylhexyl)-phthalate	ND	ND	ND	ND	ND	330
Butyl benzyl phthalate	ND	ND	ND	ND	ND	330
Carbazole	ND	ND	ND	ND	ND	330

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Testing and Data Management Services

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Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0125

MATRIX: SOIL
UNIT: µg/kg

Prepared: 4/4/98
Analyzed: 4/7/98
Analyst: SDS

SEMI-VOLATILE ORGANICS, EPA-8270 Continued...

Lab ID:	CL15069	CL15070	CL15072	CL15073	CL15074	Detection Limits
Client Sample ID:	HG06A-01/CH	HG06A-02/CH	HG05-01/CH	HG05-02/CH	HG08-01/CH	
COMPOUNDS: D.F.:	1	1	1	1	1	
Chrysene	ND	ND	ND	ND	ND	330
Di-n-butyl phthalate	ND	ND	ND	ND	ND	330
Di-n-octyl phthalate	ND	ND	ND	ND	ND	330
Dibenz [a,h] anthracene	ND	ND	ND	ND	ND	330
Dibenzofuran	ND	ND	ND	ND	ND	330
Diethyl phthalate	ND	ND	ND	ND	ND	330
Dimethyl phthalate	ND	ND	ND	ND	ND	330
Fluoranthene	ND	ND	ND	ND	ND	330
Fluorene	ND	ND	ND	ND	ND	330
Hexachlorobenzene	ND	ND	ND	ND	ND	330
Hexachlorobutadiene	ND	ND	ND	ND	ND	330
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	1600
Hexachlorethane	ND	ND	ND	ND	ND	330
Indeno [1,2,3-c,d]pyrene	ND	ND	ND	ND	ND	330
Isophorone	ND	ND	ND	ND	ND	330
N-Nitroso-di-n-propylamine	ND	ND	ND	ND	ND	330
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	330
Naphthalene	ND	ND	ND	ND	ND	330
Nitrobenzene	ND	ND	ND	ND	ND	330
Pentachlorophenol	ND	ND	ND	ND	ND	1600
Phenanthrene	ND	ND	ND	ND	ND	330
Pyrene	ND	ND	ND	ND	ND	330
Phenol	ND	ND	ND	ND	ND	330

SURROGATE SPIKE	% SURROGATE RECOVERY					Control Limit
2-Fluorophenol	55	55	65	58	58	25-121
Phenol-d5	57	56	68	59	59	24-113
Nitrobenzene-d5	63	65	68	65	61	23-120
2-Fluorobiphenyl	70	71	73	72	70	30-115
2,4,6-Tribromophenol	82	80	80	78	79	19-122
Terphenyl-d14	83	78	79	86	80	18-137

NOTES:

ND denotes Not Detected at the indicated detection limit.

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CLi Testing and Data Management Services
1101 Richfield Road ■ Placentia, CA 92870 ■ (714) 572-3270 ■ Fax (714) 572-3274

Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0125

MATRIX: SOIL
UNIT: µg/kg

Prepared: 4/4/98
Analyzed: 4/6/98
Analyst: SDS

SEMI-VOLATILE ORGANICS, EPA-8270

Lab ID:	CL15075	CL15076	CL15081	CL15083	CL15087	Detection Limits
Client Sample ID:	HG08-02/CH	HG08-03/CH	HG18-01/CH5.0'-5.5'	HG18-02/CH11.5'-12.0'	HG16-01/CH3.0'-3.5'	
COMPOUNDS: D.F.:	1	1	1	1	5*	
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND	1600
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	330
2,6-Dichlorophenol	ND	ND	ND	ND	ND	330
2,4-Dimethylphenol	ND	ND	ND	ND	ND	330
2,4-Dinitrophenol	ND	ND	ND	ND	ND	1600
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	330
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	330
2-Chloronaphthalene	ND	ND	ND	ND	ND	330
2-Chlorophenol	ND	ND	ND	ND	ND	330
2-Methylnaphthalene	ND	ND	ND	ND	ND	330
2-Methylphenol	ND	ND	ND	ND	ND	330
2-Nitroaniline	ND	ND	ND	ND	ND	1600
2-Nitrophenol	ND	ND	ND	ND	ND	330
3,3'-Dichlorobenzidine	ND	ND	ND	ND	ND	660
3-Nitroaniline	ND	ND	ND	ND	ND	1600
4,6-Dinitro-2-methylphenol	ND	ND	ND	ND	ND	1600
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	330
4-Chloro-3-methylphenol	ND	ND	ND	ND	ND	650
4-Chloroaniline	ND	ND	ND	ND	ND	330
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	330
4-Methylphenol	ND	ND	ND	ND	ND	330
4-Nitroaniline	ND	ND	ND	ND	ND	1600
4-Nitrophenol	ND	ND	ND	ND	ND	1600
Acenaphthene	ND	ND	ND	ND	ND	330
Acenaphthylene	ND	ND	ND	ND	ND	330
Anthracene	ND	ND	ND	ND	ND	330
Benzo [a] anthracene	ND	ND	ND	ND	ND	330
Benzo [a] pyrene	ND	ND	ND	ND	ND	330
Benzo [b] fluoranthene	ND	ND	ND	ND	ND	330
Benzo [g,h,i] perylene	ND	ND	ND	ND	ND	330
Benzo [k] fluoranthene	ND	ND	ND	ND	ND	330
bis-(2-Chloroethoxy)-methane	ND	ND	ND	ND	ND	330
bis-(2-Chloroethyl)	ND	ND	ND	ND	ND	330
bis (2-Ethylhexyl)-phthalate	ND	ND	ND	ND	ND	330
Butyl benzyl phthalate	ND	ND	ND	ND	ND	330
Carbazole	ND	ND	ND	ND	ND	330

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Testing and Data Management Services

1101 Richfield Road ▪ Placentia, CA 92870 ▪ (714) 572-3270 ▪ Fax (714) 572-3274

Analytical Report

CLIENT: CH2M HILL

ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

MATRIX: SOIL
UNIT: µg/kg

Prepared: 4/4/98
Analyzed: 4/6/98
Analyst: SDS

SEMI-VOLATILE ORGANICS, EPA-8270 Continued...

