DRAFT

SECOND ANNUAL GROUNDWATER MONITORING REPORT

INSTALLATION RESTORATION PROGRAM (IRP)
SITES 5 & 7
NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA

MAY 31, 2006

Contract No.: N68711-03-D-5103
Delivery Order No.: 0018
DCN: CA03.135.018.002

Prepared for:
Naval Facilities Engineering Command Southwest
San Diego, California 92132-5190

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EXECUTIVE SUMMARY

This Second Annual Groundwater Monitoring Report presents the findings, conclusions, and recommendations of the annual groundwater sampling event conducted at Installation Restoration Program (IRP) Sites 5 and 7, Naval Weapons Station (NAVWPNSTA) Seal Beach, Seal Beach, California (Figures 1 and 2). Groundwater sampling event at IRP Sites 5 and 7 were conducted from October 31, 2005 through November 2, 2005. These most recent groundwater analytical results are presented along with analytical results from IRP Sites 5 and 7 obtained during quarterly monitoring between September 2003 and October 2004 and summarized in the Final First Annual Groundwater Monitoring Report for IR Sites 4, 5, 6, and 7 (Bechtel Environmental, Inc. [BEI] 2005). MARRS Services, Inc. (MARRS) prepared this report on behalf of Naval Facilities Engineering Command Southwest (NAVFAC SW), in accordance with Delivery Order 0018 under MARRS' Indefinite Quantity Contract for Architecture and Engineering Services for Environmental Services for Storm Water and Incidental Potable Water, Groundwater, and Wastewater Studies on Navy and Marine Corps Installations, contract number N68711-D-03-5103.

The purpose of the continued groundwater monitoring program is to evaluate groundwater conditions at the following IRP Sites:

- IRP Site 5 – Clean Fill Disposal Area
- IRP Site 7 – Station Landfill

Based on the findings and recommendations of the First Annual Groundwater Monitoring Report (BEI 2005), IRP Sites 4 and 6 were removed from the monitoring program. However, selected monitoring wells from IRP Site 4 were included in the IRP Site 7 monitoring well network for the second annual groundwater monitoring event.

This monitoring program also continues to evaluate surface water conditions at IRP Site 5. Potential impacts to surface water at IRP Site 5 stem from the placement of backfill material during a removal action conducted at IRP Site 5 between September 2001 and April 2002.

Groundwater and surface water data from IRP Sites 5 and 7 were collected during the three quarterly monitoring events in the first year of monitoring (2003/2004) and during a second annual monitoring event in the second year of monitoring (2005). The following are the dates of the four monitoring events:

- October 2003 (First Quarter)
- March 2004 (Second Quarter)
- September 2004 (Third Quarter – First Annual)
- November 2005 (Second Annual)

Screening values for analytes reported in groundwater and surface water samples were compared to screening values established in the Work Plan (BEI 2003) and in the First Annual Groundwater Monitoring Report for IR Sites 4, 5, 6, and 7 (BEI 2005). The screening values consist of California Toxics Rule Criteria for Enclosed Bays and Estuaries, Saltwater Aquatic Life Protection (U.S. EPA 2000a), Supplemental Criteria for Aquatic Life Protection (BEI 2005), and stationwide upper limit background values (ULBVs) (JEG 1997).

IRP SITE 5 – CLEAN FILL DISPOSAL AREA

Based on recommendations presented in the First Annual Groundwater Monitoring Report for IR Sites 4, 5, 6, and 7 (BEI 2005) surface water samples collected during the second annual monitoring event were only analyzed for PCBs. PCBs were not detected at or above the reporting limit (RL) in any of the three surface water samples collected during the four monitoring events, as shown on Figure 7 and summarized in Table 3. The screening value for PCBs is 0.03 micrograms per liter (µg/l); however, the lowest RL achievable by the analytical laboratories during the monitoring program was 0.19 µg/l.

Regardless of the established screening value, consistent non-detect results without any estimated concentrations (concentrations between the RL and the instrument method detection limit [MDL]) is strong evidence that PCB are not a contaminant of concern at IRP Site 5.

Groundwater samples from IRP Site 5 were analyzed for volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), target analyte list (TAL) metals, hexavalent chromium, ammonia, and anions (chloride, nitrate, and sulfate). During this monitoring event, VOCs were not detected in any sample at concentrations exceeding their screening values. However, methyl tert-butyl ether (MTBE) concentrations remain relatively high in upgradient monitoring well MW-05-01 and have been detected above its screening value of 440 µg/l during the last two monitoring events. Relatively low concentrations of MTBE continue to be detected in downgradient monitoring well MW-05-04. Although MTBE concentrations in this well have never exceeded its screening value, concentrations appear to be increasing. It is likely that MTBE detected in monitoring wells MW-05-01 and possibly MW-05-04 are attributed to the petroleum hydrocarbon plume at IRP Site 14 or other unknown sources.

PAHs were not detected in any sample during the second annual groundwater monitoring event at concentrations exceeding their screening values deemed protective of the marine environment. Although multiple PAHs have been detected in all five monitoring wells at IRP Site 5, PAHs have only been detected at concentrations above their respective screening values in monitoring well MW-05-03. The only PAHs detected in monitoring well MW-05-03 during this second annual groundwater monitoring event were acenaphthene and fluoranthene; however, they were detected at concentrations below their respective screening values.

Multiple metals have been detected in all monitoring wells at IRP Site 5. Hexavalent chromium, iron, manganese, nickel, and zinc have been detected at concentrations exceeding their screening values in monitoring well MW-05-02 during previous monitoring events. Only iron and manganese were detected above their screening values

in monitoring well MW-05-2 during this second annual groundwater monitoring event. Iron and manganese have also exceeded their screening values in monitoring wells MW-05-03, and -04 during this and/or previous monitoring events. No other metals have been detected in any other monitoring wells at concentrations exceeding their screening values.

During this second annual groundwater monitoring event iron and manganese were the only metals detected above their screening values in any of the monitoring wells. Hexavalent chromium has only been detected once in monitoring well MW-05-02. This was during the third quarterly monitoring event in October 2004. Nickel and zinc have only been detected above their screening values in monitoring well MW-05-02 during the first quarterly monitoring event in October 2003.

As discussed in the First Annual Groundwater Monitoring Report (BEI 2005) iron and manganese are common cations in water. In monitoring wells MW-05-02, -03, and -04 reported concentrations of dissolved iron and manganese in groundwater samples can be attributable to the increase solubility of iron and manganese in the presence of low dissolve oxygen (DO), low oxidation-reduction potential (ORP), and low pH (reducing environment). It is likely that the elevated iron and manganese concentrations are attributed to fluctuations the oxidation-reduction potential in groundwater due to tidal changes at the site and not the result of previous ordnance and explosives (OE) items and/or construction debris at the site. Furthermore, concentrations of iron an manganese are not expected to persist if groundwater discharges to surface water since the iron and manganese is expected to precipitate in the presence of the increased DO and alkalinity of the surface water (Charette and Sholkovitz 2002, Garman and ASGTF 2000, Testa et al. 2002).

Based on the conclusions present in Section 6.0 of this report, the Data Quality Objectives (DQO) Decision Rules (Step 5) (BEI 2003), and the DQO Decision Flow Diagram (BEI 2005) the following recommendations have been made. The recommendations for groundwater monitoring during the third year are summarized in Table 12.

1. Remove monitoring well MW-05-01 (upgradient well) from IRP Site 5 and include it in with the monitoring program for IRP Site 14.

2. Discontinue monitoring for metals in all monitoring wells at IRP Site 5 with the exception of monitoring well MW-05-02. In monitoring well MW-05-02 monitor for an abbreviated metals suite (hexavalent chromium, nickel, and zinc) during a third annual monitoring event. If metals are not detected (with the exception of iron and manganese) or below screening values then discontinue monitoring after the third year. As discussed in Section 5.1.1.2.3 iron and manganese are common cations in water. It is likely that the elevated concentrations exist because of reducing conditions at the site (refer to metals discussion in Section 5.1.1.2.3) However, both metals are not likely to persist if groundwater discharges to surface water due to precipitation factors (increase DO and ORP) (BEI 2005) and therefore do not likely represent a threat to ecological receptors.

3. Discontinue monitoring for PAHs in all monitoring wells at IRP Site 5. PAHs exhibit either a decreasing tread or no trend and were not detected at concentrations above their respective screening values during the first and second annual groundwater monitoring events.

4. Discontinue monitoring for VOCs in all wells at IRP Site 5 with the exception of MW-05-04. Monitor MW-05-04 for MTBE only. Although MTBE has been detected in MW-05-04 at concentrations below its screening value of 440 µg/l, concentrations have shown an increase over the last four monitoring events. Concentrations have increased from non-detect in October 2003 to 36 µg/l in November 2005 (refer to time series concentration plots in Appendix E). If MTBE concentrations show a decreasing trend following the third annual monitoring event then this well should be considered for removal from the monitoring program.

5. Retain monitoring well MW-05-05 for groundwater level measurements only. Abandon the monitoring well when the monitoring program is complete.

6. Discontinue monitoring for general chemistry (ammonia, chloride, sulfate, and nitrate) in all monitoring wells at IRP Site 5.

7. Continue water level monitoring in wells at IRP Site 5 until the groundwater monitoring program is discontinued in its entirety.

8. Discontinue the surface water monitoring program at IRP Site 5.

IRP SITE 7 – STATION LANDFILL

Groundwater samples from IRP Site 7 were analyzed for VOCs, semi volatile organic compounds (SVOCs), pesticides, PCBs, TAL metals, hexavalent chromium, and cyanide. As during the previous monitoring events, VOCs and SVOCs were not detected at concentrations above their screening values in any of the monitoring wells.

Pesticides have been detected in all monitoring wells at IRP Site 7. The only pesticide detected during the second annual groundwater monitoring event was beta-BHC in monitoring wells MW-04-02 and -04. Concentrations of beta-BHC in both wells exceeded its supplemental screening values of 0.016 µg/l, the level deemed protective of the marine environment. This is the first occurrence of beta-BHC, and the screening value is based on the screening value for alpha-BHC. Each of the following pesticides have been detected during one or more of the previous monitoring events at concentrations above their supplemental screening values: 4,4'-Dichlorodiphenyldichloroethane (DDD), 4,4'-Dichlorodiphenyldichloroethene (DDE), 4,4'-Dichlorodiphenyltrichloroethane (DDT), Dieldrin, gamma-chlordane, heptaclor, and beta-BHC.

No PCBs were detected during this second annual groundwater monitoring event in any of the monitoring wells at IRP Site 7. The only PCB ever detected was Aroclor 1260 in monitoring well W-42 during the October 2004 monitoring event. The screening value for PCBs is 0.03 µg/l; however, the lowest RL achievable by the analytical laboratories during the monitoring program was 0.19 µg/l. Regardless of the established screening value, consistent non-detect results (with the exception of the one detection of Aroclor 1260 in monitoring well W-42) without any estimated concentrations (concentrations between the RL and the instrument MDL is strong evidence that PCBs are not a contaminant of concern at IRP Site 7.

Multiple metals have been detected in all monitoring wells at IRP Site 7. During the last four monitoring events the following metals have been detected in one or more

monitoring wells at concentrations exceeding their respective screening values: iron, manganese, cadmium, and cobalt.

Cyanide continues to be detected in monitoring well 07M01 at concentrations exceeding its screening value of 0.001. In 07M01 cyanide has exceeded its screening value during each of the last four monitoring events and during four of the six monitoring events from 1994 through 1998. The screening value for cyanide of 0.001 µg/l is lower than the laboratory RLs for cyanide. During the last four monitoring events the RL for cyanide has been 0.01 µg/l. Cyanide was also detected in monitoring well MW-04-04 during the October 2004 monitoring event. However, cyanide was not detected in this well during previous monitoring events or during this second annual groundwater monitoring event. Both monitoring wells 07M01 and MW-04-04 are located along the Orange County Flood Control Channel. The detection of cyanide at these two wells may be associated with the channel and not the landfill, since cyanide was not detected in groundwater samples from monitoring wells at other part of Site 7.

Based on the conclusions presented in Section 6.0 of this report, the DQO Decision Rules (Step 5) (BEI 2003), and the DQO Decision Flow Diagram (BEI 2005) the following recommendations for IRP Site 7 have been made. The recommendations for groundwater monitoring during the third year are summarized in Table 12.

1. Discontinue monitoring for VOCs at IRP Site 7.
2. Discontinue monitoring for SVOCs at IRP Site 7.
3. Discontinue monitoring for PCBs.
4. Discontinue monitoring for metals in all monitoring wells at IRP Site 7 with the exception of monitoring wells W-41 and W45. Monitor for an abbreviated metals suite (cobalt in W-41 and cadmium in W-45) during a third annual monitoring event. As discussed in Section 5.1.2.1.5 iron and manganese are common cations in water. Both metals are not likely to persist if groundwater discharges to surface water (BEI 2005).
5. Continue to monitor for pesticides during the third annual monitoring event.
6. Continue monitoring for cyanide at IRP Site 7 but reduce the number of wells being samples for cyanide to the five wells located near and along

the Orange County Flood Control Channel. This includes MW-04-02, -03, -04, W-42, and 07M01. Both monitoring wells 07M01 and MW-04-04 are located along the Orange County Flood Control Channel. The detection of cyanide in monitoring wells 07M01 and Mw-04-04 may be associated with the channel and not the landfill, since cyanide was not detected in groundwater samples from monitoring wells at other part of Site 7.

7. Continue water level monitoring in wells at IRP Site 5 until the groundwater monitoring program is discontinued in its entirety.

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ACRONYMS/ABBREVIATIONS

1,2-DCA	1,2-dichloroethane
BEI	Bechtel Environmental, Inc.
BHC	benzene hexachloride
BNI	Bechtel National, Inc.
COPC	chemicals of potential concern
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
DO	dissolved oxygen
DQO	data quality objective
ºF	degree Fahrenheit
FWENC	Foster Wheeler Environmental Corporation
IAS	initial assessment study
IRP	Installation Restoration Program
J	estimated
JEG	Jacobs Engineering Group, Inc.
µg/l	micrograms per liter
MARRS	MARRS Services, Inc.
MDL	method detection limit
mg/l	milligrams per liter
MS	matrix spike
MSD	matrix spike duplicate
MTBE	methyl tert-butyl ether
NAVFAC SW	Naval Facilities Engineering command Southwest
NAVWPNSTA	Naval Weapons Station
NEESA	Naval Energy and Environmental Support Activity
NTU	nephelometric turbidity units
NWR	National Wildlife Refuge
OE	ordnance and explosives
ORP	oxidation-reduction potential
%	percent
PAH	polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyls

ACRONYMS/ABBREVIATIONS

QC	quality control
RI	remedial investigation
RL	reporting limit
SWDIV	Southwest Division Naval Facilities Engineering Command
SVOC	semivolatile
TAL	target analyte list
TtFW	Tetra Tech Foster Wheeler
ULBV	upper limit background value
U.S. EPA	United States Environmental Protection Agency
VOC	volatile organic compound

1.0 INTRODUCTION

This Second Annual Groundwater Monitoring Report presents the findings, conclusions, and recommendations of the annual groundwater sampling event conducted at Installation Restoration Program (IRP) Sites 5 and 7, Naval Weapons Station (NAVWPNSTA) Seal Beach, Seal Beach, California (Figures 1 and 2). Groundwater sampling event at IRP Sites 5 and 7 were conducted from October 31, 2005 through November 2, 2005. These most recent groundwater analytical results are presented along with analytical results from IRP Sites 5 and 7 obtained during quarterly monitoring between September 2003 and October 2004 and summarized in the Final First Annual Groundwater Monitoring Report for IR Sites 4, 5, 6, and 7 (Bechtel Environmental, Inc. [BEI] 2005). MARRS Services, Inc. (MARRS) prepared this report on behalf of Naval Facilities Engineering Command Southwest (NAVFAC SW), in accordance with Delivery Order 0018 under MARRS' Indefinite Quantity Contract for Architecture and Engineering Services for Environmental Services for Storm Water and Incidental Potable Water, Groundwater, and Wastewater Studies on Navy and Marine Corps Installations, contract number N68711-D-03-5103.

1.1 PURPOSE

The purpose of the continued groundwater monitoring program is to evaluate groundwater conditions at the following IRP Sites:

- IRP Site 5 – Clean Fill Disposal Area
- IRP Site 7 – Station Landfill

Based on the findings and recommendations of the First Annual Groundwater Monitoring Report (BEI 2005), IRP Sites 4 and 6 were removed from the monitoring program. However, selected monitoring wells from IRP Site 4 were included in the IRP Site 7 monitoring well network for the second annual groundwater monitoring event.

This monitoring program also continues to evaluate surface water conditions at IRP Site 5. Potential impacts to surface water at IRP Site 5 stem from the placement of backfill material during a removal action conducted at IRP Site 5 between September 2001 and April 2002.

1.2 SCOPE

Based on the conclusions and recommendations of the First Annual Groundwater Monitoring Report for IRP Sites 4, 5, 6, and 7 (BEI 2005), an additional groundwater monitoring event was conducted at IRP Sites 5 and 7. This monitoring event was conducted one year after the last monitoring event in October 2004. This report presents data collected during the second annual monitoring event and evaluates historical data in addition to the data collected during October/November 2005. Using the discussion rules established in the Final Work Plan (BEI 2003), this report evaluates the data and makes recommendations regarding future groundwater monitoring and/or the need for further action.

Data collected during the second year of groundwater monitoring continues to provide information on chemical concentrations, hydrology, and temporal trends that will be used to support or refine previous recommendations. The technical approach used for data collection and evaluation is based on the data quality objectives (DQOs) developed in the Final Work Plan (BEI 2003) in accordance with the United States Environmental Protection Agency (U.S. EPA) seven-step DQO process (U.S. EPA 1994). A summary of the DQOs for IRP Sites 5 and 7 (BEI 2003) are presented in Appendix A.

The following activities were conducted during the second year of monitoring conducted in October/November 2005:

- one round of groundwater sampling at IRP Site 5
- one round of surface water sampling at IRP Site 5
- one round of groundwater sampling at IRP Site 7 (including three wells from IRP Site 4)

- laboratory analysis of groundwater and surface water samples
- validation of analytical data
- preparation of this annual groundwater monitoring report

1.3 REPORT ORGANIZATION

This Second Annual Groundwater Monitoring Report is organized as follows:

- Section 1 summarizes the scope and purpose of the groundwater monitoring program
- Section 2 provides a site description and background information
- Section 3 provides a description of field activities
- Section 4 is a summary of the Second Annual Groundwater Monitoring Event
- Section 5 provides a data evaluation
- Section 6 presents the conclusions and recommendations

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2.0 SITE DESCRIPTION AND BACKGROUND

This section provides a summary of both regional and site-specific background information for NAVWPNSTA Seal Beach including the location, history, physical setting, and previous investigations.

2.1 SITE BACKGROUND AND SETTING

NAVWPNSTA Seal Beach is located in the city of Seal Beach, California, within Township 5 South, Range 11 West, Section 7, and Range 12 west, Section 12. The facility is located approximately 26 miles south of downtown Los Angeles.

Surrounding municipalities include Los Alamitos to the north, Westminster and Huntington Beach to the east, and Seal Beach to the west. The Pacific Ocean adjoins NAVWPNSTA Seal Beach to the south. Surrounding land use consists of residential, commercial, industrial, and recreational areas.

The climate in the area is classified as a marine-influence southern California coastal region with mild winters that average 52 degrees Fahrenheit (ºF) and summers that average 68 ºF. Temperatures range from winter lows in the 30s ºF to summer highs in the 90 ºF. Annual precipitation averages 12.5 inches with approximately 90 percent occurring between the months of November and April. Although precipitation is low, a high humidity level is sustained due to the proximity of the Pacific Ocean (Bechtel Environmental, Inc. [BEI], 2003).

2.2 BASE HISTORY

NAVWPNSTA Seal Beach encompasses approximately 5,000 acres that were purchased by the Navy between 1941 and 1944. The acreage was commissioned in 1944 as the Naval Ammunition and Net Depot and was recommissioned in 1962 as Naval Weapons Station Seal Beach. In 1964, Anaheim Bay and its salt marsh were designated as a Navy

Wildlife Refuge. On 30 August 1972, President Nixon signed a resolution establishing Anaheim Bay and its salt marsh as a National Wildlife Refuge (NWR) (SWDIV 1990). In October 1997, the station was renamed Weapons Support Facility, Seal Beach. The facility name reverted to Naval Weapons Station Seal Beach in September 1998.

NAVWPNSTA Seal Beach is part of the Commander Navy Region Southwest. The station provides fleet combatants with ready-for-use ordnance. Because of its geographic location, the station serves as a supply point for operating Navy and Marine Corps bases in southern California.

2.3 SITE DESCRIPTIONS

The following sections provide a brief description of each site and summarize the previous investigations that form the basis for groundwater monitoring.

2.3.1 IRP Site 5 – Clean Fill Disposal Area

IRP Site 5 is an area of approximately 4.1 acres situated in the southwest quadrant of the station, near the southeast corner of Kitts Highway and Bolsa Avenue (Figures 2 and 3). Approximately 3.3 acres of this site was formerly covered with disposal fill materials. IRP Site 5 is located within the boundaries of the NWR.

In 1944, during the initial construction of NAVWPNSTA Seal Beach, construction debris and clean fill were disposed in this area. During the initial assessment study (IAS), the site was observed to be approximately 3 feet above the adjacent salt marsh and covered with vegetation (Naval Energy and Environmental Support Activity [NEESA] 1985). Ordnance and explosives (OE) were reportedly found at this site. In the past, trucks had been observed at the site off-loading ordnance-related material such as shell casings mixed with construction debris.