Lab ID:	CL15075	CL15076	CL15081	CL15083	CL15087	Detection Limits
Client Sample ID:	HG08-02/CH	HG08-03/CH	HG18-01/CH5.0'-5.5'	HG18-02/CH11.5'-12.0'	HG16-01/CH3.0'-3.5'	
COMPOUNDS: D.F.:	1	1	1	1	5*	
Chrysene	ND	ND	ND	ND	ND	330
Di-n-butyl phthalate	ND	ND	ND	ND	ND	330
Di-n-octyl phthalate	ND	ND	ND	ND	ND	330
Dibenz [a,h] anthracene	ND	ND	ND	ND	ND	330
Dibenzofuran	ND	ND	ND	ND	ND	330
Diethyl phthalate	ND	ND	ND	ND	ND	330
Dimethyl phthalate	ND	ND	ND	ND	ND	330
Fluoranthene	500	ND	ND	ND	1800	330
Fluorene	ND	ND	ND	ND	ND	330
Hexachlorobenzene	ND	ND	ND	ND	ND	330
Hexachlorobutadiene	ND	ND	ND	ND	ND	330
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	1600
Hexachlorethane	ND	ND	ND	ND	ND	330
Indeno [1,2,3-c,d]pyrene	ND	ND	ND	ND	ND	330
Isophorone	ND	ND	ND	ND	ND	330
N-Nitroso-di-n-propylamine	ND	ND	ND	ND	ND	330
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	330
Naphthalene	ND	ND	ND	ND	ND	330
Nitrobenzene	ND	ND	ND	ND	ND	330
Pentachlorophenol	ND	ND	ND	ND	ND	1600
Phenanthrene	ND	ND	ND	ND	ND	330
Pyrene	540	ND	ND	ND	1900	330
Phenol	ND	ND	ND	ND	ND	330

SURROGATE SPIKE	% SURROGATE RECOVERY					Control Limit
2-Fluorophenol	66	55	57	51	65	25-121
Phenol-d5	71	59	58	55	68	24-113
Nitrobenzene-d5	67	62	62	57	67	23-120
2-Fluorobiphenyl	73	67	72	66	80	30-115
2,4,6-Tribromophenol	79	83	81	71	68	19-122
Terphenyl-dT4	81	84	83	80	82	18-137

NOTES:

ND denotes Not Detected at the indicated detection limit.

** Sample was diluted due to viscosity.*

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CLi Testing and Data Management Services

1101 Richfield Road ■ Placentia, CA 92870 ■ (714) 572-3270 ■ Fax (714) 572-3274

Analytical Report

CLIENT: CH2M HILL

ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 13712S.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

MATRIX: SOIL
UNIT: µg/kg

Prepared: 4/4/98
Analyzed: 4/6/98
Analyst: SDS

SEMI-VOLATILE ORGANICS, EPA-8270

Lab ID:	CL15088	CL15089	CL15092	CL15094	Detection Limits
Client Sample ID:	HG16-03/CH	HG16-02/CH	HG10-01/CH5.0'-5.5'	HG10-02/CH10.5'-11.0'	
COMPOUNDS: D.F.:	1	1	1	1	
2,4,5-Trichlorophenol	ND	ND	ND	ND	1600
2,4,6-Trichlorophenol	ND	ND	ND	ND	330
2,6-Dichlorophenol	ND	ND	ND	ND	330
2,4-Dimethylphenol	ND	ND	ND	ND	330
2,4-Dinitrophenol	ND	ND	ND	ND	1600
2,4-Dinitrotoluene	ND	ND	ND	ND	330
2,6-Dinitrotoluene	ND	ND	ND	ND	330
2-Chloronaphthalene	ND	ND	ND	ND	330
2-Chlorophenol	ND	ND	ND	ND	330
2-Methylnaphthalene	ND	ND	ND	ND	330
2-Methylphenol	ND	ND	ND	ND	330
2-Nitroaniline	ND	ND	ND	ND	1600
2-Nitrophenol	ND	ND	ND	ND	330
3,3'-Dichlorobenzidine	ND	ND	ND	ND	660
3-Nitroaniline	ND	ND	ND	ND	1600
4,6-Dinitro-2-methylphenol	ND	ND	ND	ND	1600
4-Bromophenyl phenyl ether	ND	ND	ND	ND	330
4-Chloro-3-methylphenol	ND	ND	ND	ND	650
4-Chloroaniline	ND	ND	ND	ND	330
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	330
4-Methylphenol	ND	ND	ND	ND	330
4-Nitroaniline	ND	ND	ND	ND	1600
74-Nitrophenol	ND	ND	ND	ND	1600
Acenaphthene	ND	ND	ND	ND	330
Acenaphthylene	ND	ND	ND	ND	330
Anthracene	ND	ND	ND	ND	330
Benzo [a] anthracene	ND	ND	ND	ND	330
Benzo [a] pyrene	ND	ND	ND	ND	330
Benzo [b] fluoranthane	ND	ND	ND	ND	330
Benzo [g,h,I] perylene	ND	ND	ND	ND	330
Benzo [k] fluoranthene	ND	ND	ND	ND	330
bis-(2-Chloroethoxy)-methane	ND	ND	ND	ND	330
bis-(2-Chloroethyl)	ND	ND	ND	ND	330
bis (2-Ethylhexyl)-phthalate	ND	ND	ND	ND	330
Butyl benzyl phthalate	ND	ND	ND	ND	330
Carbazole	ND	ND	ND	ND	330

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Testing and Data Management Services

Analytical Report

1101 Richfield Road ▪ Placentia, CA 92870 ▪ (714) 572-3270 ▪ Fax (714) 572-3274

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0125

Prepared:	4/4/98
Analyzed:	4/6/98
Analyst:	SDS

MATRIX:	SOIL
UNIT:	µg/kg

SEMI-VOLATILE ORGANICS, EPA-8270 Continued...

Lab ID:	CL15088	CL15089	CL15092	CL15094	Detection Limits
Client Sample ID:	HG16-03/CH	HG16-02/CH	HG10-01/CH5.0'-5.5'	HG10-02/CH10.5'-11.0'	
COMPOUNDS: D.F.:	1	1	1	1	
Chrysene	ND	ND	ND	ND	330
Di-n-butyl phthalate	ND	ND	ND	ND	330
Di-n-octyl phthalate	ND	ND	ND	ND	330
Dibenz [a,h] anthracene	ND	ND	ND	ND	330
Dibenzofuran	ND	ND	ND	ND	330
Diethyl phthalate	ND	ND	ND	ND	330
Dimethyl phthalate	ND	ND	ND	ND	330
Fluoranthene	ND	ND	ND	ND	330
Fluorene	ND	ND	ND	ND	330
Hexachlorobenzene	ND	ND	ND	ND	330
Hexachlorobutadiene	ND	ND	ND	ND	330
Hexachlorocyclopentadiene	ND	ND	ND	ND	1600
Hexachlorethane	ND	ND	ND	ND	330
Indeno [1,2,3-c,d]pyrene	ND	ND	ND	ND	330
Isophorone	ND	ND	ND	ND	330
N-Nitroso-di-n-propylamine	ND	ND	ND	ND	330
N-Nitrosodiphenylamine	ND	ND	ND	ND	330
Naphthalene	ND	ND	ND	ND	330
Nitrobenzene	ND	ND	ND	ND	330
Pentachlorophenol	ND	ND	ND	ND	1600
Phenanthrene	ND	ND	ND	ND	330
Pyrene	ND	ND	ND	ND	330
Phenol	ND	ND	ND	ND	330

SURROGATE SPIKE	% SURROGATE RECOVERY				Control Limit
2-Fluorophenol	55	52	58	60	25-121
Phenol-d5	54	55	60	63	24-113
Nitrobenzene-d5	60	59	61	65	23-120
2-Fluorobiphenyl	68	68	74	78	30-115
2,4,6-Tribromophenol	77	76	76	82	19-122
Terphenyl-d14	80	76	80	83	18-137

NOTES:

ND denotes Not Detected at the indicated detection limit.

This report is preceded by a cover sheet that contains vital information.

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Testing and Data Management Services

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Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0125

MATRIX: SOIL
UNIT: µg/kg

Prepared: 4/4/98
Analyzed: 4/6/98
Analyst: SDS

QUALITY CONTROL DATA, EPA-8270

LABORATORY CONTROL STANDARD/DUPLICAT	SPK CONC. (µg/kg)	LCS (µg/kg)	LCSD (µg/kg)	% LCS	% LCSD	ACP % LCS	RPD	ACP % RPD
	ACCURACY						PRECISION	
Phenol	200	119	135	59	68	26-90	13	0-35
2-Chlorophenol	200	137	160	69	80	25-102	15	0-50
1,4-dichlorobenzene	100	70	81	70	81	28-104	15	0-27
n-Nitroso-di-n-propylamine	100	84	89	84	89	41-126	6	0-38
1,2,4-Trichlorobenzene	100	72	81	72	81	38-107	11	0-23
4-chloro-3-methylphenol	200	158	172	79	86	26-103	8	0-33
Acenaphthene	100	76	81	76	81	31-137	6	0-19
4-Nitrophenol	200	144	159	72	79	11-114	10	0-50
2,4-Dinitrotoluene	100	82	88	82	88	28-89	7	0-47
Pentachlorophenol	200	163	164	81	82	17-109	1	[illegible]
Pyrene	100	96	97	96	97	35-142	2	[illegible]

AUDIT DATA	LAB ID	BATCH #	QC STD #	ANALYZED
	LABORATORY CONTROL STANDARD	1025	131	4/6/98

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE	SPK CONC. (µg/kg)	MS (µg/kg)	MSD (µg/kg)	% MS	% MSD	ACP % MS	RPD	ACP % RPD
	ACCURACY						PRECISION	
Phenol	200	114	117	57	59	26-90	3	0-35
2-Chlorophenol	200	133	127	67	64	25-102	5	0-50
1,4-dichlorobenzene	100	68	63	68	63	28-104	8	0-27
n-Nitroso-di-n-propylamine	100	76	71	76	71	41-126	8	0-38
1,2,4-Trichlorobenzene	100	70	66	70	66	38-107	7	0-23
4-chloro-3-methylphenol	200	151	117	75	59	26-103	25	0-33
Acenaphthene	100	76	72	76	72	31-137	5	0-19
4-Nitrophenol	200	141	155	71	77	11-114	9	0-50
2,4-Dinitrotoluene	100	82	80	82	80	28-89	2	0-47
Pentachlorophenol	200	157	151	79	75	17-109	4	0-47
Pyrene	100	90	87	89	87	35-142	2	0-36

AUDIT DATA	LAB ID	SAMPLE ID	BATCH #	QC STD #	ANALYZED
	CL15073	HG05-02-MS	1025	131	4/6/98

Approved by the State of California, Department of Health Services & A2LA-American Association for Laboratory Accreditation.

Testing and Data Management Services

1101 Richfield Road ▪ Placentia, CA 92870 ▪ (714) 572-3270 ▪ Fax (714) 572-3274

Analytical Report

CASE NARRATIVE

SDG #: 9803.0125

REPORT DATE: 4/19/98

REPORTED TO: CH2M HILL
3 HUTTON CENTRE DRIVE
SUITE 200
SANTA ANA, CA 92707

ATTN.: MR. ROB LOWEY

PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

DATE SAMPLED: 3/19/98
DATE RECEIVED: 3/19/98
 # OF SAMPLES: 31
SAMPLE MATRIX: SOIL, WATER
CLIENT SAMPLE ID:

SOIL		WATER
HG09-01/CH	HG18-01/CH5.0'-5.5'	HG09-10-W/CH
HG09-02/CH	HG18-02/CH11.0'-11.5'	HG06A-10-W/CH
HG06B-01/CH	HG18-02/CH11.5'-12.0'	EB0319/CH
HG06B-02/CH	HG16-01/CH2.5'-3.0'	HG18-10-W/CH
HG06A-01/CH	HG16-01/CH3.0'-3.5'	HG18-11-W/CH2
HG06A-02/CH	HG16-03/CH	HG16-10-W/CH
HG05-01/CH	HG16-02/CH	HG16-10-W/CHMS/MSD
HG05-02/CH	HG10-01/CH2.5'-3.0'	RBHG-10-W/CH
HG08-01/CH	HG10-01/CH5.0'-5.5'	
HG08-02/CH	HG10-02/CH5.5'-6.0'	
HG08-03/CH	HG02/CH10.5'-11.0'	
HG18-01/CH2.5'-3.0'		

NOTE: All metals are on hold as per client request.