As part of the RSE, soil, sediment, and groundwater samples were collected and analyzed to characterize and delineate the lateral and vertical extent of chemicals of potential concern (COPCs) (BNI 2001). The RSE concluded that confirmatory groundwater monitoring is needed to further evaluate the effect of hexavalent chromium, manganese, ammonia, and nitrate on groundwater. It also recommended that the potential for the presence of OE items be further evaluated and any OE items identified by that evaluation be removed.

A non-time-critical removal action was performed at this site between September 2001 and April 2002. The fill material was excavated and sifted to remove OE items and construction debris. OE items were removed from the site and disposed of or destroyed under the direction of trained OE personnel. Construction debris and hazardous soil were removed from the site and disposed of at an appropriate landfill. Hazardous soil that was disposed of could have contained residual COPCs identified during the RSE, thus potentially reducing these low COPC concentrations even further. Clean soil was staged on-base for use as backfill at another IRP site. The remaining nonhazardous soil was used as backfill to bring a portion of IRP Site 5 up to the adjacent wetland grade, which is within the NWR. This portion of the site, now part of the wetland, periodically becomes inundated. The project closure report noted that confirmatory surface water and sediment sampling would be conducted in addition to the confirmatory groundwater monitoring recommended in the RSE (FWENC 2003b).

2.3.2 IRP Site 7 – Station Landfill

IRP Site 7 is an area of approximately 33 acres that was used by the station for disposal of various wastes (Figures 2 and 4) (CH2M Hill 2002). It is located near the southern boundary of the station and at the eastern boundary of the Seal Beach NWR. Operations began at this site between October 1955 and December 1957 and continued until about 1973 when a contract was awarded for off-site disposal of wastes. The largest volume of waste was reportedly empty paint and solvent containers, mostly 1- and 5-gallon cans.

Some cans were supposedly full to partially full or contained rags or sludge. Empty 1- to 5-gallon cans of zinc-chromate paint, mineral spirits, alcohol, solvents, and lacquer thinner are also suspected of being disposed at the landfill. In addition, other empty or partially full 55-gallon drums of solvent, including trichloroethene, carbon tetrachloride, and oil, were disposed at IRP Site 7. More than 78,000 empty spray paint cans are estimated to have been disposed of here. Other reported wastes include paint booth filters and 55-gallon drums containing mercury batteries, transformer oil, asbestos, waste lumber, and metal banding. Although no well-defined plumes exist, water quality data collected during a groundwater monitoring study (CH2M Hill 1999) suggest IRP Site 7 groundwater has been impacted by prior site activities (NEESA 1985, CH2M Hill 2002). Exploratory drilling and trenching conducted as part of a supplemental characterization of the landfill identified primarily inert materials (FWENC 1999).

Seven potentially contaminated strata were identified at IRP Site 7: five soils, one sediment, and one groundwater. The potentially contaminated soil strata consist of three trenches, the area outside the trenches, and a lead "hot spot." In general, relatively low levels of tetrachloroethene, semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs) (Aroclors 1248 and 1254), various metals, and cyanide were identified as COPCs in the five soil strata. The remedial investigation (RI) (JEG 1995b) confirmed the presence of the lead hot spot stratum and concluded that it is probably associated with the contamination at adjacent IRP Site 4, Perimeter Road. Pesticides and some metals were identified as COPCs in the ditch sediment stratum. Low levels and/or infrequent detections of chlorinated volatile organic compounds (VOCs), aromatic compounds, SVOCs, pesticides, metals, asbestos, and cyanide were identified as COPCs in the groundwater stratum. On the basis of the results of human-health and ecological risk assessments, the RI recommended that a 5-year-long periodic groundwater sampling and analysis program be conducted as part of landfill postclosure operations (JEG 1995b). A groundwater monitoring study was conducted at the site in 1998 to better assess groundwater conditions and further define the requirements for a groundwater monitoring program. The study recommended that, during the 5-year

monitoring program, groundwater samples be collected and analyzed for metals, cyanide, VOCs, SVOCs, pesticides, and PCBs (CH2M Hill 1999).

A non-time-critical removal action was conducted at IRP Site 7 between 02 December 2003 and 08 April 2004. In Area 1, the removal action consisted of repairing the existing landfill soil cover by providing a minimum 2-foot-thick soil cover over the buried waste and grading the cover to provide adequate sheet flow runoff away from the landfill surface. The removal action in Areas 3, 4, and 6 involved removal of surface and near-surface debris. In Area 5, the removal action consisted of excavation of buried metallic debris and trash, and off-site disposal of excavated waste (TtFW 2004).

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3.0 FIELD ACTIVITIES

The second annual groundwater monitoring event was conducted in October/November 2006. This was the first monitoring event since the first annual groundwater monitoring event in October 2004 (BEI 2005). The second annual groundwater monitoring event included the measurement of groundwater elevations in all wells at IRP Sites 5 and 7 (and three wells from IRP Site 4 that have been included in the IRP Site 7 monitoring program), low-flow purging of groundwater monitoring wells including the collection of groundwater quality measurements, and groundwater and surface water samples. These activities are summarized below.

3.1 WATER LEVEL MONITORING

During the second annual groundwater monitoring event, groundwater levels were measured in five monitoring wells at IRP Site 5 and eight monitoring wells at IRP Site 7. Groundwater elevations were measured using an electronic water level indicator. The locations of the monitoring wells are shown on Figures 3 and 4. Groundwater depths and elevations are summarized in Appendix B along with groundwater hydrographs and precipitation data. Groundwater flow direction and elevations are shown of Figures 5 and 6 and discussed in Sections 4 and 5 of this report.

3.2 GROUNDWATER SAMPLING

Groundwater samples were collected in accordance with the methods and procedures specified in the Work Plan (BEI 2003). The monitoring wells were purged and sampled with dedicated bladder pumps using low-flow methodology. During well purging, groundwater quality parameters were measurements using a QED Micropurge (MP)-20. The following groundwater parameters were measured and documented.

- temperature
- pH
- oxidation-reduction potential (ORP)

- conductivity
- dissolved oxygen (DO)
- turbidity

During purging, groundwater quality measurements were collected at approximately 5-minute intervals and recorded on groundwater sampling logs. Table 1 summarizes the groundwater quality measurements.

Purging was performed at each monitoring well until pH measurements were within ±0.1 of the two previous measurements, conductivity measurements were within 3 percent (%) of the two previous measurements, and DO, ORP, and turbidity were each within 10% of the previous two measurements. Ideally, measured turbidity declined to less that 5 nephelometric turbidity units (NTUs) prior to sample collection. However, if the turbidity measurements stabilized at a level greater than 5 NTUs during purging, sampling was conducted once the other five parameters has stabilized as specified above.

3.3 SURFACE WATER SAMPLING

Surface water samples were collected from three locations at IRP Site 5 during a spring tide on November 2, 2005, within three hours of flood slack. The sampling locations are shown on Figure 7. Surface water sampling was conducted in accordance with the methods and procedures specified in the Work Plan (BEI 2003).

During surface water sampling, the same water quality parameters were measured as discussed in Section 3.2, Groundwater Sampling. Table 1 summarizes the surface water quality measurements.

3.4 LABORATORY ANALYSIS

In accordance with the analytical requirements presented in the Work Plan (BEI 2003) and recommendations made in the First Annual Groundwater Monitoring Report for IR Sites 4, 5, 6, and 7 (BEI 2005), surface water and groundwater samples from IRP Sites 5

and 7 were submitted to EMAX Laboratories for analysis. The laboratory analyses and methods for groundwater and surface water samples are summarized on Table 2. Field duplicate and field quality control (QC) samples were also submitted to the laboratory for analyses. The field QC samples included trip blanks (for shipments containing samples requiring VOC analysis) and matrix spike/matrix spike duplicate (MS/MSD) samples. Equipment rinsates and source blanks were not collected since dedicated sampling equipment was used.

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4.0 SUMMARY OF SECOND ANNUAL MONITORING RESULTS

This section discusses the results of the second annual groundwater monitoring event conducted in October/November 2005.

4.1 WATER LEVEL MONITORING

Groundwater elevations are presented in Appendix B. Groundwater-elevation contour maps for IRP Sites 5 and 7 are provided as Figures 5 and 6, respectively. Groundwater elevation hydrographs and precipitation data are included in Appendix B. A more detailed discussion of groundwater elevations, flow direction, and gradient for IRP Sites 5 and 7 are presented in Sections 5.1.1.3 and 5.1.2.2, respectively.

4.2 ANALYTICAL RESULTS

Analytical results for surface water and groundwater samples collected from IRP Sites 5 and 7 are discussed below. Along with the groundwater and surface water analytical results screening values are briefly discussed. A comprehensive evaluation of analytical results throughout the groundwater monitoring programs at IRP Sites 5 and 7 is presented in Section 5.0. Screening values are shown on Tables 3 through 5.Analytical results are summarized on Tables 3 through 5, and presented on Figures 7 through 9. Analytical summary tables for IRP Site 5 and 7 are included as Tables 6 and 7, respectively. The validated laboratory analytical report is included in Appendix C. The data validation reports are included in Appendix D.

4.2.1 IRP Site 5 – Clean Fill Disposal Area

Surface water and groundwater samples were collected from IRP Site 5. The analytical results are discussed below.

4.2.1.1 IRP Site 5 Surface Water Analytical Results

Surface water samples for IRP Site 5 were analyzed for PCBs (Table 3). PCBs were not detected in any of the three surface water samples at or above the laboratory reporting limit (RL). The RL for PCB was 0.19 micrograms per liter (µg/l). The screening value for PCBs is 0.03 µg/l, based on the California Toxics Rule (U.S. EPA 2000a). The RL 0.19 µg/l was the lowest RL for PCBs the analytical laboratory could achieve.

4.2.1.2 IRP Site 5 Groundwater Analytical Results

Groundwater samples from IRP Site 5 were analyzed for volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), target analyte list (TAL) metals, hexavalent chromium, ammonia, and anions (chloride, nitrate, and sulfate) (Table 4).

4.2.1.2.1 VOCs

Two VOCs, chloromethane and methyl tert-butyl ether (MTBE), were detected at or above the RL in monitoring wells MW-05-01, and MW-05-01, -04, and -05, respectively. 1,2-dichloroethane (1,2-DCA) was detected at and estimated (J Flag) concentration in monitoring well MW-05-05. Detected concentrations of the VOCs did not exceed their respective screening values in any of the monitoring wells. Screening values are shown on Tables 4 and 6.

4.2.1.2.2 PAHs

Two PAHs (acenaphthene and fluoranthene) were detected at or above the RL in monitoring well MW-05-03. Detected concentrations of the PAHs did not exceed their respective screening values. Screening values are shown on Tables 4 and 6.

4.2.1.2.3 Metals

Fifteen metals were detected at or above the RL in one or more samples. Four metals were detected at estimated concentrations in one or more samples. Hexavalent chromium and mercury were not detected in any of the monitoring wells. Screening values are shown on Tables 4 and 6.

Two of the metals, iron and manganese, were detected at concentrations exceeding their screening values. Iron was detected above its screening value of 150 µg/l in monitoring wells MW-05-02, -03, and -04. Manganese was detected above its screening value of in monitoring well MW-05-02.

4.2.1.2.4 Ammonia and Anions

Ammonia, chloride, nitrate and sulfate were detected at or above the RL in one or more samples. Detected concentrations did not exceed screening values. Screening values are shown on Table 4.

4.2.2 IRP Site 7 – Station Landfill

Groundwater samples from IRP Site 7 were analyzed for VOCs, semi-volatile organic compounds (SVOCs), pesticides, PCBs, TAL metals, hexavalent chromium, and cyanide.

4.2.2.1 VOCs

Three VOCs, 1,4-dichlorobenzene, acetone, and carbon disulfide, were detected at or above the RL in monitoring well 07M01. None of these compounds exceeded their respective screening values as shown on Table 5 and 7. Two VOCs, chlorbenzene and naphthalene, were detected at estimated concentrations (J Flag) in monitoring well 07M01.

4.2.2.2 SVOCs

Two SVOCs, acenaphthene and bis(2-ethylhexl)phthalate, were detected at estimated concentrations (J Flag) in monitoring wells 07M01 and W-41, W-43, and W-45, respectively. None of these compounds exceeded their respective screening values as shown on Table 5 and 7.

4.2.2.3 Pesticides

Estimated concentrations of beta-BHC were detected in monitoring wells MW-04-02 and MW-04-04. The estimated concentrations of beta-BHC in both wells are above the screening value deemed protective of the marine environment of 0.016 µg/l, as shown on Table 5. This is the first monitoring event that beta-BHC has been detected, and the supplemental screening value is based on the screening value for alpha-BHC. No other pesticides were detected at IRP Site 7 at or above their respective RLs.

4.2.2.4 PCBs

PCBs were not detected in any of the monitoring wells at or above their laboratory RL. The RL for PCBs was 0.19 µg/l. The screening value of PCBs is 0.03 µg/l, based on the California Toxics Rule (U.S. EPA 2000a). The RL 0.19 µg/l was the lowest RL for PCBs the analytical laboratory could achieve.

4.2.2.5 Metals

Fifteen TAL metal were detected at or above the RL in one or more samples. Three metals were detected at estimated concentrations in one or more samples. Hexavalent chromium and mercury were not detected at or above the RL in any monitoring well.

The only metals detected above their screening values were iron and cobalt. Iron was detected at a concentration exceeding its screening value of 150 µg/l in monitoring wells

MW-04-02, -03, and -04, W-41, W-42, and W-43. Cobalt was detected in monitoring well W-41 at a concentration exceeding its screening value of 16.6 µg/l.

4.2.2.6 Cyanide

Cyanide was detected above the RL in monitoring well 07M01. The RL for cyanide was 0.01 mg/l. The screening value for cyanide is 0.001 mg/l, based on the California Toxics Rule (U.S. EPA 2000a). The RL 0.01 mg/l was the lowest RL for cyanide the analytical laboratory could achieve.

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5.0 DATA EVALUATION

This section presents an evaluation of the data collected from this monitoring event and historical data. The data evaluation was performed to address the decision rules developed in the Work Plan (BEI 2003) in accordance with the U.S. EPA seven-step DQO process (U.S. EPA 1994). The Seven Step DQO process for IRP Sites 5 and 7 are included in Appendix A. The DQO Decision Flow Process and a decision flow chart (BEI 2005) used to select a monitoring frequency and/or recommendations for subsequent sampling are also presented in Appendix A. The DQO tables and flow charts were copied directly from the First Annual Groundwater Monitoring Report (BEI 2005).

Groundwater and surface water data from IRP Sites 5 and 7 were collected during the three quarterly monitoring events in the first year of monitoring (2003/2004) and during a second annual monitoring event in the second year of monitoring (2005). The following are the dates of the four monitoring events:

- October 2003 (First Quarter)
- March 2004 (Second Quarter)
- September 2004 (Third Quarter – First Annual)
- November 2005 (Second Annual)

Additional historical data for monitoring wells 07M01, W-41, W-42, W-43, and W-45 at IRP Site 7 extends back to 1994. Analytical data for IRP Sites 5 and 7 are depicted on Figures 8 and 9, respectively. A compilation of historical data is presented in Appendix C2 of the First Annual Groundwater Monitoring Report (BEI 2005).

As part of the data evaluation, analytical data were compared to screening values, and contaminant concentration trends were assessed using statistical analysis and time series concentration plots. In addition, groundwater level measurement and groundwater flow direction for the Second Annual Groundwater Monitoring event were compared to the

three quarters of groundwater data collected during the first year of monitoring in 2003/2004 (BEI 2005).

5.1 COMPARISON OF CHEMICAL DATA TO SCREENING VALUES

Screening values for analytes reported in groundwater and surface water samples were established in the Work Plan (BEI 2003). The screening values consist of California Toxics Rule Criteria for Enclosed Bays and Estuaries, Saltwater Aquatic Life Protection (U.S. EPA 2000a) and stationwide ULBVs (JEG 1997). The screening values are summarized on Tables 3 through 5.

5.1.1 IRP Site 5 – Clean Fill Disposal Area

The following sections present discussions of surface water data and groundwater data collected from IRP Site 5 since the onset of the monitoring program.

5.1.1.1 IRP Site 5 - Surface Water Chemistry

Based on recommendations presented in the First Annual Groundwater Monitoring Report for IR Sites 4, 5, 6, and 7 (BEI 2005) surface water samples collected during the second annual monitoring event were only analyzed for PCBs. PCBs were not detected at or above the RL in any of the three surface water samples collected during the four monitoring events, as shown on Figure 7 and summarized in Table 3. The screening value for PCBs is 0.03 µg/l; however, the lowest RL achievable by the analytical laboratories during the monitoring program was 0.19 µg/l. Regardless of the established screening value, consistent non-detect results without any estimated concentrations (concentrations between the RL and the instrument method detection limit [MDL]) is strong evidence that PCB are not a contaminant of concern at IRP Site 5.

5.1.1.2 IRP Site 5 - Groundwater Chemistry

The following sections present discussions of VOCs, PAHs, TAL metals, and general chemistry at IRP Site 5 throughout the monitoring program.

5.1.1.2.1 VOCs

Multiple VOCs have been detected in all five monitoring wells at IRP Site 5, as shown on Figure 8 and summarized in Tables 4 and 6. However, MTBE was the only VOC detected above its screening value of 440 µg/l. MTBE was only detected above its screening value during the second and third quarterly monitoring events in March 2004 and September 2004 at concentrations of 600 µg/l and 890 µg/l, respectively. Furthermore, MTBE was only detected above its screening value in monitoring well MW-05-01. MW-05-01 is an upgradient monitoring well. Detected concentrations of MTBE in MW-05-01, and possibly in MW-05-04 and -05 (at concentrations below the screening value) are likely attributed to the petroleum hydrocarbon plume at IRP Site 14 or other unknown sources.

5.1.1.2.2 PAHs

Multiple PAHs have been detected in all five monitoring wells at IRP Site 5, as shown on Figure 8 and summarized in Tables 4 and 6. However, PAHs have only been detected at concentrations above their respective screening values in monitoring well MW-05-03. Detected concentrations in the other monitoring wells (MW-05-01, -02, -04, and -05) have generally been reported as estimated concentrations (J Flags). In addition, these concentrations have fluctuated between estimated concentration and non-detect throughout the four monitoring events. Furthermore, PAHs were not detected in monitoring wells MW-05-01, -02, -04, and -05 during this second annual groundwater monitoring event.

Five PAHs have been detected in monitoring well MW-05-03 at concentrations above their respective screening values. The five PAHs including their range in concentrations and number of detects above the screening criteria are summarized below. The only PAHs detected during the Second Annual Groundwater Monitoring Event were acenaphthene and fluoranthene, as shown on Figure 8 and summarized on Tables 4 and 6, both at concentrations below their respective screening levels.

- 2-Methylnaphthalene: Reported above its screening value of 3 µg/l during the first quarterly monitoring event (October 2003). Concentrations have ranged from 5.4 µg/l in October 2003 to 0.0099J in October 2004. The concentration in October 2005 was 1.9 µg/l.
- Fluoranthene: Reported above its screening value of 1.6 µg/l during the first and second quarterly monitoring events (October 2003 and April 2004). Concentrations have ranged from 1.8µg/l in October 2003 to 0.17J in October 2005.
- Fluorene: Reported above its screening value of 1.6 µg/l during the first quarterly monitoring event (October 2003). Concentrations have ranged from 9.9 µg/l in October 2003 to non-detect in October 2005.
- Naphthalene: Reported above its screening value of 23.5 µg/l during the first and second quarterly monitoring events (October 2003 and April 2004). Concentrations have ranged from 100 µg/l in October 2003 to non-detect in October 2004 and October 2005.
- Phenanthrene: Reported above its screening value of 4.6 µg/l during the first quarterly monitoring event (October 2003). Concentrations have ranged from 16 µg/l in October 2003 to non-detect in October 2005.

5.1.1.2.3 Metals

Multiple metals have been detected in all five monitoring wells at IRP Site 5, as shown on Figure 8. However, only five metals have been detected at concentrations exceeding their respective screening values in monitoring well MW-05-02, and only iron has been detected at concentrations exceeding it screening value of 150 µg/l in monitoring wells MW-05-03 and -04.

MW-05-02

The five metals detected in monitoring well MW-05-02 at concentrations exceeding their respective screening values are summarized below:

- Hexavalent chromium: Reported above the screening value of 50 µg/l during the third quarterly monitoring event (September/October 2004) at a concentration of 55.5J µg/l. Concentrations during the other three monitoring events have been non-detect.
- Iron: Reported above the screening value of 150 µg/l during the last three monitoring events. Concentrations have ranged from 29 µg/l in October 2003 to 9,980 µg/l in October 2005.
- Manganese: Reported above the screening value of 8,990 µg/l (saline environments) during the last three monitoring events. Concentrations have ranged from 7,000 µg/l in October 2003 to 19,200 µg/l in March 2004. The concentration during this monitoring event was 12,200 µg/l.
- Nickel: Reported above the screening value of 17.5 µg/l during the first quarterly monitoring event (October 2003) at a concentration of 115 µg/l. Concentrations during the last three monitoring events have ranged from non-detect in September/October 2004 to 5.6 µg/l in March 2004.
- Zinc: Reported above the screening value of 81 µg/l during the first quarterly monitoring event (October 2003) at a concentration of 115 µg/l. Concentrations during the previous three monitoring events have ranged from non-detect in September 2004 to 8.38J µg/l in November 2005.

MW-05-03 and MW-05-04

Iron concentrations in MW-05-03 have exceeded its screening value of 150 µg/l during the last three monitoring events and concentrations have ranged from 51.8 µg/l in October 2003 to 3,500 µg/l in October 2004. Iron concentrations in MW-05-04 exceeded the screening value in October 2003 and November 2005. The range in concentration in MW-05-04 has been 61.1 µg/l in October 2004 to 445 µg/l in October 2003.

Iron and Manganese Discussion

As discussed in the First Annual Groundwater Monitoring Report (BEI 2005) iron and manganese are common cations in water. In monitoring wells MW-05-02, -03, and -04 reported concentrations of dissolved iron and manganese in groundwater samples can be attributable to the increase solubility of iron and manganese in the presence of low DO, low ORP, and low pH (reducing environment). During the second annual groundwater monitoring event the measured DO and ORP in monitoring wells MW-05-02, -03, and -04 was low. The measured pH was neutral (As a note, DO and ORP were also relatively low and pH neutral in the remaining two monitoring wells at IRP Site 5). These measurements are shown on Table 1 and summarized below:

- Measured DO in MW-05-02, -03, and -04 was 0.23 milligrams per liter (mg/l), 0.18 mg/l, and 0.56 mg/l, respectively. The range in DO in IRP Site 5 wells was 0.12 mg/l to 0.58 mg/l.
- Measured ORP in MW-05-02, -03, and -04 was -162 mV, -278 mV, and -6.66 mV, respectively. The range in ORP in IRP Site 5 wells was -278mV to 44 mV.
- Measured pH in MW-05-02 was 6.45, 6.43, and 7.34, respectively. The range in pH in IRP Site 5 wells was 6.43 to 7.88.

These measurements are consistent with measured DO, ORP, and pH during the previous groundwater monitoring events (BEI 2004a, 2004b, and 2005), with the exception of the first quarterly monitoring event in October 2003.

As stated above, during the first quarterly groundwater monitoring event in October 2003 iron and manganese were reported at concentrations of 29 µg/l and 7,000 µg/l in monitoring well MW-05-02. During the subsequent three monitoring events iron concentrations increased to 914 µg/l, 7,250 µg/l, and 9,980 µg/l, respectively, and manganese concentrations increased to 19,200 µg/l, 18,100 µg/l, and 12,200 µg/l, respectively. At concentrations of 29 µg/l (iron) and 7,000 µg/l (manganese) DO was 1.07 mg/l, ORP was +42.4 millivolts (mV), and pH was relatively neutral. As iron and

manganese concentrations increased in MW-05-02 over the next three monitoring events, measured DO and ORP decreased. During the second annual groundwater monitoring event iron concentration was 9,980 µg/l and manganese concentration was 12,200 µg/l while DO was measured at 0.23 mg/l and ORP was -162 mV. This increase in iron and manganese concentrations relative to decreased DO and/or ORP measurements is also observed in monitoring wells MW-05-03 and to some extent in MW-05-04.

It is likely that the elevated iron and manganese concentrations are attributed to fluctuations the oxidation-reduction potential in groundwater due to tidal changes at the site and not the result of previous OE items and/or construction debris at the site. Furthermore, concentrations of iron an manganese are not expected to persist if groundwater discharges to surface water since the iron and manganese is expected to precipitate in the presence of the increased DO and alkalinity of the surface water (Charette and Sholkovitz 2002, Garman and ASGTF 2000, Testa et al. 2002).

5.1.1.2.4 General Chemistry

Ammonia, chloride, nitrate, and sulfate were detected above RLs in one or more of the groundwater samples from IRP Site 5. However, none of the analytes were reported at concentrations exceeding established screening values.

5.1.1.2.5 Concentration Trends

Time series concentration plots for IRP Site 5 wells are presented in Appendix E. Statistical concentration trend analyses are discussed in Section 5.2.

5.1.1.3 IRP Site 5 – Groundwater Level Measurements

Hydrographs depicting the variations in groundwater elevations for each well at IRP Site 5 since the onset of the monitoring program are presented in Appendix B. Groundwater flow direction and gradient during the second annual groundwater monitoring event were

similar to previous monitoring events. The flow direction is generally to the east and northeast with gradients of approximately 0.007 to 0.01 foot per foot. Figure 5 presents the groundwater contours based on the second annual monitoring event.

5.1.2 IRP SITE 7 – STATION LANDFILL

The following sections present a discussion of groundwater data collected from IRP Site 7 since the onset of the monitoring program.

5.1.2.1 IRP Site 7 - Groundwater Chemistry

The following sections present a discussion of VOCs, SVOCs, Pesticides, PCBs, TAL metals, and cyanide at IRP Site 7 throughout the monitoring program.

5.1.2.1.1 VOCs

VOCs have been detected in all monitoring wells at IRP Site 7, as shown on Figure 9. However, none of the VOCs has ever exceeded their respective screening values.

5.1.2.1.2 SVOCs

SVOCs have been detected in all monitoring wells at IRP Site 7, as shown on Figure 9. However, none of the SVOCs has ever exceeded their respective screening values.

5.1.2.1.3 Pesticides

Pesticides have been detected in all monitoring wells at IRP Site 7, as shown on Figure 9. Each of the following pesticides has only exceeded its supplemental screening values deemed protective of the marine environment one time, either during the second quarterly monitoring event (April 2004) or the third quarterly monitoring event (October 2004).

- 4,4'-Dichlorodiphenyldichloroethane (DDD)
- 4,4'-Dichlorodiphenyldichloroethene (DDE)
- 4,4'-Dichlorodiphenyltrichloroethane (DDT)
- Dieldrin
- Gamma-chlordane
- Heptaclor
- Beta-BHC

The only pesticide detected during the second annual groundwater monitoring event was beta-BHC in monitoring wells MW-04-02 and -04. Concentrations of beta-BHC in both wells exceeded its supplemental screening values deemed protective of the marine environment of 0.016 µg/l.

5.1.2.1.4 PCBs

Only one PCB (Aroclor 1260) has been detected in one sample from IRP Site 7. Aroclor 1260 was detected in monitoring well W-42 at a concentration of 0.024 µg/l (which does not exceed the screening value of 0.03 µg/l) during the third quarterly monitoring event in October 2004. No PCBs were detected during the Second Annual Groundwater Monitoring Event in October/November 2005.

The screening value for PCBs is 0.03 µg/l; however, the lowest RL achievable by the analytical laboratories during the monitoring program was 0.19 µg/l. Regardless of the established screening value, consistent non-detect results (with the exception of Aroclor 1260 as discussed above) without any estimated concentrations (concentrations between the RL and the instrument MDL is strong evidence that PCBs are not a contaminant of concern at IRP Site 7.

5.1.2.1.5 Metals

Multiple metals have been detected in all monitoring wells at IRP Site 7, as shown on Figure 9. Since at least December 1993 all monitoring wells have had detected concentrations of one or more of the following metals at concentrations exceeding their respective screening values:

- Iron
- Manganese
- Zinc
- Nickel
- Cadmium
- Cobalt

However, during the last four monitoring events only the following metals have been detected in one or more wells at concentrations exceeding their respective screening values.

- Iron
- Manganese
- Cadmium
- Cobalt

The following summarizes the monitoring wells that have had detected metal concentrations exceeding their respective screening values during the last four monitoring events. Refer to the discussion of iron and manganese in Section 5.1.1.2.

- Monitoring wells 07M01, W-42, and MW-04-02, -03, and -04 are located along the southern boundary of IRP Site 7, between IRP Site 7 and the Orange County Flood Control Channel (Figure 9). Concentrations of metals have not exceeded their respective screening values in 07M01. Iron has exceeded it screening value of 150 µg/l in W-42 and MW-04-02, -03,

and -04. Manganese has also exceeded it screening value of 8,990 µg/l in MW-04-04.

- Monitoring well W-45 is located in the north eastern portion of the site. During the last four monitoring events cadmium was the only metal in W-45 detected at a concentration exceeding its screening value of 16.4 µg/l. Cadmium was detected at a concentration of 17 µg/l in March 2004.
- Monitoring wells W-41 and W-43 are located in the northern and central portion of the site, respectively. During the last four monitoring events iron was detected above its screening value of 150 µg/l during all four monitoring events in both wells. Cobalt was detected in W-41 above its screening value of 16.6 µg/l during all four monitoring events in W-41. In monitoring well W-43 manganese concentrations have ranged from 5,370 µg/l to 6,150 µg/l. These exceed the fresh/brackish water screening value for manganese of 1,011 µg/l but are below the saline water screening value of 8,990 µg/l. Based on conductivity measurements of groundwater at IRP Site 7, groundwater conditions are saline.

Iron and Manganese Discussion

As discussed in Section 5.1.1.2.3 iron and manganese are common cations in water. As with iron and manganese concentrations at IRP Site 5, reported concentrations of dissolved iron and manganese in groundwater samples from IRP Site 7 can be attributable to the increase solubility of iron and manganese in the presence of low DO, low ORP, and low pH (reducing environment). These measurements are consistent with measured DO, ORP, and pH during the previous groundwater monitoring events at IRP Site 7 (BEI 2004a, 2004b, and 2005). These measurements are shown on Table 1.

It is likely that the elevated iron and manganese concentrations are attributed to fluctuations the oxidation-reduction potential in groundwater due to tidal changes at the site and not the result of previous site use. Furthermore, concentrations of iron an manganese are not expected to persist if groundwater discharges to surface water since the iron and manganese is expected to precipitate in the presence of the increased DO and alkalinity of the surface water (Charette and Sholkovitz 2002, Garman and ASGTF 2000, Testa et al. 2002).

5.1.2.1.6 Cyanide

Cyanide has been detected in monitoring wells 07M01 and MW-04-04 at concentrations exceeding its screening value of 0.001. In 07M01 cyanide has exceeded its screening value during each of the last four monitoring events and during four of the six monitoring events from 1994 through 1998. Cyanide only exceeded it screening value in MW-04-04 during the September/October 2004 monitoring event at a concentration of 0.003J µg/l.

The screening value for cyanide of 0.001 µg/l is lower than the laboratory RLs for cyanide. During the last four monitoring events the RL for cyanide has been 0.01 µg/l.

Both monitoring wells 07M01 and MW-04-04 are located along the Orange County Flood Control Channel. The detection of cyanide at these two wells may be associated with the channel and not the landfill, since cyanide was not detected in groundwater samples from monitoring wells at other part of Site 7.

5.1.2.1.7 Concentration Trends

Time series concentration plots for IRP Site 7 wells are presented in Appendix E. Statistical concentration trend analyses are discussed in Section 5.2.

5.1.2.2 IRP Site 7 – Groundwater Level Measurements

Hydrographs depicting the variations in groundwater elevations for each well at IRP Site 7 are presented in Appendix B. Groundwater flow direction and gradient during the second annual groundwater monitoring event were similar to previous monitoring events. Groundwater flow patterns at IRP Site 7 are influenced by tidal fluctuations and the presence of surface water bodies. The flow direction is generally to the east and northeast with gradients of approximately 0.002 foot per foot. Figure 6 presents the groundwater contours from the second annual monitoring event.

5.2 STATISTICAL TREND ANALYSIS

Two nonparametric statistical tests to assess contaminant concentration trends have been conducted using the data for IRP Sites 5 and 7. The tests are the Mann-Kendall (S) and Mann-Whitney (U) statistical tests. These tests can be used to show whether groundwater contaminant concentrations in a monitoring well are increasing, stable or decreasing. However, neither test is able to determine the rate in which the concentrations are changing over time. The Mann-Kendall (S) Test can be used with a minimum of four (4) rounds of sampling results and a maximum of (10) rounds of sampling data. The Mann-Kendall (S) Test is not valid for data that exhibit seasonal behavior. The Mann-Whitney (U) Test is applicable to data that may or may not exhibit seasonal behavior, but the test requires eight (8) consecutive rounds of quarterly or semi-annual sampling results. To demonstrate that contaminant concentrations are decreasing, the chosen statistical test must show decreasing contaminant concentrations at an appropriate confidence level.

The Mann-Kendall (S) and Mann-Whitney (U) statistical tests were performed on data sets where a detected concentration of a compound has exceeded its screening values at least once during previous monitoring events. The Mann-Whitney (U) statistical test was only performed when data from eight consecutive monitoring events was available. Both statistical tests have been performed on the data due to the different amounts of data from each IRP site and because the subjective evaluation of the data is unclear on whether season variations in the data exist.

The Mann-Kendall (S) test statistically calculates the contaminant concentration trend (increasing or decreasing) at the 80% and 90% confidence levels. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to check for stability. The Mann-Whitney (U) test statistically calculates the contaminant concentration trend (increasing or decreasing) at the 90% confidence levels. The Mann-Kendall (S) and Mann-Whitney (U) statistical calculations are included as Appendix F. Tables 8 through 11 summarizes the Mann-Kendall (S) and Mann-Whitney (U)

contaminant concentration trends for MTBE, Iron, Manganese, Nickel, Zinc, cobalt, hexavalent chromium, and PAHs. As indicated above, only those compounds that have exceeded their respective screening values one or more times were used. Data from four monitoring events exist for the wells at IRP Site 5, as well as data from four monitoring events for MW-04-02, -03, and -04 from IRP Site 7. Data from at least ten monitoring events exist for some of the remaining monitoring wells at IRP Site 7 (07M01, W-42, W-43, W-44, and W-45); however, data gaps exist for some analytes and therefore consecutive data in not available.

5.2.1 IRP Site 5 – Clean Fill Disposal Area

Only the Mann-Kendall (S) statistical test was performed on data from IRP Site 5 since data from only four monitoring events are available. The result of the Mann-Kendall (S) statistical test at the 90% confidence interval is presented below. Stability is also presented if no trend was calculated at the 80% confidence interval:

MW-05-01

- MTBE: No Trend/Stable

MW-05-02

- Iron: Increasing
- Manganese: No Trend/Stable
- Nickel: Decreasing
- Zinc: No Trend/Non-Stable
- Hex. Chromium No Trend/Non-Stable

MW-05-03

- Iron: Increasing
- 2-Methynaphthanene: Decreasing
- Fluoranthene: Decreasing
- Fluorine: Decreasing
- Naphthalene: No Trend
- Phenanthrene Decreasing

MW-05-04

- Iron: No Trend/Stable

5.2.2 IRP Site 7 – Station Landfill

Mann-Kendall (S) and the Mann-Whitney (U) statistical tests were performed on data from IRP Site 7. The Mann-Whitney (U) statistical test was only used on selected data sets when data from eight monitoring events was available and to confirm the results from the Mann-Kendall (S) statistical test. The result of the Mann-Kendall (S) and the Mann-Whitney (U) statistical test at the 90% confidence interval are presented below. Stability is also presented if no trend was calculated at the 80% confidence interval:

07M01

- 4,4'-DDD: No Trend/Stable
- Gamma-Chlordane: No Trend/Stable
- Heptachlor: No Trend/Stable
- Cyanide: No Trend/Stable

W-42

- Alpha-BHC: No Trend/Stable
- Iron: No Trend/Non-Stable

MW-04-02

- Iron: No Trend

MW-04-03

- Alpha-BHC: No Trend/Stable
- Heptachlor Epoxide: No Trend/Stable
- Iron: Increasing

MW-04-04

- Iron: No Trend
- Manganese: No Trend/Stable
- Cyanide: No Trend/Stable

W-45

- 4,4'-DDT: No Trend/Stable
- Endosulfan II: No Trend/Stable
- Cadmium: Increasing
- Iron: No trend
- Nickel: Increasing

W-41

- 4,4'-DDD: No Trend/Stable
- Alpha-BHC: No Trend/Stable
- Endosulfan II: No Trend/Stable
- Cobalt: No Trend
- Iron: Decreasing

W-43

- 4,4'-DDE: No Trend/Stable
- 4,4'-DDT: No Trend/Stable
- Aldrin: No Trend/Stable
- Alpha-BHC: No Trend/Stable
- Dieldrin: No Trend/Stable
- Endosulfan I: No Trend/Stable
- Endrin Ketone: No Trend/Stable
- Gamma-BHC: No Trend/Stable
- Methoxychlor: No Trend/Stable
- Iron: Decreasing
- Manganese: Increasing
- Nickel: Increasing

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6.0 CONCLUSIONS AND RECOMMENDATIONS

This section presents the conclusions and recommendations for IRP Sites 5 and 7 based in the data evaluation presented in Section 5.0, and the DQOs for this monitoring program.

6.1 IRP SITE 5 – CLEAN FILL DISPOSAL AREA

The following provides conclusions and recommendation about surface water and groundwater at IRP Site 5 based on data obtained from the monitoring program.

6.1.1 Conclusions – IRP Site 5

The primary objectives of the IRP Site 5 Groundwater and Surface Water Monitoring Program are as follows (BEI 2003):

- Determine whether COPCs are present in groundwater at concentrations above screening values and whether these COPCs could reach potential discharges points or ecological receptors.
- Determine the extent to which COPC concentrations in groundwater may be changing over time.
- Determine whether COPCs are present in surface water at concentrations above screening values.
- If COPCs are present in surface water at concentrations above screening values, determine whether COPCs present in backfill area sediment will be a continuing source of surface water contamination.

These objectives are reflected in the DQOs for IRP Site 5 which are presented in the Final Work Plan (BEI 2003) and included in Appendix A of this report. Below are the questions presented in the Identification of Decisions (Step 2) of the DQOs, along with the answers to these questions.

1. *Will COPCs reach potential points of discharge at concentrations above California Toxics Rule Criteria for Enclosed Bays and Estuaries (Salt Water Aquatic Life Protection 4-day Average) or stationwide background levels for groundwater, and threatened downgradient receptors?*

MW-05-01 (upgradient monitoring well)

- MTBE is the only VOC that has been detected at concentrations above its screening value of 440 µg/l.
- No other COPCs have been detected at concentration exceeding their respective screening values deemed protective of the marine environment.

MTBE has not been detected above its screening value in downgradient and crossgradient monitoring wells (see discussion below); therefore, the potential for MTBE to reach potential points of discharge at concentrations above its screening value is considered low. Since other COPCs have not been detected at concentrations above their respective screening values the potential for these COPCs to reach potential points of discharge at concentrations above its screening value is also considered low.

MW-05-02 (cross-gradient monitoring well)

- Metals, including hexavalent chromium, iron, manganese, nickel, and zinc, have been the only COPC detected above their screening value deemed protective of the marine environment.

Based on this information, there is a potential for the metals listed above to reach potential points of discharge at concentrations above their screening values; however, the potential is considered low. Hexavalent chromium has only been detected during one monitoring event (September 2004). Nickel and zinc have only been detected above their respective screening values during the October 2003 monitoring event. Although iron and manganese have been detected above their screening values, they are common cations in water. It is likely that the elevated concentrations exist because of reducing conditions at the site (refer to metals discussion in Section 5.1.1.2.3). However, both metals are not likely to persist if groundwater discharges to surface water due to precipitation factors

(increase DO and ORP) (BEI 2005) and therefore do not likely represent a threat to ecological receptors.

MW-05-03 (down-gradient monitoring well)

- Five PAHs have been detected at concentrations above their screening values. 2-methylnaphthalene, fluorene, and phenanthrene were only detected at concentrations above their screening values during the first quarterly monitoring event (October 2003). Fluoranthene and naphthalene were only detected at concentrations above their screening values during the first and second quarterly monitoring event (October 2003 and April 2004).
- Iron has been the only metal detected at concentrations above its screening value.

Based on this information, there may be a potential for PAHs listed above to reach potential points of discharge at concentrations above their screening values. However, these PAHs have not been detected above RLs or above their screening values during the last two groundwater monitoring events. Furthermore, PAHs have never been detected in surface water samples collected during the surface water sampling events (September 2003 through September 2004). This suggests that the PAHs (if present) are not impacting surface water and are not likely to be a COPC at IRP Site 5.

Iron has been detected at concentration exceeding its screening value during multiple monitoring events it is likely that the elevated concentrations exist because of reducing conditions at the site (refer to metals discussion in Section 5.1.1.2.3). Iron is not likely to persist if groundwater discharges to surface water due to precipitation factors (increase DO and ORP) (BEI 2005) and therefore do not likely represent a threat to ecological receptors.

MW-05-04 (down-gradient monitoring well)

- Iron has been the only metal detected at concentrations above its screening value.

Based on this information, there is a potential for iron to reach potential points of discharge at concentrations above its screening value. Although iron has been detected at concentration exceeding its screening value during multiple monitoring events it is a common cation in water and not likely to persist if groundwater discharges to surface water due to precipitation factors (BEI 2005). Therefore, iron does not likely represent a threat to ecological receptors (refer to metals discussion in Section 5.1.1.2.3).

MW-05-05 (down-gradient monitoring well)

- No COPCs have been detected at concentration exceeding their respective screening values.

Based on this information, this is no potential for COPCs to reach potential points of discharge at concentrations above their screening values.

2. *Are COPC concentrations increasing or decreasing with time?*

As discussed in Section 5.2 the Mann-Kendall (S) statistical test indicates, at the 90% confidence interval, that contaminant concentrations in each monitoring well are either increasing, decreasing, or exhibits no trend. If no trend exists at the 80% confidence interval the test determines whether the contaminant concentrations are either stable or non-stable. Statistical calculations are presented in Appendix F. Time series concentration plots are presented in Appendix E.

MW-05-01 (upgradient monitoring well)

- MTBE concentrations exhibit no trend and are stable.

MW-05-02 (cross-gradient monitoring well)

- Concentrations of hexavalent chromium, nickel, zinc, and manganese in exhibit no trend; however, manganese concentrations are stable.
- Iron concentrations are increasing.

MW-05-03 (down-gradient monitoring well)

- Concentrations of fluoranthene, fluorine and phenanthrene are decreasing.
- Concentrations of 2-methylnaphthalene and naphthalene exhibit not trend.
- Iron concentrations exhibit no trend.

MW-05-04 (down-gradient monitoring well)

- Iron concentrations in MW-05-04 exhibit no trend and are stable

A statistical analysis was not performed on MTBE data because concentrations have not been detected above its screening value. However, based on time-series concentrations plots (Appendix E), MTBE concentrations appear to be increasing.

MW-05-05 (down-gradient monitoring well)

No COPCs have been detected at concentrations above their respective screening values; therefore, a statistical analysis was not performed on the data.

3. *Are all wells needed for continued monitoring?*

The monitoring well network at IRP Site 5 should be reduced to include MW-05-02, -03, and MW-05-04. The rationale is presented in Section 6.1.2, Recommendations.