SAMPLE HANDLING & CONTROL STATEMENT

The above mentioned samples were received in appropriate containers accompanied by a fully signed and dated chain-of-custody record. The containers were assigned unique identification numbers and had sufficient amount for the test requested unless otherwise noted in the accompanying laboratory report. The ice chest(s) were received under appropriate custody seals. There were no site specific quality control requirements made at the time of sample submittal. The samples did not exceed the holding time for the requested test parameters.

QUALITY CONTROL SUMMARY STATEMENT

Laboratory Quality Control parameters and results of instrument calibration standards were all within control limits and the analytical data hereby submitted falls within acceptable limits of accuracy and precision unless otherwise indicated. Please see the Quality Control Data submitted in this report for additional information. In addition, necessary information regarding instrument calibration, MS/MSD, LCS/LCSD, method blank, and all other pertinent Quality Control measures are hereby enclosed for review.

SUBMITTED BY:

Girma Selassie
Director

CERTIFICATE OF APPROVED ANALYSIS

The information contained in this cover sheet is an integral part of the attached analytical report.

Testing and Data Management Services

1101 Richfield Road ▪ Placentia, CA 92870 ▪ (714) 572-3270 ▪ Fax (714) 572-3274

Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

MATRIX: LIQUID
UNIT: mg/l

[C_{10}-C_{40}]

Lab ID:	CL15066	CL15071	CL15077	CL15078	CL15085	CL15090	Reporti Limit
Client Sample ID:	HG09-10-W/CH	HG06A-10-W/CH	EB0319/CH	HG18-10-W/CH	HG16-10-W/CHMS/MSD	RBHG-10-W/CH	
Compounds: D.F.:	1	1	1	1	1	1	
C_{10}-C_{15}	170	108	63	116	490	109	10
C_{16}-C_{19}	235	130	110	188	373	ND	10
C_{20}-C_{23}	209	82	ND	70	210	ND	10
C_{24}-C_{27}	101	63	ND	128	227	ND	10
C_{28}-C_{35}	36	12	ND	33	217	ND	10
C_{36}-C_{39}	ND	12	ND	19	118	ND	10
C_{40}-C_{43}	ND	60	ND	ND	32	21	10

Surrogate Spiked	SURROGATE % RECOVERY						Con Lin
Chlorobenzene	153*	123	104	101	117	82	

ND denotes Not Detected at the Indicated Reporting Limit.

NOTES:

** Out of criteria due to sample matrix interference. The Laboratory Control Standard (LCS) is a control sample of known interference free matrix that is analyzed usi the same reagents, preparation and analytical methods employed for this set of samples. The LCS percent recovery data verifies method and system performan and is used for validation of sample batch results. The MS/MSD results are not used to determine the acceptance or rejection of batch analyses data due to t potential impact of matrix effects arising from sample matrix interference. These results are included as sample related information only and should be evaluat accordingly.*

This report is preceded by a cover sheet that contains vital information.

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Testing and Data Management Services

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Analytical Report

CLIENT: CH2M HILL

ATTN.: MR. ROB LOWEY

PROJECT #: 137125.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0125

MATRIX: SOIL

UNIT: mg/kg

[C_{10}-C_{40}]

Lab ID:	CL15064	CL15065	CL15067	CL15068	CL15069	CL15070	Reporting Limit
Client Sample ID:	HG09-01/CH	HG09-02/CH	HG06B-01/CH	HG06B-02/CH	HG06A-01/CH	HG06A-02/CH	
Compounds: D.F.:	1	1	1	1	1	1	
C_{10}-C_{15}	102	109			35	ND	10
C_{16}-C_{19}	116	ND			ND	ND	10
C_{20}-C_{23}	31	16			ND	11	10
C_{24}-C_{27}	ND	69			ND	20	10
C_{28}-C_{36}	13	ND			ND	ND	10
C_{36}-C_{39}	ND	ND			ND	ND	10
C_{40}-C_{43}	ND	ND			ND	ND	10

Surrogate Spiked	SURROGATE % RECOVERY					Control Lim.
Chlorobenzene	164*	93			118	82	60-150

ND denotes Not Detected at the Indicated Reporting Limit.

NOTES:

* Out of criteria due to sample matrix interference. The Laboratory Control Standard (LCS) is a control sample of known interference free matrix that is analyzed usi the same reagents, preparation and analytical methods employed for this set of samples. The LCS percent recovery data verifies method and system performanc and is used for validation of sample batch results. The MS/MSD results are not used to determine the acceptance or rejection of batch analyses data due to tl potential impact of matrix effects arising from sample matrix interference. These results are included as sample related information only and should be evaluat accordingly.

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Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0125

MATRIX: SOIL
UNIT: mg/kg

[C_{10}-C_{40}]

Lab ID:	CL15072	CL15073	CL15074	CL15075	CL15076	CL15081	Reporting Limit
Client Sample ID:	HG05-01/CH	HG05-02/CH	HG08-01/CH	HG08-02/CH	HG08-03/CH	HG18-01/CH5.0'-5.5'	
Compounds: D.F.:	1	1	1	1	1	1	
C_{10}-C_{15}	77	30	ND	23	ND	31	10
C_{16}-C_{19}	110	ND	ND	81	ND	12	10
C_{20}-C_{23}	16	ND	ND	118	ND	10	10
C_{24}-C_{27}	ND	ND	ND	268	26	ND	10
C_{28}-C_{33}	ND	ND	ND	1320	35	ND	10
C_{34}-C_{39}	19	ND	ND	1070	123	11	10
C_{40}-C_{43}	95	ND	ND	940	184	ND	10

Surrogate Spiked	SURROGATE % RECOVERY						Co[illegible]
Chlorobenzene	147	112	85	68	82	97	60-[illegible]

ND denotes Not Detected at the Indicated Reporting Limit.