4. *Are COPCs present in surface water concentrations above California Toxics Rule Criteria for Enclosed Bays and Estuaries (Salt Water Aquatic Life Protection 4-day Average)?*

Based on recommendations presented in the First Annual Groundwater Monitoring Report for IR Sites 4, 5, 6, and 7 (BEI 2005) surface water samples collected during the second annual monitoring event were only analyzed for PCBs. PCBs were not detected above the RL in any of the three surface water samples collected during the four monitoring events (Figure 7). The screening value for PCBs is 0.03 µg/l; however, the lowest RL achievable by the analytical laboratories during the monitoring program was 0.19 µg/l. Regardless of the established screening value consistent non-detect results without any estimated concentrations (J Flag) is strong evidence that PCB are not a contaminant of concern at IRP Site 5.

6.1.2 Recommendations – IRP Site 5

Based on the conclusions presented above, The DQO Decision Rules (Step 5) (BEI 2003), and the DQO Decision Flow Diagram (BEI 2005) the following recommendations are made. The recommendations for groundwater monitoring during the third year are summarized in Table 12.

1. Remove monitoring well MW-05-01 (upgradient well) from IRP Site 5 and include it in with the monitoring program for IRP Site 14.
2. Discontinue monitoring for metals in all monitoring wells at IRP Site 5 with the exception of monitoring well MW-05-02. In monitoring well MW-05-02 monitor for an abbreviated metals suite (hexavalent chromium, nickel, and zinc) during a third annual monitoring event. If metals are not detected (with the exception of iron and manganese) or below screening values then discontinue monitoring after the third year. As discussed in Section 5.1.1.2.3 iron and manganese are common cations in water. It is likely that the elevated concentrations exist because of reducing conditions at the site (refer to metals discussion in Section 5.1.1.2.3) However, both metals are not likely to persist if groundwater discharges to surface water due to precipitation factors (increase DO and ORP) (BEI 2005) and therefore do not likely represent a threat to ecological receptors.

3. Discontinue monitoring for PAHs in all monitoring wells at IRP Site 5. PAHs exhibit either a decreasing tread or no trend and were not detected at concentrations above their respective screening values during the first and second annual groundwater monitoring events.
4. Discontinue monitoring for VOCs in all wells at IRP Site 5 with the exception of MW-05-04. Monitor MW-05-04 for MTBE only. Although MTBE has been detected in MW-05-04 at concentrations below its screening value of 440 µg/l, concentrations have shown an increase over the last four monitoring events. Concentrations have increased from non-detect in October 2003 to 36 µg/l in November 2005 (refer to time series concentration plots in Appendix E). If MTBE concentrations show a decreasing trend following the third annual monitoring event then this well should be considered for removal from the monitoring program.
5. Retain monitoring well MW-05-05 for groundwater level measurements only. Abandon the monitoring well when the monitoring program is complete.
6. Discontinue monitoring for general chemistry (ammonia, chloride, sulfate, and nitrate) in all monitoring wells at IRP Site 5.
7. Continue water level monitoring in wells at IRP Site 5 until the groundwater monitoring program is discontinued in its entirety.
8. Discontinue the surface water monitoring program at IRP Site 5.

6.2 IRP SITE 7 – STATION LANDFILL

The following provide conclusions and recommendation about groundwater at IRP Site 7 based on data obtained from the groundwater monitoring program.

6.2.1 Conclusions – IRP Site 7

The primary objectives of the IRP Site 7 Groundwater Monitoring Program are as follows (BEI 2003):

- Determine whether COPCs are present in groundwater at concentrations above screening values and whether these COPCs could reach potential discharges points or ecological receptors.
- Determine the extent to which COPC concentrations in groundwater may be changing over time.

These objectives are reflected in the DQOs for IRP Site 7 which are presented in the Final Work Plan (BEI 2003) and included in Appendix A of this report. Below are the questions presented in the Identification of Decisions (Step 2) of the DQOs, along with the answers to these questions.

1. *Will COPCs reach potential points of discharge at concentrations above California Toxics Rule Criteria for Enclosed Bays and Estuaries (Salt Water Aquatic Life Protection 4-day Average) or stationwide background levels for groundwater, and threatened downgradient receptors?*

07M01 (near the Orange County Flood Control Channel)

- 4,4-DDD, gamma-chlordane, and heptachlor have been detected at concentrations above their screening values deemed protective of the marine environment. These values are 0.001 µg/l, 0.004 µg/l, and 0.0036 µg/l, respectively. This occurred only during the first annual monitoring event (October 2004).
- Cyanide has been detected in monitoring well 07M01 at concentrations exceeding its screening value of 0.001 µg/l. In 07M01, cyanide has exceeded its screening value during each of the last four monitoring events and during four of the six monitoring events from 1994 through 1998.
- Iron has been the only metal detected at concentrations above its screening value.

Based on this information, there is a potential for the pesticides listed above and cyanide to reach potential points of discharge at concentrations above their screening values deemed protective of the marine environment. However, the pesticides were only detected during the quarterly monitoring event in October 2004. The screening values for 4,4-DDD, gamma-chlordane, and heptachlor are 0.001 µg/l, 0.004 µg/l, and 0.0036 µg/l, respectively.

Although iron has been detected at concentrations exceeding its screening value during three monitoring events in 1994, it has not been detected during the last four monitoring events. Regardless, iron is a common cation in water and not likely to persist if groundwater discharges to surface water due to precipitation factors (BEI 2005).

Therefore, iron does not likely represent a threat to ecological receptors (refer to metals discussion in Sections 5.1.1.2.3 and 5.1.2.1.5).

MW-04-02 (adjacent to the Orange County Flood Control Channel)

- Beta-BHC was detected at a concentration above its screening value of 0.016 µg/l, the level deemed protective of the marine environment, during the second annual groundwater monitoring event.
- Iron has been the only metal detected at concentrations above its screening value.

Based on this information, there is a potential for beta-BHC and iron to reach potential points of discharge at concentrations above their screening values. However, beta-BHC has only been detected once during the last four groundwater monitoring events. It was detected during this second annual groundwater monitoring event at a concentration of 0.019 µg/l, just slightly above its screening value deemed protective of the marine environment. Although iron has been detected at concentration exceeding its screening value during multiple monitoring events it is a common cation in water and not likely to persist if groundwater discharges to surface water due to precipitation factors (BEI 2005). Therefore, iron does not likely represent a threat to ecological receptors (refer to metals discussion in Sections 5.1.1.2.3 and 5.1.2.1.5).

MW-04-03 (adjacent to the Orange County Flood Control Channel)

- Iron has been the only metal detected at concentrations above its screening value.

Although iron has been detected at concentration exceeding its screening value during multiple monitoring events it is a common cation in water and not likely to persist if groundwater discharges to surface water due to precipitation factors (BEI 2005). Therefore, iron does not likely represent a threat to ecological receptors (refer to metals discussion in Sections 5.1.1.2.3 and 5.1.2.1.5).

MW-04-04 (adjacent to the Orange County Flood Control Channel)

- During this second annual groundwater monitoring event beta-BHC was detected at a concentration above its screening value of 0.004 µg/l, the level deemed protective of the marine environment.
- Cyanide has been detected at concentrations exceeding its screening value of 0.001 µg/l. Cyanide was only detected during the third quarterly monitoring event in October 2004. The screening value for cyanide of 0.001 µg/l is lower than the laboratory RLs for cyanide. However, since cyanide has not been detected in any other well other than 07M01 and MW-04-04 is strong evident that cyanide is not present in other portions of the site.
- Iron and manganese have been the only metals detected at concentrations above their screening values.

Based on this information, there is a potential for beta-BHC, cyanide, iron, and manganese to reach potential points of discharge at concentrations above their screening values deemed protective of the marine environment; however, the potential is considered low due to the relatively low concentration of the pesticide. Although iron and manganese has been detected at concentration exceeding their screening values during multiple monitoring events they are a common cation in water and not likely to persist if groundwater discharges to surface water due to precipitation factors (BEI 2005). Therefore, iron and manganese do not likely represent a threat to ecological receptors (refer to metals discussion in Sections 5.1.1.2.3 and 5.1.2.1.5).

W-42 (adjacent to the Orange County Flood Control Channel)

- The only metals detected at concentrations above their respective screening values include iron, nickel, and zinc.

Based on this information, there is also a potential for iron, nickel, and zinc, to reach potential points of discharge at concentrations above its screening value. However, nickel and zinc were only detected in 1988 and 1998 and have not been detected during the last four monitoring events. Therefore, the potential for nickel and zinc to reach potential

points of discharge at concentrations above their screening values is low. Although iron has been detected at concentration exceeding their screening values during multiple monitoring events it is a common cation in water and not likely to persist if groundwater discharges to surface water due to precipitation factors (BEI 2005). Therefore, iron does not likely represent a threat to ecological receptors (refer to metals discussion in Sections 5.1.1.2.3 and 5.1.2.1.5).

W-41 (northern portion of the site)

- 4,4-DDD has been detected at a concentration above its screening value of 0.001 µg/l, the level deemed protective of the marine environment. This was during the second quarterly monitoring event (April 2004).
- Metals have been detected at concentrations above their respective screening values. The metals detected above their respective screening values include cobalt, iron, nickel, and zinc.

Based on this information, there is a potential for 4,4-DDD and the metals listed above to reach potential points of discharge at concentrations above their screening values; however, the potential is considered low due to the relatively low concentration of 4,4-DDD detected (0.0056 µg/l). Iron and cobalt has been detected during multiple monitoring events. Nickel and zinc have only been detected during one monitoring event in 1988. Although iron has been detected above its screening value, it is a common cation in water and not likely to persist if groundwater discharges to surface water due to precipitation factors (BEI 2005) and therefore do not likely represent a threat to ecological receptors (refer to metals discussion in Sections 5.1.1.2.3 and 5.1.2.1.5).

W-43 (central portion of the site)

- 4,4'-DDE, 4,4'-DDT, and dieldrin have been detected at concentrations above their screening values deemed protective of the marine environment. These values are 0.001 µg/l and 0.0019 µg/l, respectively. This occurred only during the second quarterly monitoring event (April 2004).

- Metals have been detected at concentrations above their respective screening values. The metals detected above their respective screening values include iron, manganese, nickel, and zinc.

Based on this information, there is a potential for pesticides and the metals listed above to reach potential points of discharge at concentrations above their screening values. Nickel was detected above its screening value of 8.2 µg/l during the monitoring events in 1988 and 1998. Zinc was only detected above its screening value of 81 µg/l during the 1988 monitoring event. Although iron and manganese has been detected at concentration exceeding their screening values during multiple monitoring events they are a common cation in water and not likely to persist if groundwater discharges to surface water due to precipitation factors (BEI 2005). Therefore, iron and manganese do not likely represent a threat to ecological receptors (refer to metals discussion in Sections 5.1.1.2.3 and 5.1.2.1.5).

W-45 (eastern portion of the site)

- 4,4'-DDT has been detected at a concentration above its screening value of 0.001 µg/l, the level deemed protective of the marine environment. This was during the annual 2004 monitoring event (October 2004).
- Metals have been detected at concentrations above their respective screening values. The metals detected above their respective screening values include cadmium, iron, nickel, and zinc.

Based on this information, there is a potential for pesticides and the metals listed above to reach potential points of discharge at concentrations above their screening values. Cadmium was detected twice during the last four monitoring events. Nickel and zinc have only been detected during one monitoring event in 1988 and 1998. Although iron has been detected at concentration exceeding its screening value during multiple monitoring events they are a common cation in water and not likely to persist if groundwater discharges to surface water due to precipitation factors (BEI 2005). Therefore, iron does not likely represent a threat to ecological receptors (refer to metals discussion in Sections 5.1.1.2.3 and 5.1.2.1.5).

2. Are COPCs concentrations increasing or decreasing with time?

As discussed in Section 5.2 the Mann-Kendall (S) statistical test indicates, at the 90% confidence interval, that contaminant concentrations in each monitoring well are either increasing, decreasing, or exhibits no trend. If no trend exists at the 80% confidence interval the test determines whether the contaminant concentrations are either stable or non-stable. Statistical calculations are presented in Appendix F. Time series concentration plots are presented in Appendix E. Only those contaminants that have exceeded their screening values during the last four monitoring events are discussed below.

07M01 (near the Orange County Flood Control Channel)

- Concentrations of 4,4'-DDD, gamma-chlordane, and heptachlor exhibit no trend but are stable
- Concentrations of cyanide exhibit no trend but are stable

MW-04-02 (adjacent to the Orange County Flood Control Channel)

- Concentrations of beta-BHC exhibits no trend but is stable
- Concentrations of iron exhibit no trend

MW-04-03 (adjacent to the Orange County Flood Control Channel)

- Concentrations of iron are increasing

MW-04-04 (adjacent to the Orange County Flood Control Channel)

- Concentrations of beta-BHC exhibits no trend and is non-stable
- Concentrations of cyanide exhibit no trend but are stable
- Concentrations of iron exhibit no trend
- Concentrations of manganese exhibit no trend but is stable

W-41 (northern portion of the site)

- Concentrations of 4,4'-DDD exhibit no trend but are stable
- Concentrations of iron are decreasing
- Concentrations of cobalt exhibit no trend

W-43 (central portion of the site)

- Concentrations of 4,4'-DDD, 4,4'-DDT, Dieldrin exhibit no trend but are stable
- Concentrations of iron are decreasing
- Concentrations of manganese are increasing

W-45 (eastern portion of the site)

- Concentrations of 4,4'-DDT exhibit no trend but are stable
- Concentrations of cadmium are increasing
- Concentrations of iron exhibit no trend

3. *Are all wells needed for continued monitoring?*

The monitoring well network at IRP Site 7 should be retained for the duration of the groundwater monitoring program.

6.2.2 Recommendations – IRP Site 7

Based on the conclusions presented above, the DQO Decision Rules (Step 5) (BEI 2003), and the DQO Decision Flow Diagram (BEI 2005) the following recommendations are made. The recommendations for groundwater monitoring during the third year are summarized in Table 12.

1. Discontinue monitoring for VOCs at IRP Site 7.
2. Discontinue monitoring for SVOCs at IRP Site 7.
3. Discontinue monitoring for PCBs.
4. Discontinue monitoring for metals in all monitoring wells at IRP Site 7 with the exception of monitoring wells W-41 and W45. Monitor for an abbreviated metals suite (cobalt in W-41 and cadmium in W-45) during a third annual monitoring event. As discussed in Section 5.1.2.1.5 iron and manganese are common cations in water. Both metals are not likely to persist if groundwater discharges to surface water (BEI 2005).
5. Continue to monitor for pesticides during the third annual monitoring event.
6. Continue monitoring for cyanide at IRP Site 7 but reduce the number of wells being samples for cyanide to the five wells located near and along the Orange County Flood Control Channel. This includes MW-04-02, -03, -04, W-42, and 07M01. Both monitoring wells 07M01 and MW-04-04 are located along the Orange County Flood Control Channel. The detection of cyanide in monitoring wells 07M01 and Mw-04-04 may be associated with the channel and not the landfill, since cyanide was not detected in groundwater samples from monitoring wells at other part of Site 7.
7. Continue water level monitoring in wells at IRP Site 5 until the groundwater monitoring program is discontinued in its entirety.

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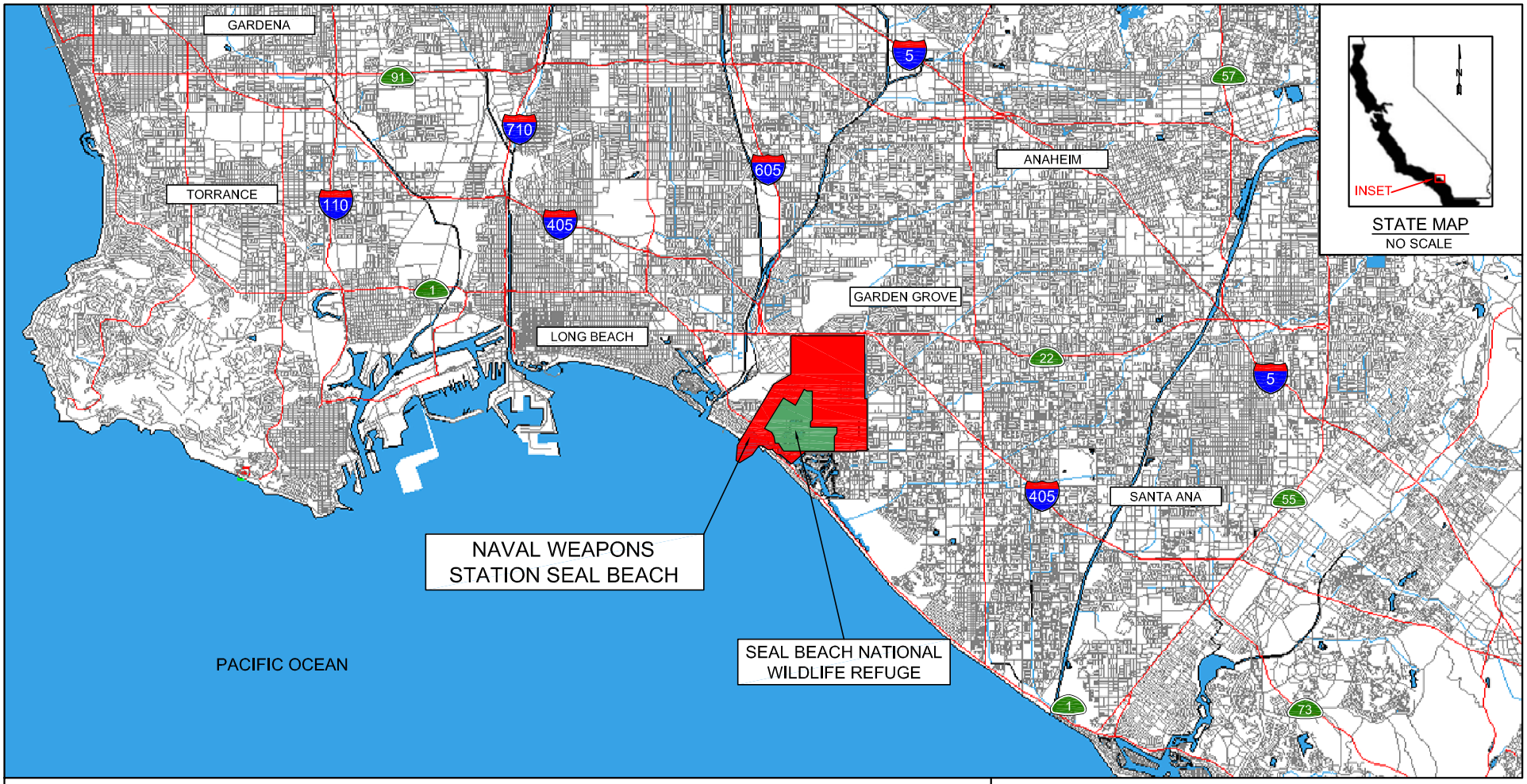
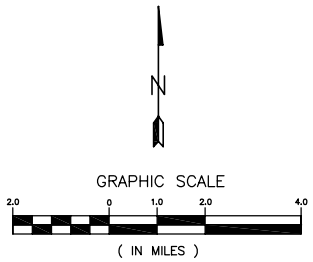
FIGURES





NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

FIGURE 1
REGIONAL MAP

DEPARTMENT OF THE NAVY
SOUTHWEST DIVISION
SAN DIEGO, CALIFORNIA

NAVFAC Naval Facilities Engineering Command

MARRS Services, Inc.

DATE: JUNE 2006
PROJECT NO.: CA3-135-WO18
CONTRACT NO.: N68711-135-D-5103
DELIVERY ORDER: DO18

NAVWPNSTA SEAL BEACH_REGIONAL MAP FIG 1 04JUN06.DWG DSG-TECHGGP

Figures 2 - 9

These detailed station maps have been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.

TABLES

Table 1
Measured Groundwater Quality Parameters

IRP Site	Well ID	Purge Date	Temp. (°C)	Conductivity (S/m)	DO (mg/l)	pH	Salinity	ORP (mV)	Turbidity (NTU)
IRP Site 5									
	MW-05-01	11/2/2005	21.93	1.65	0.51	7.88	0.83	44	1.8
	MW-05-02	11/2/2005	16.45	21.10	0.23	6.45	15.72	-162	1.5
	MW-05-03	11/2/2005	7.22	19.57	0.18	6.43	37.73	-278	1.1
	MW-05-04	11/1/2005	20.22	27.46	0.58	7.34	16.74	-6.66	1.2
	MW-05-05	11/1/2005	20.17	13.28	0.12	6.77	7.61	-3.16	1.97
	SW-1	11/2/2005	24.54	4.81	6.11	5.86	31.32	-8	-
	SW-2	11/2/2005	24.53	4.89	5.99	5.88	31.31	-6	-
	SW-3	11/2/2005	24.55	4.77	6.12	5.87	31.33	-9	-
IRP Site 7									
	07M01	10/31/2005	22.23	62.2	0.37	7.03	41.67	-386	1.3
	W-41	10/31/2005	21.02	68.5	0.36	6.19	46.45	3	5.53
	W-42	10/31/2005	32.13	63.00	0.24	6.59	42.26	-199	1.3
	W-43	10/31/2005	21.28	72.57	0.13	6.56	49.61	-3.19	3.55
	W-45	11/1/2005	26.44	20.80	.027	5.86	40.67	-2.97	6.90
	MW-04-02	11/1/2005	22.06	59.43	0.16	6.56	39.61	-2.39	4.13
	MW-04-03	11/1/2005	22.84	62.97	0.48	7.05	42.46	-14.0	2.23
	MW-04-04	11/1/2005	20.74	53	0.34	7.12	34.7	25.33	

Notes:
Measurements are an average of the last three consecutive measurements. Only one measurement collected from surface water locations.