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Testing and Data Management Services

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Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 137125.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0125

MATRIX: SOIL
UNIT: mg/kg

[C_{10}-C_{40}]

Lab ID:	CL15083	CL15087	CL15088	CL15089	CL15092	CL15094	Reporting Limit
Client Sample ID:	HG18-02/CH11.5'-12.0'	HG16-01/CH3.0'-3.5'	HG16-03/CH	HG16-02/CH	HG10-01/CH5.0'-5.5'	HG02/CH10.5'-11.0'	
Compounds: D.F.:	1	1	1	1	1	1	
C_{10}-C_{15}	61	ND	42		90	ND	10
C_{16}-C_{19}	12	83	12		112	ND	10
C_{20}-C_{23}	38	240	ND		15	ND	10
C_{24}-C_{27}	ND	650	ND		38	ND	10
C_{28}-C_{36}	ND	2510	ND		11	68	10
C_{36}-C_{39}	ND	1014	ND		12	107	10
C_{40}-C_{43}	ND	933	ND		34	161	10

Surrogate Spiked	SURROGATE % RECOVERY					Control Lim
Chlorobenzene	92	89	120		129	84	60-150

ND denotes Not Detected at the indicated Reporting Limit.

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Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 137125.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0125

MATRIX: LIQUID
UNIT: µg/l

Prepared: 4/17/98
Analyzed: 4/17/98
Analyst: LR*

SEMI-VOLATILE ORGANICS, EPA-8270

L&R ID:	8W-1585	8W-1590	8W-1582	8W-1600	
CLI Lab ID:	METHOD BLANK	CL15066	CL15077	CL15078	
Client Sample ID:	———	HG09-10-W/CH	EB0319-CH	HG18-10-W/CH	Reporting Limit
COMPOUNDS: D.F.:	1	1	1	1	
2,4,5-Trichlorophenol	ND	ND	ND	ND	10
2,4,6-Trichlorophenol	ND	ND	ND	ND	10
2,6-Dichlorophenol	ND	ND	ND	ND	10
2,4-Dimethylphenol	ND	ND	ND	ND	10
2,4-Dinitrophenol	ND	ND	ND	ND	50
2,4-Dinitrotoluene	ND	ND	ND	ND	10
2,6-Dinitrotoluene	ND	ND	ND	ND	10
2-Chloronaphthalene	ND	ND	ND	ND	10
2-Chlorophenol	ND	ND	ND	ND	10
2-Methylnaphthalene	ND	ND	ND	ND	10
2-Methylphenol	ND	ND	ND	ND	10
2-Nitroaniline	ND	ND	ND	ND	10
2-Nitrophenol	ND	ND	ND	ND	50
3,3'-Dichlorobenzidine	ND	ND	ND	ND	50
3-Nitroaniline	ND	ND	ND	ND	50
4,6-Dinitro-2-methylphenol	ND	ND	ND	ND	50
4-Bromophenyl phenyl ether	ND	ND	ND	ND	10
4-Chloro-3-methylphenol	ND	ND	ND	ND	10
4-Chloroaniline	ND	ND	ND	ND	10
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	10
4-Methylphenol	ND	ND	ND	ND	10
4-Nitroaniline	ND	ND	ND	ND	10
4-Nitrophenol	ND	ND	ND	ND	50
Acenaphthene	ND	ND	ND	ND	50
Acenaphthylene	ND	ND	ND	ND	10
Anthracene	ND	ND	ND	ND	10
Benzo [a] anthracene	ND	ND	ND	ND	10
Benzo [a] pyrene	ND	ND	ND	ND	10
Benzo [b] fluoranthane	ND	ND	ND	ND	10
Benzo [g,h,i] perylene	ND	ND	ND	ND	10
Benzo [k] fluoranthene	ND	ND	ND	ND	10
bis-(2-Chloroethoxy)-methane	ND	ND	ND	ND	10
bis-(2-Chloroethyl)	ND	ND	ND	ND	10
bis (2-Ethylhexyl)-phthalate	ND	10	ND	56	10
Butyl benzyl phthalate	ND	ND	ND	ND	10
Carbazole	ND	ND	ND	ND	10

Continued on next page...

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CLi Testing and Data Management Services
1101 Richfield Road ▪ Placentia, CA 92870 ▪ (714) 572-3270 ▪ Fax (714) 572-3274

Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0125

MATRIX:	LIQUID
UNIT:	µg/l

Prepared:	4/17/98
Analyzed:	4/17/98
Analyst:	LR*

SEMI-VOLATILE ORGANICS, EPA-8270 Continued...

L&R ID:	8W-1585	8W-1590	8W-1582	8W-1600	
CLI Lab ID:	METHOD BLANK	CL15066	CL15077	CL15078	
Client Sample ID:	————	HG09-10-W/CH	EB0319-CH	HG18-10-W/CH	Reporting Limit
COMPOUNDS: D.F.:	1	1	1	1	
Chrysene	ND	ND	ND	ND	10
Di-n-butyl phthalate	ND	ND	ND	ND	10
Di-n-octyl phthalate	ND	ND	ND	ND	10
Dibenz [a,h] anthracene	ND	ND	ND	ND	10
Dibenzofuran	ND	ND	ND	ND	10
Diethyl phthalate	ND	ND	ND	ND	10
Dimethyl phthalate	ND	ND	ND	ND	10
Fluoranthene	ND	ND	ND	ND	10
Fluorene	ND	ND	ND	ND	10
Hexachlorobenzene	ND	ND	ND	ND	1.0
Hexachlorobutadiene	ND	ND	ND	ND	10
Hexachlorocyclopentadiene	ND	ND	ND	ND	50
Hexachlorethane	ND	ND	ND	ND	10
Indeno [1,2,3-c,d]pyrene	ND	ND	ND	ND	10
Isophorone	ND	ND	ND	ND	10
N-Nitroso-di-n-propylamine	ND	ND	ND	ND	10
N-Nitrosodiphenylamine	ND	ND	ND	ND	10
Naphthalene	ND	ND	ND	ND	10
Nitrobenzene	ND	ND	ND	ND	10
Pentachlorophenol	ND	ND	ND	ND	50
Phenanthrene	ND	ND	ND	ND	10
Pyrene	ND	ND	ND	ND	10
Phenol	ND	ND	ND	ND	10

SURROGATE SPIKE	% SURROGATE RECOVERY				Control Limit
2-Fluorophenol	40	24	0	21	21-110
Phenol-d5	24	12	0	19	10-110
Nitrobenzene-d5	62	48	0	54	35-114
2-Fluorobiphenyl	66	65	0	52	43-116
2,4,6-Tribromophenol	100	36	0	49	10-123
Terphenyl-d14	114	94	0	52	33-141

NOTES:

ND denotes Not Detected at the indicated detection limit.