Acronyms/Abbreviations:

°C	degrees Celsius
DO	Dissolved Oxygen
Mg/l	Milligrams per liter
S/m	Siemens per meter
mV	millivolt
NTU	nephelometric turbidity unit
ORP	oxidation-reduction potential

Table 2
Summary of Laboratory Analyses
Second Annual Monitoring Event

Well ID	Sample Matrix	Sampling Event	ANALYTES (U.S. EPA METHOD)										
			VOCs (8260B)	SVOCs (8270C)	PAHs (8270-M)	Pesticides (8081A)	PCBs (8082)	TAL Metals/ICP (6010B/7000)	Hexavalent Chromium (7196A)	Cyanide (335.2/SW9010B)	Anions* (300.0)	Alkalinity (310.1)	Ammonia (350.3)
IRP SITE 5													
MW-05-01	groundwater	2nd Annual October/November 2005	●		●			●	●		●		●
MW-05-02	groundwater		●		●			●	●		●		●
MW-05-03	groundwater		●		●			●	●		●		●
MW-05-04	groundwater		●		●			●	●		●		●
MW-05-05	groundwater		●		●			●	●		●		●
SW-1	surface water						●						
SW-2	surface water						●						
SW-3	surface water						●						
IRP SITE 7													
07M01	groundwater	2nd Annual October/November 2005	●	●		●	●	●	●	●			
W-41	groundwater		●	●		●	●	●	●	●			
W-42	groundwater		●	●		●	●	●	●	●			
W-43	groundwater		●	●		●	●	●	●	●			
W-45	groundwater		●	●		●	●	●	●	●			
MW-04-02	groundwater		●	●		●	●	●	●	●			
MW-04-03	groundwater		●	●		●	●	●	●	●			
MW-04-04	groundwater		●	●		●	●	●	●	●			

Notes:
* anions: chloride, natrate as nitrogen, and sulfate

Acronyms/Abbreviations
ICP inductively coupled argon plasma
IRP Installation Restoration Program
PAH Polynuclear aromatic hydrocarbons
PCBs Polychlorinated biphenyls
SVOCs Semivolatile organic compounds
TAL target analyte list
U.S. EPA Unites States Environmental Protection Agency
VOCs Volatile organic compounds

TABLE 3
IRP SITE 5 SURFACE WATER ANALYTICAL RESULTS
SECOND ANNUAL GROUNDWATER MONITORING EVENT

Analyte				SCREENING VALUES					SW-1		SW-2		SW-3		SW-DUPLICATE	
				Groundwater	Surface Water	Supplemental Criteria [a]	California Toxics Rule Criteria [b]	Stationwide Background [c]	11/2/2005		11/2/2005		11/2/2005		11/2/2005	
PCBs by EPA 8082	**MDL**	**RL**	**Units**													
PCB-1016	0.094	0.19	ug/L	0.03 [d]	0.03 [d]		0.03 [d]	NE	0.19	U	0.19	U	0.19	U	0.2	U
PCB-1221	0.094	0.19	ug/L	0.03 [d]	0.03 [d]		0.03 [d]	NE	0.19	U	0.19	U	0.19	U	0.2	U
PCB-1232	0.094	0.19	ug/L	0.03 [d]	0.03 [d]		0.03 [d]	NE	0.19	U	0.19	U	0.19	U	0.2	U
PCB-1242	0.094	0.19	ug/L	0.03 [d]	0.03 [d]		0.03 [d]	NE	0.19	U	0.19	U	0.19	U	0.2	U
PCB-1248	0.094	0.19	ug/L	0.03 [d]	0.03 [d]		0.03 [d]	NE	0.19	U	0.19	U	0.19	U	0.2	U
PCB-1254	0.094	0.19	ug/L	0.03 [d]	0.03 [d]		0.03 [d]	NE	0.19	U	0.19	U	0.19	U	0.2	U
PCB-1260	0.094	0.19	ug/L	0.03 [d]	0.03 [d]		0.03 [d]	NE	0.19	U	0.19	U	0.19	U	0.2	U

Notes:

[a] Source of the supplemental criteria are shown in Final First Annual Groundwater Monitoring Report for IR Sites 4, 5, 6, and 7 (BEI 2005). Blanks indicates none established.

[b] Water Quality Criteria obtained from 2000 Californians Toxics Rule Criteria (U.S. EPA), Enclosed Bays & Estuaries, Saltwater Aquatic Life Protection, continouous concentration (4-day average)

[d] instantaneous maxium value

[d] the criterion applies to the sum of Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260

Acronyms/Abbreviations:

EPA	United States Environmental Protection Agency
ug/l	micrograms per liter
MDL	Method detection limit
RL	Reporting limit
NE	not estibalish
U	Not detected at or above the reporting limit

Table 4
IRP Site 5 Groundwater Analytical Results
Second Annual Groundwater Monitoring Event

Analyte				SCREENING VALUES					MW-05-01		MW-05-02		MW-05-03		MW-05-04		MW-05-05	
				Groundwater	Surface Water	Supplemental Criteria [a]	California Toxics Rule Criteria [b]	Stationwide Background [c]	11/2/2005		11/2/2005		11/2/2005		11/1/2005		11/1/2005	
VOCs by EPA 8260B	**MDL**	**RL**	**Units**															
1,1,1,2-TETRACHLOROETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-TRICHLOROETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-TETRACHLOROETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-TRICHLOROETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
1,1-DICHLOROETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-DICHLOROETHENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-DICHLOROPROPENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-TRICHLOROBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
1,2,3-TRICHLOROPROPANE	0.5	1	ug/L						1	UJ	1	U	1	UJ	1	UJ	1	UJ
1,2,4-TRICHLOROBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
1,2,4-TRIMETHYLBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-DIBROMO-3-CHLOROPROPANE	0.5	1	ug/L						1	UJ	1	U	1	UJ	1	UJ	1	UJ
1,2-DIBROMOETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-DICHLOROBENZENE	0.2	0.5	ug/L	20	20	20	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-DICHLOROETHANE	0.2	0.5	ug/L	1,130	1,130	1,130	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.45	J
1,2-DICHLOROPROPANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3,5-TRIMETHYLBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-DICHLOROBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-DICHLOROPROPANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,4-DICHLOROBENZENE	0.2	0.5	ug/L	20	20	20	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
2,2-DICHLOROPROPANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
2-BUTANONE	5	10	ug/L						10	U	10	U	10	U	10	U	10	U
2-CHLOROTOLUENE	0.2	0.5	ug/L						0.5	UJ	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
2-HEXANONE	5	10	ug/L						10	U	10	U	10	U	10	U	10	U
4-CHLOROTOLUENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
4-METHYL-2-PENTANONE	5	10	ug/L						10	U	10	U	10	U	10	U	10	U
ACETONE	5	10	ug/L	19,300	19,300	19,300	NE	NE	10	U	10	U	10	U	10	U	10	U
BENZENE	0.2	0.5	ug/L	109	109	109	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
BROMOBENZENE	0.2	0.5	ug/L						0.5	UJ	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
BROMOCHLOROMETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
BROMODICHLOROMETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
BROMOFORM	0.3	0.5	ug/L						0.5	UJ	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
BROMOMETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CARBON DISULFIDE	0.2	0.5	ug/L	450	450	450	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CARBON TETRACHLORIDE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROBENZENE	0.2	0.5	ug/L	105	105	105	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROFORM	0.2	0.5	ug/L	815	815	815	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROMETHANE	0.2	0.5	ug/L	2,700	2,700	2,700	NE	NE	0.66		0.5	U	0.5	U	0.5	U	0.5	U
CIS-1,2-DICHLOROETHENE	0.2	0.5	ug/L	2,240	2,240	2,240	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CIS-1,3-DICHLOROPROPENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
DIBROMOCHLOROMETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
DIBROMOMETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
DICHLORODIFLUOROMETHANE	0.3	0.5	ug/L						0.5	UJ	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ

Table 4
IRP Site 5 Groundwater Analytical Results
Second Annual Groundwater Monitoring Event

Analyte	MDL	RL	Units	SCREENING VALUES Groundwater	Surface Water	Supplemental Criteria [a]	California Toxics Rule Criteria [b]	Stationwide Background [c]	MW-05-01 11/2/2005		MW-05-02 11/2/2005		MW-05-03 11/2/2005		MW-05-04 11/1/2005		MW-05-05 11/1/2005	
VOCs by EPA 8260B (continued)																		
ETHYLBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
HEXACHLOROBUTADIENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
ISOPROPYL BENZENE	0.2	0.5	ug/L						0.5	UJ	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ
METHYLENE CHLORIDE	0.5	1	ug/L	2,560	2,560	2,560	NE	NE	1	U	1	U	1	U	1	U	1	U
MTBE	0.2	0.5	ug/L	440	440	440	NE	NE	250		0.5	U	0.5	U	36		1.1	
NAPHTHALENE	0.5	1	ug/L						1	U	1	U	1	U	1	U	1	U
N-BUTYLBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
N-PROPYLBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
P-ISOPROPYLTOLUENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SEC-BUTYLBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
STYRENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TERT-BUTYLBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TETRACHLOROETHYLENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TOLUENE	0.2	0.5	ug/L	37	37	37	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TRANS-1,2-DICHLOROETHENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TRANS-1,3-DICHLOROPROPENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TRICHLOROETHENE	0.2	0.5	ug/L	20	20	20	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TRICHLOROFLUOROMETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
VINYL CHLORIDE	0.2	0.5	ug/L	2,240	2,240	2,240	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
XYLENES	0.5	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SVOCs (PAHs) by EPA 8270C																		
2-METHYLNAPHTHALENE	0.094	0.19	ug/L	3	3	3	NE	NE	0.19	U	0.2	U	0.19	U	0.19	U	0.19	U
ACENAPHTHENE	0.094	0.19	ug/L	9.7	9.7	9.7	NE	NE	0.19	U	0.2	U	1.9		0.19	U	0.19	U
ACENAPHTHYLENE	0.094	0.19	ug/L	3	3	3	NE	NE	0.19	U	0.2	U	0.19	U	0.19	U	0.19	U
ANTHRACENE	0.094	0.19	ug/L	3	3	3	NE	NE	0.19	U	0.2	U	0.19	U	0.19	U	0.19	U
BENZO(A)ANTHRACENE	0.094	0.19	ug/L	3	3	3	NE	NE	0.19	U	0.2	U	0.19	U	0.19	U	0.19	U
BENZO(A)PYRENE	0.094	0.19	ug/L	3	3	3	NE	NE	0.19	U	0.2	U	0.19	U	0.19	U	0.19	U
BENZO(B)FLUORANTHENE	0.094	0.19	ug/L	3	3	3	NE	NE	0.19	U	0.2	U	0.19	U	0.19	U	0.19	U
BENZO(G,H,I)PERYLENE	0.094	0.19	ug/L	3	3	3	NE	NE	0.19	U	0.2	U	0.19	U	0.19	U	0.19	U
BENZO(K)FLUORANTHENE	0.094	0.19	ug/L	3	3	3	NE	NE	0.19	U	0.2	U	0.19	U	0.19	U	0.19	U
CHRYSENE	0.094	0.19	ug/L	3	3	3	NE	NE	0.19	U	0.2	U	0.19	U	0.19	U	0.19	U
DIBENZO(A,H)ANTHRACENE	0.094	0.19	ug/L	3	3	3	NE	NE	0.19	U	0.2	U	0.19	U	0.19	U	0.19	U
FLUORANTHENE	0.094	0.19	ug/L	1.6	1.6	1.6	NE	NE	0.19	U	0.2	U	0.17	J	0.19	U	0.19	U
FLUORENE	0.094	0.19	ug/L	3	3	3	NE	NE	0.19	U	0.2	U	0.19	U	0.19	U	0.19	U
INDENO(1,2,3-CD)PYRENE	0.094	0.19	ug/L	3	3	3	NE	NE	0.19	U	0.2	U	0.19	U	0.19	U	0.19	U
NAPHTHALENE	0.094	0.19	ug/L	23.5	23.5	23.5	NE	NE	0.19	U	0.2	U	0.19	U	0.19	U	0.19	U
PHENANTHRENE	0.094	0.19	ug/L	4.6	4.6	4.6	NE	NE	0.19	U	0.2	U	0.19	U	0.19	U	0.19	U
PYRENE	0.094	0.19	ug/L	3	3	3	NE	NE	0.19	U	0.2	U	0.19	U	0.19	U	0.19	U

Table 4
IRP Site 5 Groundwater Analytical Results
Second Annual Groundwater Monitoring Event

Analyte				SCREENING VALUES Groundwater	Surface Water	Supplemental Criteria [a]	California Toxics Rule Criteria [b]	Stationwide Background [c]	MW-05-01 11/2/2005		MW-05-02 11/2/2005		MW-05-03 11/2/2005		MW-05-04 11/1/2005		MW-05-05 11/1/2005	
Metals by EPA 6020A	**MDL**	**RL**	**Units**															
ALUMINUM	50	100	ug/L	579	3	3	NE	579	79.1	J	66.3	J	100	U	80.7	J	100	U
ANTIMONY	0.5	1	ug/L	500	500	500	NE	8.7	1	U	0.595	J	1	U	1	U	1	U
ARSENIC	0.5	1	ug/L	36	36		36	32.8	1.21		14		5		3.16		1.85	
BARIUM	0.5	1	ug/L	5,000	5,000	5,000	NE	NE	181		3530		125		79.8		79	
BERYLLIUM	0.5	1	ug/L	NE	NE	NE	NE	NE	1	U	1	U	1	U	1	U	1	U
CADMIUM	0.5	1	ug/L	16.4	8.8		8.8 [f]	16.4	1	U	0.686	U	1	U	4.59		1	U
CALCIUM	50	100	ug/L	NE	NE		NE	NE	129000		1E+06		392000		892000		614000	
CHROMIUM	0.5	1	ug/L	50	50	50	NE	ND/0.4 [h]	1.03		1.09		1.07		1.03		1	U
COBALT	0.5	1	ug/L	16.6	10	10	NE	16.6	1	U	4.25		3.43		5.03		3.54	
COPPER	0.5	1	ug/L	10.3	3.1		3.1	10.3	4.11		4.49		2.29		3.97		0.807	J
IRON	20	100	ug/L	150	150	150	NE	NE	100	U	9980		3430		190		21.4	J
LEAD	0.5	1	ug/L	8.1	8.1		8.1	ND/1.0 [h]	1	U	0.565	J	1	U	0.931	J	1	U
MAGNESIUM	20	100	ug/L	NE	NE		NE	NE	23200		464000		1E+06		559000		289000	
MANGANESE	0.5	1	ug/L	1,011/8,990 [i]	2,500	2,500	NE	1,011/8,990 [i]	21.6		12200		4650		1430		1910	
NICKEL	0.1	1	ug/L	17.5	8.2		8.2	17.5	0.864	U	4.08		2.68		3.59		1.65	U
POTASSIUM	50	100	ug/L	NE	NE		NE	NE	4260		46800		315000		28900		23100	
SELENIUM	0.5	1	ug/L	71	71		71	NE	0.519	J	0.563	J	0.694	J	1	U	1	U
SILVER	0.5	1	ug/L						1	U	1	U	1	U	1	U	1	U
SODIUM	50	100	ug/L	NE	NE		NE	NE	226000		4E+06		1E+07		4940000		2190000	
THALLIUM	0.5	1	ug/L	21.3	21.3	21.3	NE	ND/1.5/11.4 [i]	1	U	0.697	U	1	U	1	U	1	U
VANADIUM	0.5	1	ug/L	205	205	205	NE	27.8	1.65		0.807	J	1.42		0.981	J	2.94	
ZINC	5	10	ug/L	81	81		81	32.4	10	U	8.38	J	10	U	14.3		10	U
Mercury by EPA 7470A																		
MERCURY	0.1	0.2	ug/L	0.94	0.94		0.94 [e]	ND/0.2 [g]	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ
Hexavalent Chromium by EPA 7196A																		
HEXAVALENT CHROMIUM	0.005	0.01	mg/L	50	50	NE	50	NE	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
General Chemistry																		
Ammonia as Nitrogen by EPA 350.2	0.03	0.1	mg/L						0.1	U	2.61		8.2		0.391		0.217	
Chloride by EPA 300.0	5	10	mg/L	NE	NE		NE	NE	215		10100		22000		8870		4020	
Nitrate as Nitrogen by EPA 300.0	0.1	0.2	mg/L	7.8	NE		NE	7.8	4.41		0.2	U	0.2	U	0.181		0.577	
Sulfate by EPA 300.0	12.5	25	mg/L	NE	NE		NE	NE	130		60.1		1750		1060		461	

Table 4
IRP Site 5 Groundwater Analytical Results
Second Annual Groundwater Monitoring Event

Notes:

[a] Source of the supplemental criteria are shown in Final First Annual Groundwater Monitoring Report for IR Sites 4, 5, 6, and 7 (BEI 2005). Blanks indicates none established.

[b] Water Quality Criteria obtained from 2000 Californians Toxics Rule Criteria (U.S. EPA), Enclosed Bays & Estuaries, Saltwater Aquatic Life Protection, continouous concentration (4-day average)

[c] stationwide upper limit background value (JEG 1997)

[d] instantaneous maxium value

[e] criteria most appropriately applied to the sum of endosulfan I and endosulfan II

[f] criteria from National Recommended Water Quality Criteria for Saltwater Aquatic Life Protection, continuous concentration (4-day average) (U.S. EPA 2002)

[h] during evaluation to determine stationwide upper limit background values, sample results (ND/n) did not exceed the detection limit of n

[i] maganese and thallium values are dependent upon the classification of the groundwater as fresh/brackish or saline; application screening values for each monitoring well are shown in Table D-4

[j] ammonia criteria are pH-, temperature-, and salinity-dependents as shown in Table D-2 in the First Annual Groundwater Monitoring Report for IR Sites 4, 5, 6, and 7 (BEI 2005);application screening values for each monitoring well are shown in Table D

Acronyms/Abbreviations:

EPA	United States Environmental Protection Agency
J	Estimated concentration. Detected between the reporting limit and method detection limit.
ug/l	micrograms per liter
mg/l	milligrams per liter
MDL	Method detection limit
RL	Reporting limit
NA	not applicable because media samples are not analyzed for the specified analyte
ND	Non-detect
NE	not estibalish
U	Not detected at or above the reporting limit

Table 5
IRP Site 7 Groundwater Analytical Results
Second Annual Groundwater Monitoring Event

Analyte				SCREENING VALUES Groundwater	Surface Water	Supplemental Criteria [a]	California Toxics Rule Criteria [b]	Stationwide Background [c]	07M01 10/31/2005		MW-04-02 10/31/2005		MW-04-03 10/31/2005		MW-04-04 11/1/2005		W-41 10/31/2005		W-42 10/31/2005		W-43 11/1/2005		W-45 11/1/2005	
VOCs by EPA 8260B	MDL	RL	Units																					
1,1,1,2-TETRACHLOROETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-TRICHLOROETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-TETRACHLOROETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-TRICHLOROETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-DICHLOROETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-DICHLOROETHENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-DICHLOROPROPENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-TRICHLOROBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-TRICHLOROPROPANE	0.5	1	ug/L						1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-TRICHLOROBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-TRIMETHYLBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-DIBROMO-3-CHLOROPROPANE	0.5	1	ug/L						1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-DIBROMOETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-DICHLOROBENZENE	0.2	0.5	ug/L	20	20	20	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-DICHLOROETHANE	0.2	0.5	ug/L	1,130	1,130	1,130	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-DICHLOROPROPANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3,5-TRIMETHYLBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-DICHLOROBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-DICHLOROPROPANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,4-DICHLOROBENZENE	0.2	0.5	ug/L	20	20	20	NE	NE	1.5		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
2,2-DICHLOROPROPANE	0.2	0.5	ug/L						0.5	UJ	0.5	UJ	0.5	UJ	0.5	U	0.5	UJ	0.5	UJ	0.5	U	0.5	UJ
2-BUTANONE	5	10	ug/L						10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-CHLOROTOLUENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
2-HEXANONE	5	10	ug/L						10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-CHLOROTOLUENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
4-METHYL-2-PENTANONE	5	10	ug/L						10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
ACETONE	5	10	ug/L	19,300	19,300	19,300	NE	NE	11		10	U	10	U	10	U	10	U	10	U	10	U	10	U
BENZENE	0.2	0.5	ug/L	109	109	109	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
BROMOBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
BROMOCHLOROMETHANE	0.2	0.5	ug/L						0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	U	0.5	UJ
BROMODICHLOROMETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U
BROMOFORM	0.3	0.5	ug/L						0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
BROMOMETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U
CARBON DISULFIDE	0.2	0.5	ug/L	450	450	450	NE	NE	3.9		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CARBON TETRACHLORIDE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROBENZENE	0.2	0.5	ug/L	105	105	105	NE	NE	0.22	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROFORM	0.2	0.5	ug/L	815	815	815	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROMETHANE	0.2	0.5	ug/L	2,700	2,700	2,700	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CIS-1,2-DICHLOROETHENE	0.2	0.5	ug/L	2,240	2,240	2,240	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CIS-1,3-DICHLOROPROPENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
DIBROMOCHLOROMETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
DIBROMOMETHANE	0.2	0.5	ug/L						0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
DICHLORODIFLUOROMETHANE	0.3	0.5	ug/L						0.5	UJ	0.5	UJ	0.5	UJ	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ

Table 5
IRP Site 7 Groundwater Analytical Results
Second Annual Groundwater Monitoring Event