** Sample(s) were analyzed by Lee & Ro Environmental Laboratories.*

Approved by the State of California, Department of Health Services & A2LA-American Association for Laboratory Accreditation.

CLi Testing and Data Management Services

1101 Richfield Road ▪ Placentia, CA 92870 ▪ (714) 572-3270 ▪ Fax (714) 572-3274

Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0125

MATRIX: LIQUID
UNIT: µg/l

Prepared: 4/17/98
Analyzed: 4/17/98
Analyst: LR*

SEMI-VOLATILE ORGANICS, EPA-8270

L&R ID:	SW-1594	SW-1586	
CLI Lab ID:	CL15079	CL15084	
Client Sample ID:	HG18-11-W/CH	HG16-10-W/CH	
COMPOUNDS: D.F.:	1	1	Reporting Limit
2,4,5-Trichlorophenol	ND	ND	10
2,4,6-Trichlorophenol	ND	ND	10
2,6-Dichlorophenol	ND	ND	10
2,4-Dimethylphenol	ND	ND	10
2,4-Dinitrophenol	ND	ND	50
2,4-Dinitrotoluene	ND	ND	10
2,6-Dinitrotoluene	ND	ND	10
2-Chloronaphthalene	ND	ND	10
2-Chlorophenol	ND	ND	10
2-Methylnaphthalene	ND	ND	10
2-Methylphenol	ND	ND	10
2-Nitroaniline	ND	ND	10
2-Nitrophenol	ND	ND	50
3,3'-Dichlorobenzidine	ND	ND	50
3-Nitroaniline	ND	ND	50
4,6-Dinitro-2-methylphenol	ND	ND	50
4-Bromophenyl phenyl ether	ND	ND	10
4-Chloro-3-methylphenol	ND	ND	10
4-Chloroaniline	ND	ND	10
4-Chlorophenyl phenyl ether	ND	ND	10
4-Methylphenol	ND	ND	10
4-Nitroaniline	ND	ND	10
4-Nitrophenol	ND	ND	50
Acenaphthene	ND	ND	50
Acenaphthylene	ND	ND	10
Anthracene	ND	ND	10
Benzo [a] anthracene	ND	ND	10
Benzo [a] pyrene	ND	ND	10
Benzo [b] fluoranthane	ND	ND	10
Benzo [g,h,i] perylene	ND	ND	10
Benzo [k] fluoranthene	ND	ND	10
bis-(2-Chloroethoxy)-methane	ND	ND	10
bis-(2-Chloroethyl)	ND	ND	10
bis (2-Ethylhexyl)-phthalate	ND	ND	10
Butyl benzyl phthalate	ND	ND	10
Carbazole	ND	ND	10

Continued on next page...

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CLi Testing and Data Management Services
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Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0125

MATRIX:	LIQUID
UNIT:	µg/l

Prepared:	4/17/98
Analyzed:	4/17/98
Analyst:	LR*

SEMI-VOLATILE ORGANICS, EPA-8270 Continued...

	L&R ID:	8W-1594	8W-1586
	CLI Lab ID:	CL15079	CL15084
	Client Sample ID:	HG18-11-W/CH	HG16-10-W/CH
COMPOUNDS:	D.F.:	1	1
Chrysene		ND	ND
Di-n-butyl phthalate		ND	ND
Di-n-octyl phthalate		ND	ND
Dibenz [a,h] anthracene		ND	ND
Dibenzofuran		ND	ND
Diethyl phthalate		ND	ND
Dimethyl phthalate		ND	ND
Fluoranthene		ND	ND
Fluorene		ND	ND
Hexachlorobenzene		ND	ND
Hexachlorobutadiene		ND	ND
Hexachlorocyclopentadiene		ND	ND
Hexachloroethane		ND	ND
Indeno [1,2,3-c,d]pyrene		ND	ND
Isophorone		ND	ND
N-Nitroso-di-n-propylamine		ND	ND
N-Nitrosodiphenylamine		ND	ND
Naphthalene		ND	ND
Nitrobenzene		ND	ND
Pentachlorophenol		ND	ND
Phenanthrene		ND	ND
Pyrene		ND	ND
Phenol		ND	ND

Reporting Limit
10
10
10
10
10
10
10
10
1.0
10
50
10
10
10
10
10
10
50
10
10
10

SURROGATE SPIKE	% SURROGATE RECOVERY		Control Limit
2-Fluorophenol	34	26	21-110
Phenol-d5	28	14	10-110
Nitrobenzene-d5	57	42	35-114
2-Fluorobiphenyl	58	46	43-116
2,4,6-Tribromophenol	68	48	10-123
Terphenyl-d14	59	79	33-141

NOTES:

ND denotes Not Detected at the indicated detection limit.

** Sample(s) were analyzed by Lee & Ro Environmental Laboratories.*

CLi Testing and Data Management Services
1101 Richfield Road ▪ Placentia, CA 92870 ▪ (714) 572-3270 ▪ Fax (714) 572-3274

Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY

SDG #: 9803.0125

PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

MATRIX: LIQUID
UNIT: µg/l

Prepared: 4/17/98
Analyzed: 4/17/98
Analyst: LR*

QUALITY CONTROL DATA, EPA-8270

LABORATORY CONTROL STANDARD/DUPLICAT	SPK CONC. (µg/l)	LCS (µg/l)	LCSD (µg/l)	% LCS	% LCSD	ACP % LCS	RPD	ACP % RPD
	ACCURACY						PRECISION	
Phenol	200	167	159	84	80	12-110	5	0-42
2-Chlorophenol	200	188	177	94	89	27-123	6	0-40
1,4-dichlorobenzene	100	79	76	79	76	36-97	4	0-28
n-Nitroso-di-n-propylamine	100	79	79	79	79	41-116	0	0-38
1,2,4-Trichlorobenzene	100	90	87	90	87	39-98	3	0-28
4-chloro-3-methylphenol	200	180	171	90	86	23-97	5	0-42
Acenaphthene	100	77	76	77	76	46-118	1	0-31
4-Nitrophenol	200	98	105	49	53	10-80	7	0-50
2,4-Dinitrotoluene	100	27	29	27	29	24-96	7	0-[illegible]
Pentachlorophenol	200	143	143	72	72	9-103	0	0-[illegible]
Pyrene	100	115	110	115	110	26-127	4	0-3[illegible]

MATRIX SPIKE/MATRIX SPIKE DUPLICATE	SPK CONC. (µg/l)	MS (µg/l)	MSD (µg/l)	% MS	% MSD	ACP % MS	RPD	ACP % RPD
	ACCURACY						PRECISION	
Phenol	200	60	81	30	41	12-110	30	0-42
2-Chlorophenol	200	92	137	46	69	27-123	39	0-40
1,4-dichlorobenzene	100	53	57	53	57	36-97	7	0-28
n-Nitroso-di-n-propylamine	100	49	66	49	66	41-116	30	0-38
1,2,4-Trichlorobenzene	100	55	70	55	70	39-98	24	0-28
4-chloro-3-methylphenol	200	121	148	61	74	23-97	20	0-42
Acenaphthene	100	49	64	49	64	46-118	27	0-31
4-Nitrophenol	200	43	44	22	22	10-80	2	0-50
2,4-Dinitrotoluene	100	25	28	25	28	24-96	11	0-38
Pentachlorophenol	200	105	144	53	72	9-103	31	0-50
Pyrene	100	82	100	82	100	26-127	20	0-31

AUDIT DATA	LAB ID	SAMPLE ID	BATCH #	ANALYZED
	CL15085	8W-1587, 8W-1588	MS/MSD	4/17/98

CLi Testing and Data Management Services
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Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0132-HB

MATRIX:	SOIL
UNIT:	µg/kg

Prepared:	4/17/98
Analyzed:	4/17/98
Analyst:	LR*

SEMI-VOLATILE ORGANICS, EPA-8270

L&R ID:	8W-1599	8W-1596	Reporting Limit
CLI Lab ID:	METHOD BLANK	CL15141	
Client Sample ID:	———	AG19-03/CH	
COMPOUNDS: D.F.:	1	2	
2,4,5-Trichlorophenol	ND	ND	1600
2,4,6-Trichlorophenol	ND	ND	330
2,6-Dichlorophenol	ND	ND	330
2,4-Dimethylphenol	ND	ND	330
2,4-Dinitrophenol	ND	ND	1600
2,4-Dinitrotoluene	ND	ND	330
2,6-Dinitrotoluene	ND	ND	330
2-Chloronaphthalene	ND	ND	330
2-Chlorophenol	ND	ND	330
2-Methylnaphthalene	ND	ND	330
2-Methylphenol	ND	ND	330
2-Nitroaniline	ND	ND	1600
2-Nitrophenol	ND	ND	330
3,3'-Dichlorobenzidine	ND	ND	660
3-Nitroaniline	ND	ND	1600
4,6-Dinitro-2-methylphenol	ND	ND	1600
4-Bromophenyl phenyl ether	ND	ND	330
4-Chloro-3-methylphenol	ND	ND	660
4-Chloroaniline	ND	ND	330
4-Chlorophenyl phenyl ether	ND	ND	330
4-Methylphenol	ND	ND	330
4-Nitroaniline	ND	ND	1600
74-Nitrophenol	ND	ND	1600
Acenaphthene	ND	ND	330
Acenaphthylene	ND	ND	330
Anthracene	ND	ND	330
Benzo [a] anthracene	ND	ND	330
Benzo [a] pyrene	ND	ND	330
Benzo [b] fluoranthene	ND	ND	330
Benzo [g,h,i] perylene	ND	ND	330
Benzo [k] fluoranthene	ND	ND	330
bis-(2-Chloroethoxy)-methane	ND	ND	330
bis-(2-Chloroethyl)	ND	ND	330
bis (2-Ethylhexyl)-phthalate	ND	ND	330
Butyl benzyl phthalate	ND	ND	330
Carbazole	ND	ND	330

Continued on next page...

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Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0132-HB

MATRIX:	SOIL
UNIT:	µg/kg

Prepared:	4/17/98
Analyzed:	4/17/98
Analyst:	LR*

SEMI-VOLATILE ORGANICS, EPA-8270 Continued...

	L&R ID:	8W-1599	8W-1596	
	CLI Lab ID:	METHOD BLANK	CL15141	
	Client Sample ID:	———	AG19-03/CH	
COMPOUNDS:	D.F.:	1	2	Reporting Limit
Chrysene		ND	365	330
Di-n-butyl phthalate		ND	ND	330
Di-n-octyl phthalate		ND	ND	330
Dibenz [a,h] anthracene		ND	ND	330
Dibenzofuran		ND	ND	330
Diethyl phthalate		ND	ND	330
Dimethyl phthalate		ND	ND	330
Fluoranthene		ND	ND	[illegible]
Fluorene		ND	ND	[illegible]
Hexachlorobenzene		ND	ND	330
Hexachlorobutadiene		ND	ND	330
Hexachlorocyclopentadiene		ND	ND	1600
Hexachloroethane		ND	ND	330
Indeno [1,2,3-c,d]pyrene		ND	ND	330
Isophorone		ND	ND	330
N-Nitroso-di-n-propylamine		ND	ND	330
N-Nitrosodiphenylamine		ND	ND	330
Naphthalene		ND	ND	330
Nitrobenzene		ND	ND	330
Pentachlorophenol		ND	ND	1600
Phenanthrene		ND	ND	330
Pyrene		ND	483	330
Phenol		ND	ND	330

SURROGATE SPIKE	% SURROGATE RECOVERY		Control Limit
2-Fluorophenol	85	92	25-121
Phenol-d5	76	80	24-113
Nitrobenzene-d5	77	93	23-120
2-Fluorobiphenyl	88	101	30-115
2,4,6-Tribromophenol	101	105	19-122
Terphenyl-d14	110	108	18-137

NOTES:

ND denotes Not Detected at the indicated detection limit.