Analyte				SCREENING VALUES Groundwater	Surface Water	Supplemental Criteria [a]	California Toxics Rule Criteria [b]	Stationwide Background [c]	07M01 10/31/2005		MW-04-02 10/31/2005		MW-04-03 10/31/2005		MW-04-04 11/1/2005		W-41 10/31/2005		W-42 10/31/2005		W-43 11/1/2005		W-45 11/1/2005	
VOCs by EPA 8260B (continued)																								
ETHYLBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
HEXACHLOROBUTADIENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
ISOPROPYL BENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
METHYLENE CHLORIDE	0.5	1	ug/L	2,560	2,560	2,560	NE	NE	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ
MTBE	0.2	0.5	ug/L	440	440	440	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
NAPHTHALENE	0.5	1	ug/L	23.5	23.5	23.5	NE	NE	0.72	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U
N-BUTYLBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
N-PROPYLBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
P-ISOPROPYLTOLUENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SEC-BUTYLBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
STYRENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TERT-BUTYLBENZENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TETRACHLOROETHYLENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TOLUENE	0.2	0.5	ug/L	37	37	37	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TRANS-1,2-DICHLOROETHENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TRANS-1,3-DICHLOROPROPENE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TRICHLOROETHENE	0.2	0.5	ug/L	20	20	20	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TRICHLOROFLUOROMETHANE	0.2	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
VINYL CHLORIDE	0.2	0.5	ug/L	2,240	2,240	2,240	NE	NE	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
XYLENES	0.5	0.5	ug/L						0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SVOCs by EPA 8270C																								
2,4,5-TRICHLOROPHENOL	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
2,4,6-TRICHLOROPHENOL	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
2,4-DICHLOROPHENOL	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
2,4-DIMETHYLPHENOL	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
2,4-DINITROPHENOL	4.7	24	ug/L						24	U	24	U	24	U	24	U	24	U	24	U	24	U	24	U
2,4-DINITROTOLUENE	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
2,6-DINITROTOLUENE	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
2-CHLOROPHENOL	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
2-METHYLNAPHTHALENE	4.7	9.4	ug/L	3	3	3	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
2-METHYLPHENOL	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
2-NITROANILINE	4.7	24	ug/L						24	U	24	U	24	U	24	U	24	U	24	U	24	U	24	U
2-NITROPHENOL	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
3,3'-DICHLOROBENZIDINE	4.7	24	ug/L						24	U	24	U	24	U	24	U	24	U	24	U	24	U	24	U
3-NITROANILINE	4.7	24	ug/L						24	U	24	U	24	U	24	U	24	U	24	U	24	U	24	U
4,6-DINITRO-2-METHYLPHENOL	4.7	24	ug/L						24	U	24	U	24	U	24	U	24	U	24	U	24	U	24	U
4-BROMOPHENYL-PHENYL ETHER	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
4-CHLORO-3-METHYLPHENOL	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
4-CHLOROANILINE	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
4-CHLOROPHENYL-PHENYL ETHER	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
4-METHYLPHENOL	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
4-NITROANILINE	4.7	24	ug/L						24	U	24	U	24	U	24	U	24	U	24	U	24	U	24	U
4-NITROPHENOL	4.7	24	ug/L						24	U	24	U	24	U	24	U	24	U	24	U	24	U	24	U

Table 5
IRP Site 7 Groundwater Analytical Results
Second Annual Groundwater Monitoring Event

Analyte				SCREENING VALUES Groundwater	Surface Water	Supplemental Criteria [a]	California Toxics Rule Criteria [b]	Stationwide Background [c]	07M01 10/31/2005		MW-04-02 10/31/2005		MW-04-03 10/31/2005		MW-04-04 11/1/2005		W-41 10/31/2005		W-42 10/31/2005		W-43 11/1/2005		W-45 11/1/2005	
SVOCs by EPA 8270C (continued)																								
ACENAPHTHENE	4.7	9.4	ug/L	9.7	9.7	9.7	NE	NE	7.2	J	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
ACENAPHTHYLENE	4.7	9.4	ug/L	3	3	3	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
ANILINE	4.7	24	ug/L						24	U	24	U	24	U	24	U	24	U	24	U	24	U	24	U
ANTHRACENE	4.7	9.4	ug/L	3	3	3	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
BENZO(A)ANTHRACENE	4.7	9.4	ug/L	3	3	3	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
BENZO(A)PYRENE	4.7	9.4	ug/L	3	3	3	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
BENZO(B)FLUORANTHENE	4.7	9.4	ug/L	3	3	3	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
BENZO(G,H,I)PERYLENE	4.7	9.4	ug/L	3	3	3	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
BENZO(K)FLUORANTHENE	4.7	9.4	ug/L	3	3	3	NE	NE	9.4	UJ	9.4	UJ	9.5	UJ	9.4	UJ	9.4	UJ	9.4	UJ	9.6	UJ	9.5	UJ
BENZOIC ACID	9.4	24	ug/L						24	U	24	U	24	U	24	U	24	U	24	U	24	U	24	U
BENZYL ALCOHOL	4.7	9.4	ug/L	150	150	150	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
BIS(2-CHLOROETHOXY)METHANE	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
BIS(2-CHLOROETHYL)ETHER	4.7	9.4	ug/L						9.4	U	9.4	UJ	9.5	UJ	9.4	U	9.4	UJ	9.4	U	9.6	U	9.5	U
BIS(2-CHLOROISOPROPYL)ETHER	4.7	9.4	ug/L						9.4	UJ	9.4	UJ	9.5	UJ	9.4	UJ	9.4	U	9.4	U	9.6	UJ	9.5	UJ
BIS(2-ETHYLHEXYL)PHTHALATE	4.7	9.4	ug/L	5,500	5,500	5,500	NE	NE	9.4	UJ	9.4	U	9.5	UJ	9.4	UJ	11	J	9.4	U	6.6	J	8.3	J
BUTYLBENZYLPHTHALATE	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
CARBAZOLE	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
CHRYSENE	4.7	9.4	ug/L	3	3	3	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
DIBENZO(A,H)ANTHRACENE	4.7	9.4	ug/L	3	3	3	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
DIBENZOFURAN	4.7	9.4	ug/L	3	3	3	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
DIETHYLPHTHALATE	4.7	9.4	ug/L	75.9	75.9	75.9	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
DIMETHYLPHTHALATE	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
DI-N-BUTYLPHTHALATE	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
DI-N-OCTYLPHTHALATE	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
FLUORANTHENE	4.7	9.4	ug/L	1.6	1.6	1.6	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
FLUORENE	4.7	9.4	ug/L	3	3	3	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
HEXACHLOROBENZENE	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
HEXACHLOROBUTADIENE	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
HEXACHLOROETHANE	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
INDENO(1,2,3-CD)PYRENE	4.7	9.4	ug/L	3	3	3	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
ISOPHORONE	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
NAPHTHALENE	4.7	9.4	ug/L	23.5	23.5	23.5	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
NITROBENZENE	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
N-NITROSODIMETHYLAMINE	4.7	24	ug/L						24	U	24	U	24	U	24	U	24	U	24	U	24	U	24	U
N-NITROSO-DI-N-PROPYLAMINE	4.7	9.4	ug/L						9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
N-NITROSODIPHENYLAMINE	4.7	9.4	ug/L	33,000	33,000	33,000	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
PENTACHLOROPHENOL	4.7	24	ug/L						24	U	24	U	24	U	24	U	24	U	24	U	24	U	24	U
PHENANTHRENE	4.7	9.4	ug/L	4.6	4.6	4.6	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
PHENOL	4.7	9.4	ug/L	58	58	58	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
PYRENE	4.7	9.4	ug/L	3	3	3	NE	NE	9.4	U	9.4	U	9.5	U	9.4	U	9.4	U	9.4	U	9.6	U	9.5	U
PYRIDINE	19	47	ug/L						47	U	47	U	47	U	47	U	47	U	47	U	48	U	47	U

Table 5
IRP Site 7 Groundwater Analytical Results
Second Annual Groundwater Monitoring Event

Analyte				SCREENING VALUES Groundwater	Surface Water	Supplemental Criteria [a]	California Toxics Rule Criteria [b]	Stationwide Background [c]	07M01 10/31/2005		MW-04-02 10/31/2005		MW-04-03 10/31/2005		MW-04-04 11/1/2005		W-41 10/31/2005		W-42 10/31/2005		W-43 11/1/2005		W-45 11/1/2005	
Pesticides by EPA 8081A																								
4,4'-DDD	0.02	0.039	ug/L	ND	NA	0.001	NE	ND	0.039	U	0.038	U	0.038	U	0.038	U	0.039	U	0.038	U	0.038	U	0.038	U
4,4'-DDE	0.02	0.039	ug/L	ND	NA	0.001	NE	ND	0.039	U	0.038	U	0.038	U	0.038	U	0.039	U	0.038	U	0.038	U	0.038	U
4,4'-DDT	0.02	0.039	ug/L	ND	NA		0.001	ND	0.039	U	0.038	U	0.038	U	0.038	U	0.039	U	0.038	U	0.038	U	0.038	U
ALDRIN	0.01	0.02	ug/L	ND	NA	0.13	1.3 d	ND	0.02	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
ALPHA-BHC	0.01	0.02	ug/L	ND	NA	0.016	NE	ND	0.02	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
ALPHA-CHLORDANE	0.01	0.02	ug/L	ND	NA			ND	0.02	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
BETA-BHC	0.01	0.02	ug/L	ND	NA	0.016 [k]	NE	ND	0.02	UJ	0.019	J	0.019	UJ	0.043	J	0.019	UJ	0.019	UJ	0.019	UJ	0.019	UJ
DELTA-BHC	0.01	0.02	ug/L	ND	NA			ND	0.02	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
DIELDRIN	0.02	0.039	ug/L	ND	NA		0.0019	ND	0.039	U	0.038	U	0.038	U	0.038	U	0.039	U	0.038	U	0.038	U	0.038	U
ENDOSULFAN I	0.01	0.02	ug/L	ND	NA		0.0087 [e]	ND	0.02	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
ENDOSULFAN II	0.02	0.039	ug/L	ND	NA		0.0087 [e]	ND	0.039	U	0.038	U	0.038	U	0.038	U	0.039	U	0.038	U	0.038	U	0.038	U
ENDOSULFAN SULFATE	0.02	0.039	ug/L	ND	NA			ND	0.039	UJ	0.038	UJ	0.038	UJ	0.038	UJ	0.039	UJ	0.038	UJ	0.038	UJ	0.038	UJ
ENDRIN	0.02	0.039	ug/L	ND	NA			ND	0.039	U	0.038	U	0.038	U	0.038	U	0.039	U	0.038	U	0.038	U	0.038	U
ENDRIN ALDEHYDE	0.02	0.039	ug/L	ND	NA			ND	0.039	U	0.038	U	0.038	U	0.038	U	0.039	U	0.038	U	0.038	U	0.038	U
ENDRIN KETONE	0.02	0.039	ug/L	ND	NA	0.0023	NE	ND	0.039	U	0.038	U	0.038	U	0.038	U	0.039	U	0.038	U	0.038	U	0.038	U
GAMMA-BHC (LINDANE)	0.01	0.02	ug/L	ND	NA	0.016	0.16 d	ND	0.02	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
GAMMA-CHLORDANE	0.01	0.02	ug/L	ND	NA			ND	0.02	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
HEPTACHLOR	0.01	0.02	ug/L	ND	NA		0.0036	ND	0.02	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
HEPTACHLOR EPOXIDE	0.01	0.02	ug/L	ND	NA		0.0036	ND	0.02	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
METHOXYCHLOR	0.1	0.2	ug/L	ND	NA		0.03 [e,f]	ND	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
TOXAPHENE	0.2	0.39	ug/L	ND	NA			ND	0.39	U	0.38	U	0.38	U	0.38	U	0.39	U	0.38	U	0.38	U	0.38	U
PCBs by EPA 8082																								
PCB-1016	0.1	0.2	ug/L	0.03 [g]	0.03 [g]		0.03 [g]	NE	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
PCB-1221	0.1	0.2	ug/L	0.03 [g]	0.03 [g]		0.03 [g]	NE	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
PCB-1232	0.1	0.2	ug/L	0.03 [g]	0.03 [g]		0.03 [g]	NE	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
PCB-1242	0.1	0.2	ug/L	0.03 [g]	0.03 [g]		0.03 [g]	NE	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
PCB-1248	0.1	0.2	ug/L	0.03 [g]	0.03 [g]		0.03 [g]	NE	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
PCB-1254	0.1	0.2	ug/L	0.03 [g]	0.03 [g]		0.03 [g]	NE	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
PCB-1260	0.1	0.2	ug/L	0.03 [g]	0.03 [g]		0.03 [g]	NE	0.2	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Dissolved metals by EPA 6020A																								
ALUMINUM	50	100	ug/L	579	3	3	NE	579	100	U	100	U	78.4	J	56.6	J	100	U	100	U	71.4	J	68.6	J
ANTIMONY	0.5	1	ug/L	500	500	500	NE	8.7	7.31		0.564	J	1	U	0.617	J	0.53	J	1.14		0.78	J	0.594	J
ARSENIC	0.5	1	ug/L	36	36		36	32.8	9.56		2.82		8.41		3.85		3.08		7.57		3.62		2.14	
BARIUM	0.5	1	ug/L	5,000	5,000	5,000	NE	NE	1330		86.6		111		61.7		86.4		126		62		72.2	
BERYLLIUM	0.5	1	ug/L	NE	NE	NE	NE	NE	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
CADMIUM	0.5	1	ug/L	16.4	8.8		8.8 [f]	16.4	1	U	2.94		0.839	J	1	U	4.18		1.31		2.15		4.39	
CALCIUM	50	100	ug/L	NE	NE		NE	NE	467000		6E+05		623000		469000		933000		662000		757000		295000	
CHROMIUM	0.5	1	ug/L	50	50	50	NE	ND/0.4 [h]	4.28		0.608	J	0.694	J	0.719	J	1.93		1.28		1.19		0.634	J
COBALT	0.5	1	ug/L	16.6	10	10	NE	16.6	2.1		14.2		7.11		5.84		32.1		8.4		9.26		6.97	
COPPER	0.5	1	ug/L	10.3	3.1		3.1	10.3	1.07	U	6.03	U	4.72	U	4.03	U	3.03	U	7.68	U	6.36	U	2.2	U
IRON	20	100	ug/L	150	150	150	NE	NE	30.5	J	610		3840		740		4530		376		193		41.1	J

Table 5
IRP Site 7 Groundwater Analytical Results
Second Annual Groundwater Monitoring Event

Analyte				SCREENING VALUES Groundwater	Surface Water	Supplemental Criteria [a]	California Toxics Rule Criteria [b]	Stationwide Background [c]	07M01 10/31/2005		MW-04-02 10/31/2005		MW-04-03 10/31/2005		MW-04-04 11/1/2005		W-41 10/31/2005		W-42 10/31/2005		W-43 11/1/2005		W-45 11/1/2005	
Dissolved metals by EPA 6020A (continued)																								
LEAD	0.5	1	ug/L	8.1	8.1		8.1	ND/1.0 [h]	1	U	0.859	J	1	U	1	U	1	U	1	U	1	U	1	U
MAGNESIUM	200	1000	ug/L	NE	NE		NE	NE	2E+06		2E+06		2E+06		1E+06		2E+06		2E+06		2E+06		2E+06	
MANGANESE	0.5	1	ug/L	1,011/8,990 [i]	2,500	2,500	NE	1,011/8,990 [i]	417		6790		3850		7830		5750		3420		6150		3810	
NICKEL	0.1	1	ug/L	17.5	8.2		8.2	17.5	1.44	U	8.16		6.23		4.93		12.5		7.24		9.03		9.7	
POTASSIUM	50	100	ug/L	NE	NE		NE	NE	388000		4E+05		415000		345000		207000		386000		526000		114000	
SELENIUM	0.5	1	ug/L	71	71		71	NE	0.509	J	0.827	J	0.615	J	0.63	J	0.587	J	1.65		0.949	J	1.3	
SILVER	0.5	1	ug/L						1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SODIUM	500	1000	ug/L	NE	NE		NE	NE	1E+07		1E+07		1E+07		1E+07		1E+07		1E+07		2E+07		1E+07	
THALLIUM	0.5	1	ug/L	21.3	21.3	21.3	NE	ND/1.5/11.4 [i]	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
VANADIUM	0.5	1	ug/L	205	205	205	NE	27.8	6.38		4.25		4.92		3.26		1.94	U	10.3		3.92		2.58	U
ZINC	5	10	ug/L	81	81		81	32.4	28.3	J	31.1	J	26.1	J	45.3	J	29.4	J	32.9	J	21.6	J	28.8	J
Dissolved mercury by EPA 7470A																								
MERCURY	0.1	0.2	ug/L	0.94	0.94		0.94 [e]	ND/0.2 [g]	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Hexavalent chromium by EPA 7196A																								
HEXAVALENT CHROMIUM	0.01	0.01	mg/L	50	50	NE	50	NE	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Cyanide by EPA 335.2																								
CYANIDE	0.01	0.01	mg/L	0.001	NA		0.001		0.123		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U

Notes:

[a] Source of the supplemental criteria are shown in Final First Annual Groundwater Monitoring Report for IR Sites 4, 5, 6, and 7 (BEI 2005). Blanks indicates none established.
[b] Water Quality Criteria obtained from 2000 Californians Toxics Rule Criteria (U.S. EPA), Enclosed Bays & Estuaries, Saltwater Aquatic Life Protection, continouous concentration (4-day average)
[c] stationwide upper limit background value (JEG 1997)
[d] instantaneous maxium value
[e] criteria most appropriately applied to the sum of endosulfan I and endosulfan II
[f] criteria from National Recommended Water Quality Criteria for Saltwater Aquatic Life Protection, continuous concentration (4-day average) (U.S. EPA 2002)
[g] the criterion applies to the sum of Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260
[h] during evaluation to determine stationwide upper limit background values, sample results (ND/n) did not exceed the detection limit of n
[i] maganese and thallium values are dependent upon the classification of the groundwater as fresh/brackish or saline; application screening values for each monitoring well are shown in Table D-4
[j] ammonia criteria are pH-, temperature-, and salinity-dependents as shown in Table D-2 in the First Annual Groundwater Monitoring Report for IR Sites 4, 5, 6, and 7 (BEI 2005);application screening values for each monitoring well are shown in Table D-3 of the report
[k] First time this compound has been detected. Screening value based on Alpha-BHC.

Acronyms/Abbreviations:

BHC	benzene hexachloride
DDD	dichlorodipheyldichloroethane
DDE	dichlorodipheyldichloroethene
DDT	dichlorodipheyltichloroethane
EPA	United States Environmental Protection Agency
J	Estimated concentration. Detected between the reporting limit and method detection limit.
ug/l	micrograms per liter
mg/l	milligrams per liter
MDL	Method detection limit
RL	Reporting limit
NA	not applicable because media samples are not analyzed for the specified analyte
ND	Non-detect
NE	not estibalish
U	Not detected at or above the reporting limit

Table 6
Summary of Analytes in Groundwater Samples at IRP Site 5
November 2005

Analyte [a]	Number of Analytical Results	Number of Results above the Reporting Limit	Range of Reported Concentrations above the Reporting Limit	Screening Value [b]	Number of Results above the Screening Value
Volatile Organic Compounds (ug/l)					
1,2-dichloroethane	1	0	0.45 J	1,130	0
methyl tert-butyl ether	3	3	1.1 - 250	440	0
Chloromethane	1	1	0.66	2,700	0
Polynuclear Aromatic Hydrocarbons (ug/l)					
acenaphthene	1	1	1.9	9.7	0
fluoranthene	1	0	0.17 J	1.6	0
Metals (ug/l)					
Aluminum	3	0	66.3 J - 80.7 J	579	0
Antimony	1	0	0.595 J	500	0
Arsenic	5	5	1.21 - 14	36	0
Barium	5	5	79 - 3530	5,000	0
Cadmium	1	1	4.59	16.4	0
Calcium	5	5	129,000 - 1,380,000	NE	NA
Chromium	4	4	1.03 - I.09	50	0
Cobalt	4	4	3.43 - 5.03	16.6	0
Copper	5	4	0.807 J - 4.49	10.3	0
Iron	4	3	21.4 J - 9,980	150	3
Lead	2	0	0.565 J - 0.931 J	8.1	0
Magnesium	5	5	24,400--1,370,000	NE	NA
Manganese	5	5	21.6 - 12,200	8990 [c]	1
Nickel	3	3	2.68 - 4.08	17.5	0
Potassium	5	5	4,260 - 315,000	NE	NA
Selenium	3	0	0.519 J - 0.694 J	71	0
Sodium	5	5	226,000 - 4,940,000	NE	NA
Vanadium	5	3	0.807 J - 2.94	205	0
Zinc	2	1	8.38 J - 14.3	81	0
General Water Chemistry (mg/l)					
Ammonia	4	4	0.217 - 8.2	NE	NA
Chloride	5	5	21 - 22,000	NE	NA
Nitrate	3	3	0.181 - 4.41	7.8	0
Sulfate	5	5	60.1 - 1,750	NE	NA

Table 6
Summary of Analytes in Groundwater Samples at IRP Site 5
November 2005

Notes:

[a]	analytes reported in this table were detected at one or more locations at this site.
[b]	refer to Appendix D of the First Annual Groundwater Monitoring Report (BEI 2005) for a discussion of screening values
[c]	Screening value for manganese based on salinity screening value

Acronyms/Abbreviations

IRP	Installation Restoration Program
ug/l	micrograms per liter
mg/l	milligrams per liter
NA	not applicable
NE	none established

Review Qualifiers:

J - estimated value

Table 7
Summary of Analytes in Groundwater Samples at IRP Site 7
November 2005

Analyte [a]	Number of Analytical Results	Number of Results above the Reporting Limit	Range of Reported Concentrations above the Reporting Limit	Screening Value [b]	Number of Results above the Screening Value
Volatile Organic Compounds (ug/l)					
1,4-dichlorobenzene	1	1	1.5	20	0
acetone	1	1	11	19,300	0
carbon disulfide	1	1	3.9	450	0
chlorobenzene	1	0	0.22 J	105	0
naphthalene	1	0	0.72 J	23.5	0
Semi Volatile Organic Compounds (ug/l)					
acenaphthene	1	0	7.2 J	9.7	0
bis (2-ethylhexyl)phthalate	3	0	6.6 J - 11 J	5,500	0
Pesticides (ug/l)					
Beta-BHC	2	0	0.019 J - 0.043 J	0.016	2
Metals (ug/l)					
Aluminum	4	0	68.6 J - 78.4 J	579	0
Antimony	7	2	0.53 J - 7.31	500	0
Arsenic	8	8	2.14 - 9.56	36	0
Barium	8	8	61.7 - 1,330	5,000	0
Cadmium	6	5	0.839 J - 4.39	16.4	0
Calcium	8	8	295,000 - 933,000	NE	NA
Chromium	8	4	0.608 J - 4.28	50	0
Cobalt	8	8	2.1 - 14.2	16.6	0
Iron	8	6	30.5 J - 4,530	150	6
Lead	1	0	0.859 J	8.1	0
Magnesium	8	8	1,980,000 - 1,113,000	NE	NA
Manganese	8	8	417 - 7,830	8990 [c]	0
Nickel	7	7	4.93 - 12.5	17.5	0
Potassium	8	8	114,000 - 526,000	NE	NA
Selenium	8	2	0.509 J - 1.65	71	0
Sodium	8	8	10,600,000 - 13,200,000	NE	NA
Vanadium	6	6	3.26 - 6.38	205	0
Zinc	8	0	21.6 J - 45.3 J	81	0
General Water Chemistry (mg/l)					
Cyanide	1	1	0.123	0.001	1

Table 7
Summary of Analytes in Groundwater Samples at IRP Site 7
November 2005

Notes:

[a] analytes reported in this table were detected at one or more locations at this site.

[b] refer to Appendix D of the First Annual Groundwater Monitoring Report (BEI 2005) for screening values

[c]

Acronyms/Abbreviations	Installation Restoration Program
IRP	micrograms per liter
ug/l	milligrams per liter
mg/l	not applicable
NA	none established
NE	

Review Qualifiers:

J - estimated value

Table 8
IRP Site 5 Statistical Trend Analysis Results
MTBE and Metals
Mann-Kendall Statistical Test

WELL I.D.	TREND AND STABILITY	ANALYTE					
		MTBE	IRON	MANGANESE	NICKEL	ZINC	HEXAVALENT CHROMIUM
MW-05-01	M-K Statistical Test 80% Confidence Level	**No Trend**	-	-	-	-	-
	M-K Statistical Test 90% Confidence Level	**No Trend**	-	-	-	-	-
	Stability	**Stable**	-	-	-	-	-
MW-05-02	M-K Statistical Test 80% Confidence Level	-	**Increasing**	**No Trend**	**Decreasing**	**No Trend**	**No Trend**
	M-K Statistical Test 90% Confidence Level	-	**Increasing**	**No Trend**	**No Trend**	**No Trend**	**No Trend**
	Stability	-	**NA**	**Stable**	**NA**	**Non Stable**	**Non Stable**
MW-05-03	M-K Statistical Test 80% Confidence Level	-	**Increasing**	-	-	-	-
	M-K Statistical Test 90% Confidence Level	-	**No Trend**	-	-	-	-
	Stability	-	**NA**	-	-	-	-
MW-05-04	M-K Statistical Test 80% Confidence Level	-	**No Trend**	-	-	-	-
	M-K Statistical Test 90% Confidence Level	-	**No Trend**	-	-	-	-
	Stability	-	**Stable**	-	-	-	-

Table 8 (continued)
IRP Site 5 Statistical Trend Analysis Results
MTBE and Metals
Mann-Kendall Statistical Test

Notes:
Statistical results base on last 8 to 10 quarters of data.

Acronyms/Abbreviations:

NA	Not applicable. Stability calculated if no trend exists at the 80% confidence interval

Table 9
IRP Site 5 Statistical Trend Analysis Results
PAHs
(Mann-Kendall Statistical Test)

WELL I.D.	TREND AND STABILITY	ANALYTE				
		2-METHY-NAPHTHALENE	FLUORANTHENE	FLUORINE	NAPHTHALENE	PHENANTHRENE
MW-05-03	M-K Statistical Test 80% Confidence Level	**Decreasing**	**Decreasing**	**Decreasing**	**Decreasing**	**Decreasing**
	M-K Statistical Test 90% Confidence Level	**No Trend**	**Decreasing**	**Decreasing**	**No Trend**	**Decreasing**
	Stability	**NA**	**NA**	**NA**	**NA**	**NA**

Notes:
Statistical results base on last 8 to 10 quarters of data.

Acronyms/Abbreviations:
NA Not applicable. Stability calculated if no trend exists at the 80% confidence interval

Table 10
IRP Site 7 Statistical Trend Analysis Results
PAHs
Mann-Kendall Statistical Test

WELL I.D.	TREND AND STABILITY	ANALYTE													
		4,4'-DDD	4,4'-DDE	4,4'-DDT	ALDRIN	ALPHA-BHC	DIELDRIN	ENDOSULFAN I	ENDOSULFAN II	GAMMA-CHLORDANE	HEPTA-CHLOR	HEPTA-CHLOR EPOXIDE	ENDRIN KETONE	GAMMA-BHC	METH-OXYCHLOR
07M01	M-K Statistical Test 80% Confidence Level	**No Trend**	-	-	-	-	-	-	-	**No Trend**	**No Trend**	-	-	-	-
	M-K Statistical Test 90% Confidence Level	**No Trend**	-	-	-	-	-	-	-	**No Trend**	**No Trend**	-	-	-	-
	Stability	**Stable**	-	-	-	-	-	-	-	**Stable**	**Stable**	-	-	-	-
W-41	M-K Statistical Test 80% Confidence Level	**No Trend**	-	-	-	**No Trend**	-	-	**No Trend**	-	-	-	-	-	-
	M-K Statistical Test 90% Confidence Level	**No Trend**	-	-	-	**No Trend**	-	-	**No Trend**	-	-	-	-	-	-
	Stability	**Stable**	-	-	-	**Stable**	-	-	**Stable**	-	-	-	-	-	-
W-42	M-K Statistical Test 80% Confidence Level	-	-	-	-	**No Trend**	-	-	-	-	-	-	-	-	-
	M-K Statistical Test 90% Confidence Level	-	-	-	-	**No Trend**	-	-	-	-	-	-	-	-	-
	Stability	-	-	-	-	**Stable**	-	-	-	-	-	-	-	-	-
W-43	M-K Statistical Test 80% Confidence Level	-	**No Trend**	**No Trend**	**No Trend**	**No Trend**	**No Trend**	**No Trend**	-	-	-	-	**No Trend**	**No Trend**	**No Trend**
	M-K Statistical Test 90% Confidence Level	-	**No Trend**	**No Trend**	**No Trend**	**No Trend**	**No Trend**	**No Trend**	-	-	-	-	**No Trend**	**No Trend**	**No Trend**
	Stability	-	**Stable**	**Stable**	**Stable**	**Stable**	**Stable**	**Stable**	-	-	-	-	**Stable**	**Stable**	**Stable**
MW-04-03	M-K Statistical Test 80% Confidence Level	-	-	-	-	**No Trend**	-	-	-	-	-	**No Trend**	-	-	-
	M-K Statistical Test 90% Confidence Level	-	-	-	-	**No Trend**	-	-	-	-	-	**No Trend**	-	-	-
	Stability	-	-	-	-	**Stable**	-	-	-	-	-	**Stable**	-	-	-

Notes:
Statistical results base on last 8 to 10 quarters of data.

Acronyms/Abbreviations:
NA Not applicable. Stability calculated if no trend exists at the 80% confidence interval

Table 11
IRP Site 7 Statistical Trend Analysis Results
Metals and Cyanide
Mann-Kendall (S) Statistical Test and the Mann-Whitney (U) Statistical Test

WELL I.D.	TREND AND STABILITY	ANALYTE					
		Cobalt	IRON	MANGANESE	NICKEL	ZINC	CYANIDE
W-41	M-W (U) Statistical Test 90% Confidence Level	**Increasing**	**Decreasing**	-	-	-	-
	M-K (S) Statistical Test 80% Confidence Level	**Increasing**	**Decreasing**	-	-	-	-
	M-K (S) Statistical Test 90% Confidence Level	**No Trend**	**Decreasing**	-	-	-	-
	Stability	**NA**	**NA**	-	-	-	-
W-42	M-W (U) Statistical Test 90% Confidence Level	-	**No Trend**	-	**No Trend**	-	-
	M-K (S) Statistical Test 80% Confidence Level	-	**No Trend**	-	**Increasing**	-	-
	M-K (S) Statistical Test 90% Confidence Level	-	**No Trend**	-	**No Trend**	-	-
	Stability	-	**Non Stable**	-	**Non Stable**	-	-
W-43	M-W (U) Statistical Test 90% Confidence Level	-	**Decreasing**	**Increasing**	**No Trend**	**No Trend**	-
	M-K (S) Statistical Test 80% Confidence Level	-	**Decreasing**	**Increasing**	**Increasing**	**Increasing**	-
	M-K (S) Statistical Test 90% Confidence Level	-	**Decreasing**	**Increasing**	**Increasing**	**Increasing**	-
	Stability	-	**NA**	**NA**	**NA**	**NA**	-

Table 11 (continued)
IRP Site 7 Statistical Trend Analysis Results
Metals and Cyanide
Mann-Kendall (S) Statistical Test and the Mann-Whitney (U) Statistical Test

WELL I.D.	TREND AND STABILITY	ANALYTE					
		CADMIUM	IRON	MANGANESE	NICKEL	ZINC	CYANIDE
MW-04-02	M-W (U) Statistical Test 90% Confidence Level	-	-	-	-	-	-
	M-K (S) Statistical Test 80% Confidence Level	-	**Increasing**	-	-	-	-
	M-K (S) Statistical Test 90% Confidence Level	-	**No Trend**	-	-	-	-
	Stability	-	**NA**	-	-	-	-
MW-04-03	M-W (U) Statistical Test 90% Confidence Level	-	-	-	-	-	-
	M-K (S) Statistical Test 80% Confidence Level	-	**Increasing**	-	-	-	-
	M-K (S) Statistical Test 90% Confidence Level	-	**Increasing**	-	-	-	-
	Stability	-	**NA**	-	-	-	-
MW-04-04	M-K (S) Statistical Test 80% Confidence Level	-	**Increasing**	**No Trend**	-	-	**No Trend**
	M-K (S) Statistical Test 90% Confidence Level	-	**No Trend**	**No Trend**	-	-	**No Trend**
	Stability	-	**NA**	**Stable**	-	-	**Stable**
W-45	M-K (S) Statistical Test 80% Confidence Level	**Increasing**	**Decreasing**	-	**Increasing**	-	-
	M-K (S) Statistical Test 90% Confidence Level	**Increasing**	**No Trend**	-	**Increasing**	-	-
	Stability	**NA**	**NA**	-	**NA**	-	-

Table 11 (continued)
IRP Site 7 Statistical Trend Analysis Results
Metals and Cyanide
Mann-Kendall (S) Statistical Test and the Mann-Whitney (U) Statistical Test

WELL I.D.	TREND AND STABILITY	ANALYTE					
		Cobalt	IRON	MANGANESE	NICKEL	ZINC	CYANIDE
07M01	M-K (S) Statistical Test 80% Confidence Level	-	-	-	-	-	**No Trend**
	M-K (S) Statistical Test 90% Confidence Level	-	-	-	-	-	**No Trend**
	Stability	-	-	-	-	-	**Stable**

Notes:
Highlighted cells indicate a coloration between the Mann-Kendall (S) Statistical Test and the Mann-Whitney (U) Statistical Test.

Acronyms/Abbreviations:

M-K	Mann-Kendall
M-W	Mann-Whitney
NA	Not applicable. Stability calculated if no trend exists at the 80% confidence interval
-	The statistical test was not performed on the data because concentrations have never exceeded screening values, or not enough data to perform the statistical test. The Mann-Kendall (S) Statistical Test requires a minimum of four data points and no more then 10 data points. The Mann-Whitney (U) Statistical Test requires eight sequential data points.

TABLE 12
Recommendations for Monitoring During Year 3

Well ID	Sample Matrix	Decision Questions: Are data Trends Increasing?	Decision Questions: Is potential receptor threatened?	Decision Questions: Are data highly variable?	Location	ANALYTES (U.S. EPA METHOD): VOCs (8260B)	SVOCs (8270C)	PAHs (8270-M)	Pesticides (8081A)	PCBs (8082)	TAL Metals/ICP (6010B/7000)	Hexavalent Chromium (7196A)	Cyanide (335.2/SW9010B)	Anions* (300.0)	Ammonia (350.3)
IRP SITE 5															
MW-05-01	groundwater	NA	NA	NA	Upgradient										
MW-05-02	groundwater	UD	NA	No	Crossgradient						A [1]	A			
MW-05-03	groundwater	No	No	No	Downgradient			A							
MW-05-04	groundwater	Yes	No	No	Downgradient	A - MTBE only									
MW-05-05	groundwater	No	No	No	Downgradient										
SW-1	surface water	No	No	No	Backfill Area										
SW-2	surface water	No	No	No	Backfill Area										
SW-3	surface water	No	No	No	Backfill Area										
IRP SITE 7															
07M01	groundwater	UD	NA	No	Crossgradient				A				A		
W-41	groundwater	UD	NA	No	Crossgradient				A		A [2]				
W-42	groundwater	UD	NA	No	Crossgradient				A				A		
W-43	groundwater	UD	NA	No	Crossgradient				A						
W-45	groundwater	UD	No	No	Downgradient				A		A [3]				
MW-04-02	groundwater	UD	No	No	Downgradient				A				A		
MW-04-03	groundwater	UD	No	No	Downgradient				A				A		
MW-04-04	groundwater	UD	No	No	Downgradient				A				A		

Notes
* anions: chloride, natrate as nitrogen, and sulfate
[1] Monitor for an abbreviated metals suite to include nickel, zinc, iron, and manganese.
[2] Monitor for an abbreviated metals suite to include cobalt
[3] Monitor for an abbreviated metals suite to include cadmium

Acronyms/Abbreviations
ICP inductively coupled argon plasma
IRP Installation Restoration Program
NA not applicable
PAH Polynuclear aromatic hydrocarbons
PCBs Polychlorinated biphenyls
SVOCs Semivolatile organic compounds
TAL target analyte list
UD undetermined
U.S. EPA Unites States Environmental Protection Agency
VOCs Volatile organic compounds

APPENDIX A

DQOs FOR IRP SITES 5 AND 7 (BEI 2005)

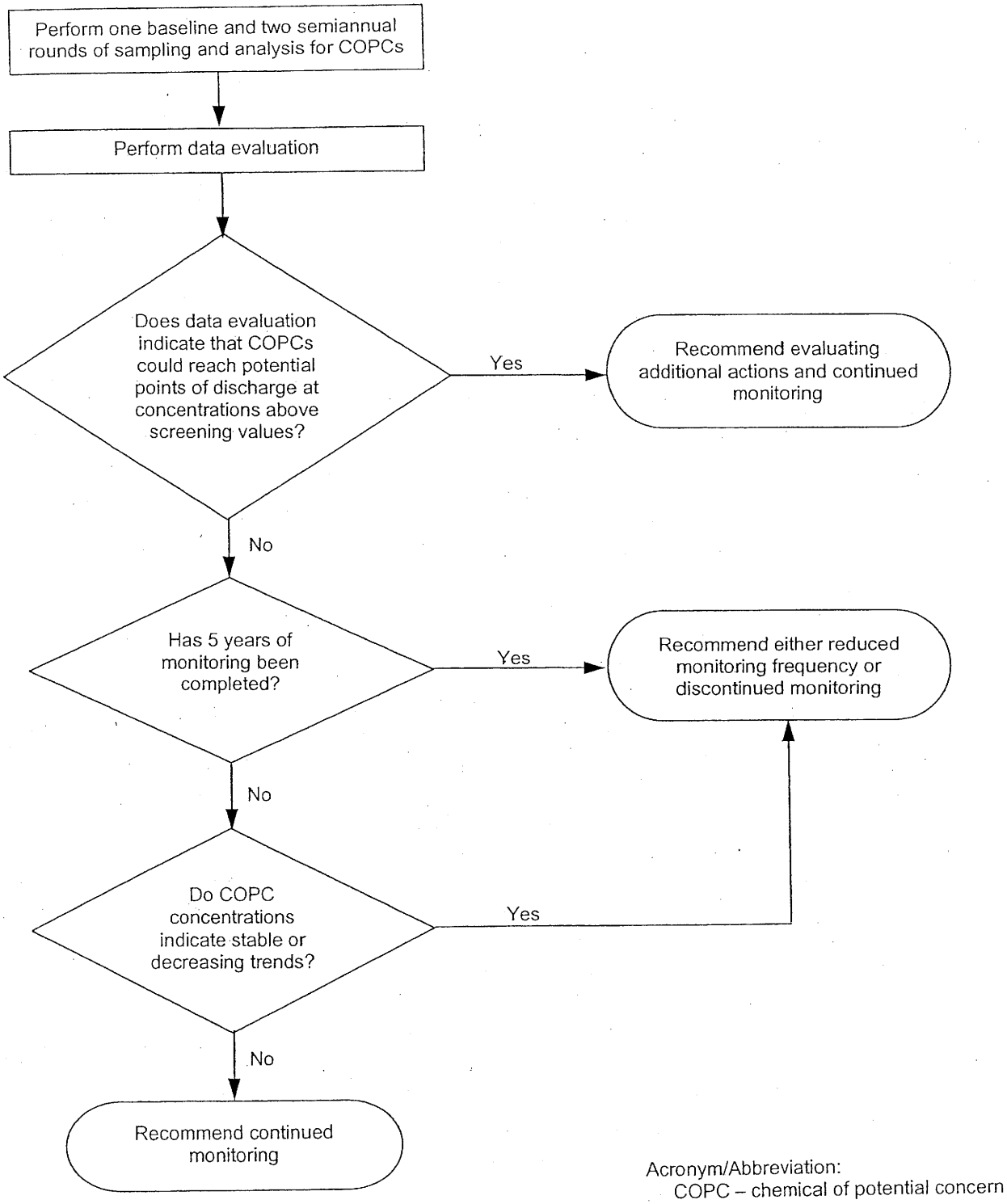


Figure 10
Data Quality Objectives Decision Flow Diagram

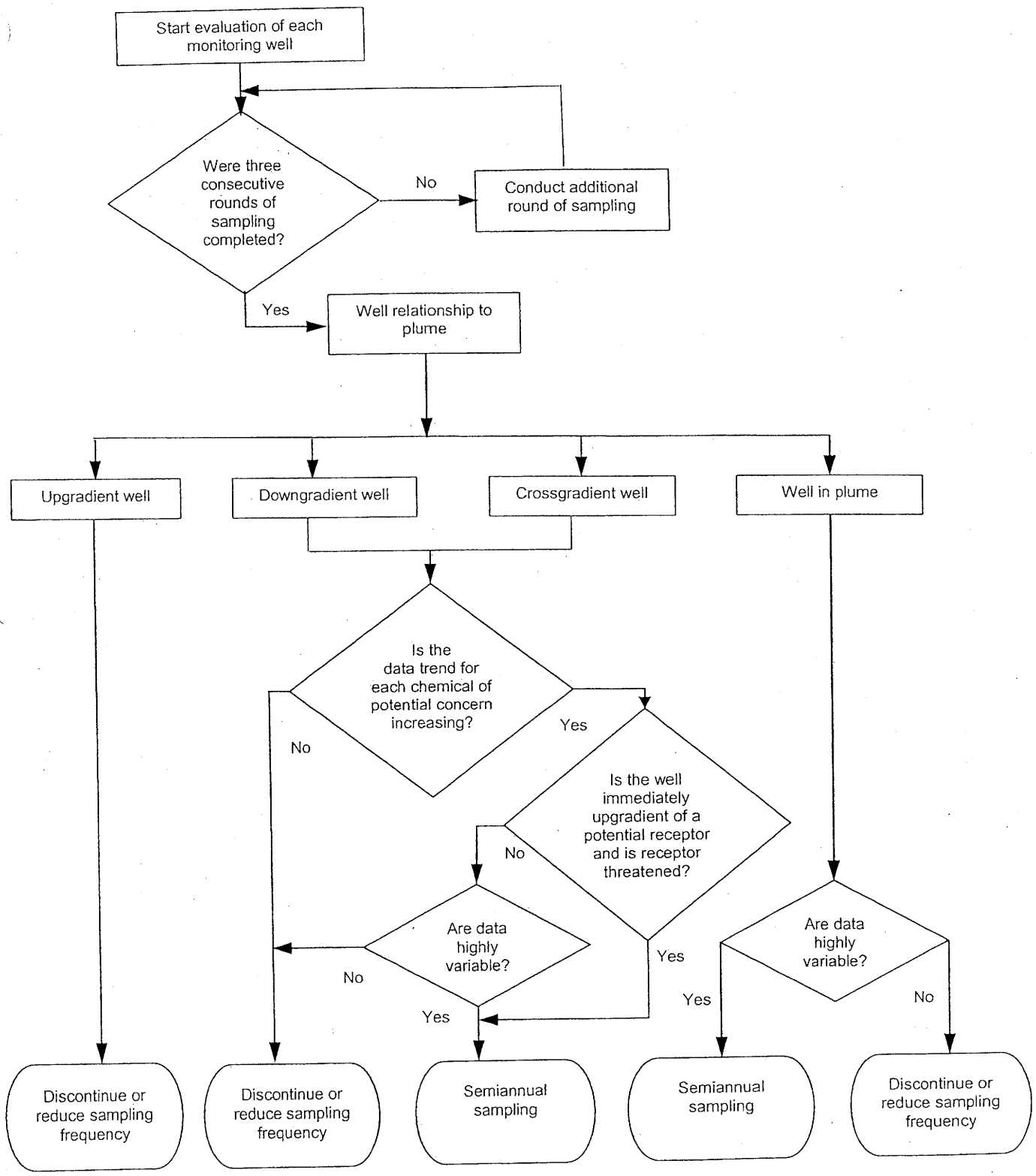


Figure 11
Monitoring Frequency Decision Flow Diagram

DQO TABLE

IRP Site 5 Clean Fill Disposal Area (Surface Water)

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6	STEP 7
Statement of Problem	Identification of Decisions	Identification of Decision Inputs	Define Study Boundaries	Develop Decision Rule	Specify Tolerable Limits of Decision Errors	Optimize the Sampling Design
Stockpiled soil (classified as nonhazardous) excavated during the action to remove OE from the fill material was reused as backfill to bring the excavation to the grade of the adjacent wetland. Residual contaminants (metals, PCBs, VOCs, and SVOCs) in the backfill may transfer to surface water, thereby presenting a potential risk to ecological receptors.	1. Are COPCs present in surface water at concentrations above California Toxics Rule Criteria for Enclosed Bays and Estuaries (Saltwater Aquatic Life Protection 4-day Averages)?	Surface water depth and tidal flow COPC concentration in surface water samples Historical data from Project Close out Report for Removal Action Planned land use	Surface water sampling will be confined to water overlying the backfill area. The vertical boundary will encompass the water column above the surface water/sediment interface. There will be three sampling events: one baseline event followed by two semiannual events.	*If* surface water sampling indicates that COPCs with concentrations in excess of screening values are present, *then* further evaluation will be recommended. *If* surface water sampling indicates that COPCs with concentrations in excess of screening values are not present *then* no further evaluation will be recommended.	Sampling will be conducted using a judgmental sampling approach. Topography and surface water flow direction will be considered to guide the sampling.	Surface water samples will be collected from three locations during one baseline sampling event followed by two semiannual sampling events. Surface water sampling locations will be collected twice: first within the 3 hours prior to flood slack and second within the 3 hours prior to flood slack. Two semiannual sampling events will follow. For each semiannual event, samples will be collected once within 3 hours of flood slack near the staked locations. Surface water samples will be analyzed for VOCs, SVOCs, PCBs, TAL metals, hexavalent chromium, and general chemistry parameters. Surface water sampling locations will avoid areas of relatively high flow velocity, if possible. Surface water sampling events will occur during both the wet (not immediately after a storm event) and dry seasons. Surface water sampling events will occur during relatively high tides, such as a spring tide.