** Sample(s) were analyzed by Lee & Ro Environmental Laboratories.*

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Analytical Report

CASE NARRATIVE

SDG #: 9803.0132-HB

REPORT DATE: 4/19/98

REPORTED TO: CH2M HILL
3 HUTTON CENTRE DRIVE
SUITE 200
SANTA ANA, CA 92707

ATTN.: MR. ROB LOWEY

PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

DATE SAMPLED: 3/19-20/98
DATE RECEIVED: 3/20/98
 # OF SAMPLES: 13
SAMPLE MATRIX: SOIL, LIQUID
CLIENT SAMPLE ID:

SOIL	WATER
HG20-01/CH	HG06B-10-W/CH
HG20-02/CH	HG08-10-W/CH
HG19-01/CH	HG05-10-W/CH
HG19-02/CH	HG05-11-W/CH
HG19-03/CH	HG20-10-W/CH
	HG20-11-W/CH
	HG19-10-W/CH
	EB0320/CH

NOTE: All metals are on hold as per client request.

SAMPLE HANDLING & CONTROL STATEMENT

The above mentioned samples were received in appropriate containers accompanied by a fully signed and dated chain-of-custody record. The containers were assigned unique identification numbers and had sufficient amount for the test requested unless otherwise noted in the accompanying laboratory report. The ice chest(s) were received under appropriate custody seals. There were no site specific quality control requirements made at the time of sample submittal. The samples did not exceed the holding time for the requested test parameters.

QUALITY CONTROL SUMMARY STATEMENT

Laboratory Quality Control parameters and results of instrument calibration standards were all within control limits and the analytical data hereby submitted falls within acceptable limits of accuracy and precision unless otherwise indicated. Please see the Quality Control Data submitted in this report for additional information. In addition, necessary information regarding instrument calibration, MS/MSD, LCS/LCSD, method blank, and all other pertinent Quality Control measures are hereby enclosed for review.

SUBMITTED BY:

Girma Selassie
Director

CERTIFICATE OF APPROVED ✓✓✓ ANALYSIS

The information contained in this cover sheet is an integral part of the attached analytical report.

DOHS Lab Certificate #:	1552	A2LA Certificate #:	0389.01
Expiration Date:	June 30, 1999	Expiration Date:	September 30, 1996 (Re-Accreditation in process)

Approved by the State of California, Department of Health Services & A2LA-American Association for Laboratory Accreditation.
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Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY
PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0132-HB

MATRIX: LIQUID
UNIT: mg/l

[C_{10}-C_{40}]

Lab ID:	CL15130	CL15131	CL15132	CL15133	CL15134	Reporting Limit
Client Sample ID:	HG06B-10-W/CH	HG08-10-W/CH	HG05-10-W/CH	HG05-11-W/CH	HG20-10-W/CH	
Compounds: D.F.:	1	1	1	1	1	
C_{10}-C_{15}	264	205	40	160	20	10
C_{16}-C_{19}	261	232	132	209	111	10
C_{20}-C_{23}	145	114	19	113	ND	10
C_{24}-C_{27}	125	126	19	87	ND	10
C_{28}-C_{35}	80	48	ND	69	ND	10
C_{36}-C_{39}	26	23	ND	24	ND	10
C_{40}-C_{43}	ND	ND	ND	ND	ND	10

Surrogate Spiked	SURROGATE % RECOVERY					Control Lim
Chlorobenzene	75	83	95	93	91	[illegible]

ND denotes Not Detected at the indicated Reporting Limit.

This report is preceded by a cover sheet that contains vital information.

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Analytical Report

CLIENT: CH2M HILL

ATTN.: MR. ROB LOWEY

PROJECT #: 137125.ED.WC.HB

PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

SDG #: 9803.0132-HB

MATRIX: LIQUID
UNIT: mg/l

[C_{10}-C_{40}]

Lab ID:	CL15135	CL15138	CL15142	Reporting Limit
Client Sample ID:	HG20-11-W/CH	HG19-10-W/CH	EB0320/CH	
Compounds: D.F.:	1	1	1	
C_{10}-C_{15}	154	192	52	10
C_{16}-C_{19}	192	237	108	10
C_{20}-C_{23}	80	133	ND	10
C_{24}-C_{27}	50	81	ND	10
C_{28}-C_{35}	38	48	ND	10
C_{36}-C_{39}	14	12	ND	10
C_{40}-C_{43}	ND	ND	ND	10

Surrogate Spiked	SURROGATE % RECOVERY			Control Limit
Chlorobenzene	95	109	90	60-150

ND denotes Not Detected at the Indicated Reporting Limit.

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Analytical Report

CLIENT: CH2M HILL
ATTN.: MR. ROB LOWEY

SDG #: 9803.0132-HB

PROJECT #: 13712S.ED.WC.HB
PROJECT NAME: SO. CALIF. EDISON – HUNTINGTON BEACH GEN. STATION

MATRIX: SOIL
UNIT: mg/kg

[C_{10}-C_{40}]

Lab ID:	CL15137	CL15139	CL15140	Reporting Limit
Client Sample ID:	HG20-02/CH	HG19-01/CH	HG19-02/CH	
Compounds: D.F.:	1	1	1	
C_{10}-C_{15}	19	312	348	10
C_{16}-C_{19}	112	230	172	10
C_{20}-C_{23}	ND	416	117	10
C_{24}-C_{27}	17	1030	34	10
C_{28}-C_{36}	ND	3000	22	10
C_{36}-C_{39}	17	1100	77	10
C_{40}-C_{43}	13	1130	42	

Surrogate Spiked	SURROGATE % RECOVERY			Control Limi
Chlorobenzene	90	162*	226*	60-150

ND denotes Not Detected at the indicated Reporting Limit.

NOTES:

** The high surrogate recoveries for some samples can be directly attributed to sample matrix interference. All other batch QC recoveries indicate acceptable method and system performance.*

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NOT TO SCALE

LEGEND

- EXISTING SOIL BORING DATA
- EXISTING MONITORING WELL
- PHASE II SOIL SAMPLING LOCATION
- PHASE II GROUNDWATER SAMPLING LOCATION
- PHASE II SOIL AND GROUNDWATER SAMPLING LOCATION
- PHASE II SOIL SAMPLING LOCATION HBH45 NOT COMPLETED
- PROPERTY TO BE SOLD (APPROXIMATE)
- PROPERTY TO BE RETAINED (APPROXIMATE)

PLATE 1

Sample Location Map
Huntington Beach Generating Station
Edison Phase II ESA

SOURCE: HUNTINGTON BEACH GENERATING STATION PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT, JUNE 1997. PREPARED BY CH2M HILL.

CH2MHILL