Note:
Identification of Decision No. 1 is presented as No. 4 in Section 6.1.1, page 41

DQO TABLE

IRP Site 5 Clean Fill Disposal Area (Groundwater)

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6	STEP 7
Statement of Problem	Identification of Decisions	Identification of Decision Inputs	Define Study Boundaries	Develop Decision Rule	Specify Tolerable Limits of Decision Errors	Optimize the Sampling Design
Hexavalent chromium, manganese, ammonia, and nitrate were reported above the groundwater screening criteria and might affect groundwater at a hypothetical point of discharge.	1. Will COPCs reach potential points of discharge at concentrations above California Toxics Rule Criteria for Enclosed Bays and Estuaries (Saltwater Aquatic Live Protection 4-day Averages) or stationwide background levels for groundwater and threaten down gradient receptors? 2. Are COPC concentrations increasing or decreasing with time? 3. Are all wells needed for continued monitoring?	Groundwater depth, flow direction, and gradient COPC concentrations in groundwater Screening values and background concentrations for CPCs in groundwater Site stratigraphy and hydrogeology Historical data from the IAS, RFA, PA, SI, SBSR, EAR, and RSE Planned Land use	Lateral boundaries of the monitoring program will encompass areas upgradient, crossgradient, and downgradient of the reported COPCs. Vertical boundaries of the monitoring program will encompass the water-bearing intervals to a depth of approximately 30 feet below ground surface. The duration of the monitoring program is 1 to 5 years.	*If* monitoring indicates that COPCs with concentrations in excess of screening values might reach potential discharge points or ecological receptors, *then* evaluation of additional actions will be recommended. *If* COPC concentrations indicate stable or decreasing trends, *then* a recommendation will be made to either reduce the monitoring frequency or discontinue monitoring. *If* COPC concentrations indicate increasing trends, *then* continued monitoring will be recommended. *If* wells are not required for monitoring or water-level measurements, then the well(s) will be recommended for abandonment (destruction).	Sampling will be conducted using a judgmental sampling approach. Available geologic and chemical concentration data will be evaluated conservatively to guide the sampling.	Groundwater samples will be collected semiannually during year 1 from one existing and four newly installed monitoring wells. Groundwater samples will be analyzed for VOCs, PAHs, TAL metals, hexavalent chromium, anions, and ammonia. During each quarter of the first year of monitoring, groundwater levels at selected wells will be measured continuously during a 72-hour period using an electronic data logger and a pressure-sensitive transducer. The remaining wells will be measured manually. The duration of the monitoring program is 1 to 5 years.

DQO TABLE

IRP Site 7 Station Landfill (Groundwater)

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6	STEP 7
Statement of Problem	Identification of Decisions	Identification of Decision Inputs	Define Study Boundaries	Develop Decision Rule	Specify Tolerable Limits of Decision Errors	Optimize the Sampling Design
VOCs, SVOCs, PCBs, pesticides, and cyanide were identified as COPCs in soil and could affect groundwater at the site. They also could present a risk to ecological receptors at a hypothetical point of discharge. VOCs, SVOCs, pesticides, metals and cyanide were reported in groundwater and identified as COPCs at the site*. They could present a risk to receptors at a hypothetical point of discharge. * Asbestos was inadvertently listed as a COPC in Table 3-4 of the Work Plan (BEI 2003); however, based on results of the RI (JEG 1995b) and groundwater monitoring study (CH2M Hill 1999), asbestos was not recommended for inclusion in the groundwater monitoring program.	1. Will COPCs reach potential points of discharge at concentrations above California Toxics Rule Criteria for Enclosed Bays and Estuaries (Saltwater Aquatic Life Protection 4-day Averages) or stationwide background levels for groundwater and threaten downgradient receptors? 2. Are COPC concentrations increasing or decreasing with time? 3. Are all wells needed for continued monitoring?	Groundwater depth, flow direction, and gradient COPC concentrations in groundwater Lateral and vertical extent of COPCs in groundwater Screening values and background concentrations for COPCs in groundwater Site stratigraphy and hydrogeology Historical data from the IAS, RFA, POA/SI, and RI Planned land use	Lateral Boundaries of the monitoring program will encompass areas upgradient, crossgradient, and downgradient of the reported COPCs. Vertical boundaries of the monitoring program will encompass the water-bearing intervals to a depth of approximately 30 feet below ground surface. The duration of the monitoring program is 1 to 5 years.	*If* monitoring indicates that COPCs with concentrations in excess of screening values might reach potential discharge points or ecological receptors, *then* evaluation of additional action will be recommended. *If* COPC concentrations indicate stable or decreasing trends, *then* a recommendation will be made to either reduce the monitoring frequency or discontinue monitoring. *If* COPC concentrations indicate increasing trends, *then* continued will be recommended. *If* wells are not required for monitoring or water-level measurements, *then* the well(s) will be recommended for abandonment (destruction).	Sampling will be conducted using a judgmental sampling approach. Available geologic and chemical concentration data will be evaluated conservatively to guide the sampling.	Groundwater samples will be collected semiannually during year 1 from five existing monitoring wells. Groundwater samples will be analyzed for VOCs, SVOCs, pesticides, PCBs, TAL metals, hexavalent chromium, and cyanide. Manual groundwater-level measurements will be taken quarterly during the first year of monitoring. The duration of the monitoring program is 1 to 5 years.

APPENDIX B

GROUNDWATER ELEVATIONS MEASUREMENTS, PRECIPITATION DATA, AND GROUNDWATER HYDROGRAPHS

Table B-1
Groundwater Elevation Measurements

Well ID	TOC Elevation (feet above MSL)[a]	BASELINE			FIRST QUARTER			SECOND QUARTER			THIRD QUARTER			FOURTH QUARTER			SECOND ANNUAL		
		Date	Depth to Water (feet below TOC)	Elevation (feet +/- MSL)[a]	Date	Depth to Water (feet below TOC)	Elevation (feet +/- MSL)[a]	Date	Depth to Water (feet below TOC)	Elevation (feet +/- MSL)[a]	Date	Depth to Water (feet below TOC)	Elevation (feet +/- MSL)[a]	Date	Depth to Water (feet below TOC)	Elevation (feet +/- MSL)[a]	Date	Depth to Water (feet below TOC)	Elevation (feet +/- MSL)[a]
IRP Site 4																			
MW-04-01	5.61	11/14/03	3.74	+1.87	1/15/04	4.00	+1.61	4/8/04	3.89	+1.72	7/23/04	4.10	+1.51	10/8/04	3.98	+1.63	-	-	-
MW-04-02	8.98	11/14/03	7.91	+1.07	1/15/04	7.58	+1.40	4/8/04	7.69	+1.29	7/23/04	8.21	+0.77	10/8/04	8.41	+0.57	10/31/2005	8.04	+0.94
MW-04-03	9.32	11/14/03	8.71	+0.61	1/15/04	8.39	+0.93	4/8/04	8.61	+0.71	7/23/04	9.01	+0.31	10/8/04	9.04	+0.28	10/31/2005	8.65	+0.67
MW-04-04	9.57	11/14/03	8.75	+0.82	1/15/04	7.79	+1.78	4/8/04	8.90	+0.67	7/23/04	8.80	+0.77	10/8/04	9.24	+0.33	10/31/2005	8.80	+0.77
MW-04-05	9.63	11/14/03	8.70	+0.93	1/15/04	7.26	+2.37	4/8/04	9.31	+0.32	7/23/04	8.90	+0.73	10/8/04	9.47	+0.16	-	-	-
IRP Site 5																			
MW-05-01[b]	14.33	11/21/03	13.38	+0.95	1/24/04	12.87	+1.47	4/12/04	13.11	+1.22	7/25/04	13.33	+1.00	10/10/04	13.32	+1.01	11/1/2005	13.05	+1.28
MW-05-02	10.35	11/14/03	16.82	-6.47	1/15/04	14.51	-4.16	4/8/04	13.50	-3.15	7/23/04	15.76	-5.41	10/8/04	16.81	-6.46	11/1/2005	14.28	-3.93
MW-05-03[b]	4.85	11/21/03	7.67	-2.82	1/24/04	6.13	-1.28	4/12/04	6.21	-1.36	7/25/04	8.21	-3.36	10/10/04	8.22	-3.37	11/1/2005	7.05	-2.2
MW-05-04	5.49	11/14/03	4.74	+0.75	1/15/04	4.42	+1.07	4/8/04	4.67	+0.82	7/23/04	4.91	+0.58	10/8/04	4.89	+0.60	11/1/2005	4.62	+0.87
MW-05-05[b]	5.81	11/21/03	4.83	+0.98	1/24/04	4.60	+1.21	4/12/04	4.74	+1.07	7/25/04	4.99	+0.82	10/10/04	4.98	+0.83	11/1/2005	4.44	+1.37
IRP Site 6																			
MW-06-01[b]	6.97	11/21/03	7.70	-0.73	1/16/04	6.93	+0.04	4/12/04	7.01	-0.04	7/25/04	7.61	-0.64	10/10/04	7.58	-0.61	-	-	-
MW-06-02	4.72	11/14/03	7.80	-3.08	1/15/04	6.26	-1.54	4/8/04	6.10	-1.38	7/23/04	7.91	-3.19	10/8/04	8.05	-3.33	-	-	-
MW-06-03	6.22	11/14/03	8.25	-2.03	1/15/04	6.26	-0.04	4/8/04	6.90	-0.68	7/23/04	8.83	-2.61	10/8/04	8.89	-2.67	-	-	-
MW-06-04	6.90	11/14/03	7.10	-0.20	1/15/04	6.34	+0.56	4/8/04	6.46	+0.44	7/23/04	6.90	0.00	10/8/04	7.02	-0.12	-	-	-
MW-06-05[b]	6.55	11/21/03	10.45	-3.90	1/16/04	8.69	-2.14	4/12/04	8.11	-1.56	7/25/04	10.79	-4.24	10/10/04	10.68	-4.13	-	-	-
W-40[b]	6.30	11/21/03	10.24	-3.94	1/16/04	8.30	-2.00	4/12/04	7.54	-1.24	7/25/04	9.31	-3.01	10/10/04	10.55	-4.25	-	-	-
IRP Site 7																			
07M01	4.87	11/14/03	4.40	+0.47	1/15/04	3.77	+1.10	4/8/04	3.96	+0.91	7/23/04	4.66	+0.21	10/8/04	4.66	+0.21	10/31/2005	4.40	+0.47
W-41	7.24	11/14/03	6.10	+1.14	1/15/04	5.46	+1.78	4/8/04	5.19	+2.05	7/23/04	6.06	+1.18	10/8/04	6.54	+0.70	10/31/2005	6.35	+0.89
W-42	9.36	11/14/03	8.71	+0.65	1/15/04	8.00	+1.36	4/8/04	8.34	+1.02	7/23/04	9.10	+0.26	10/8/04	9.21	+0.15	10/31/2005	8.77	+0.59
W-43	6.36	11/14/03	4.95	+1.41	1/15/04	4.82	+1.54	4/8/04	3.49	+2.87	7/23/04	5.20	+1.16	10/8/04	5.56	+0.80	10/31/2005	5.51	+0.85
W-45	6.94	11/14/03	9.46	-2.52	1/15/04	7.95	-1.01	4/8/04	7.71	-0.77	7/23/04	8.50	-1.56	10/8/04	9.00	-2.06	10/31/2005	8.09	-1.15

Notes:
a elevations are based on National Geodetic Vertical Datum; top convert to North American Datum 1988 add 2.395 feet to the elevation shown
b Groundwater level measurements collected manually during November 2005. Other data reflect the mean water levels determined from 71 consecutive hourly electronic water-level measurements; data shown is for hour 36

Acronyms/Abbreviations:
IRP Installation restoration Program
MSL Mean Seal Level
TOC Top of casing

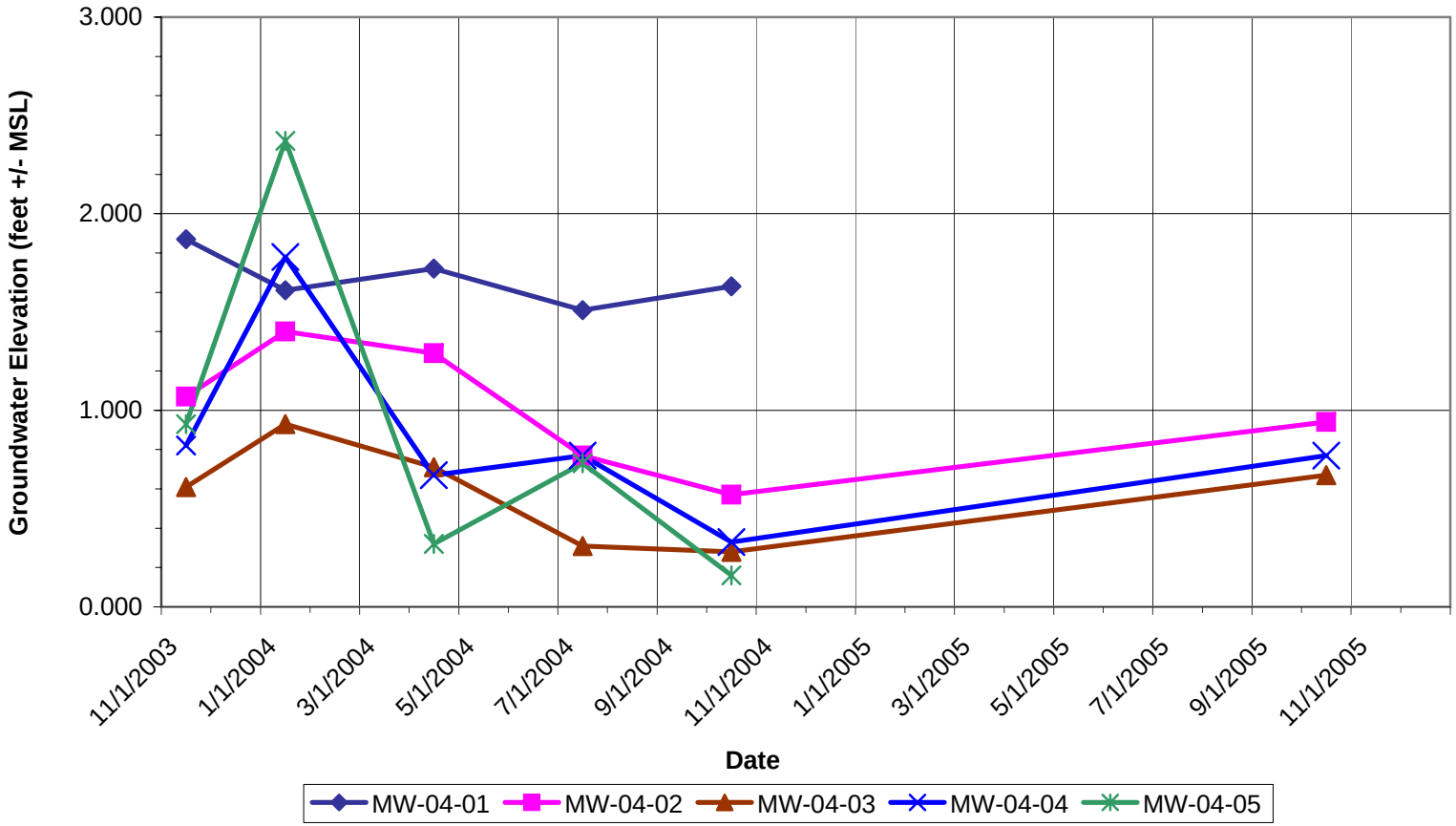


Figure B-1
IRP Site 7 Hydrographs
former IRP Site 4

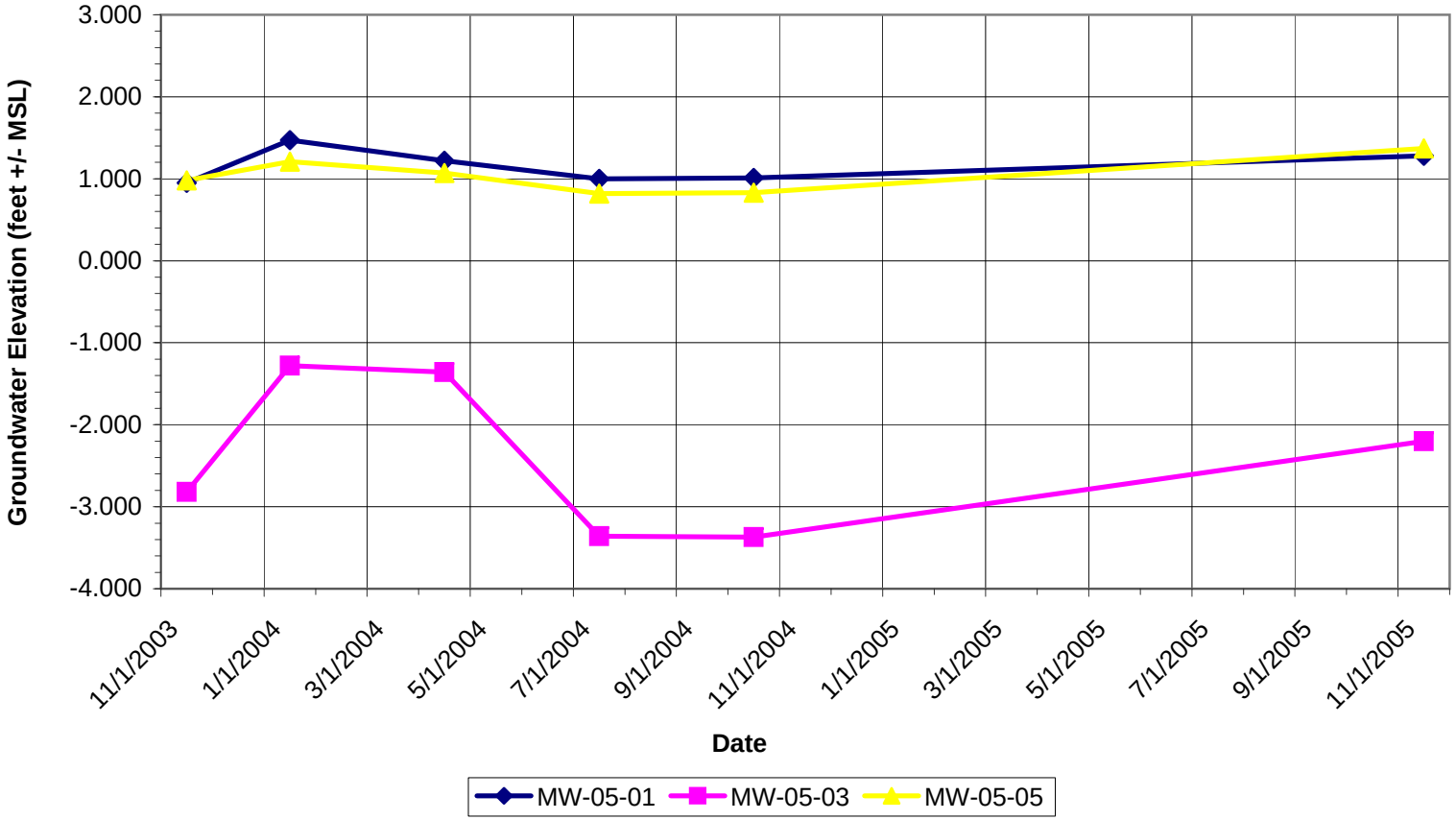


Figure B-2
IRP Site 5 Hydrographs

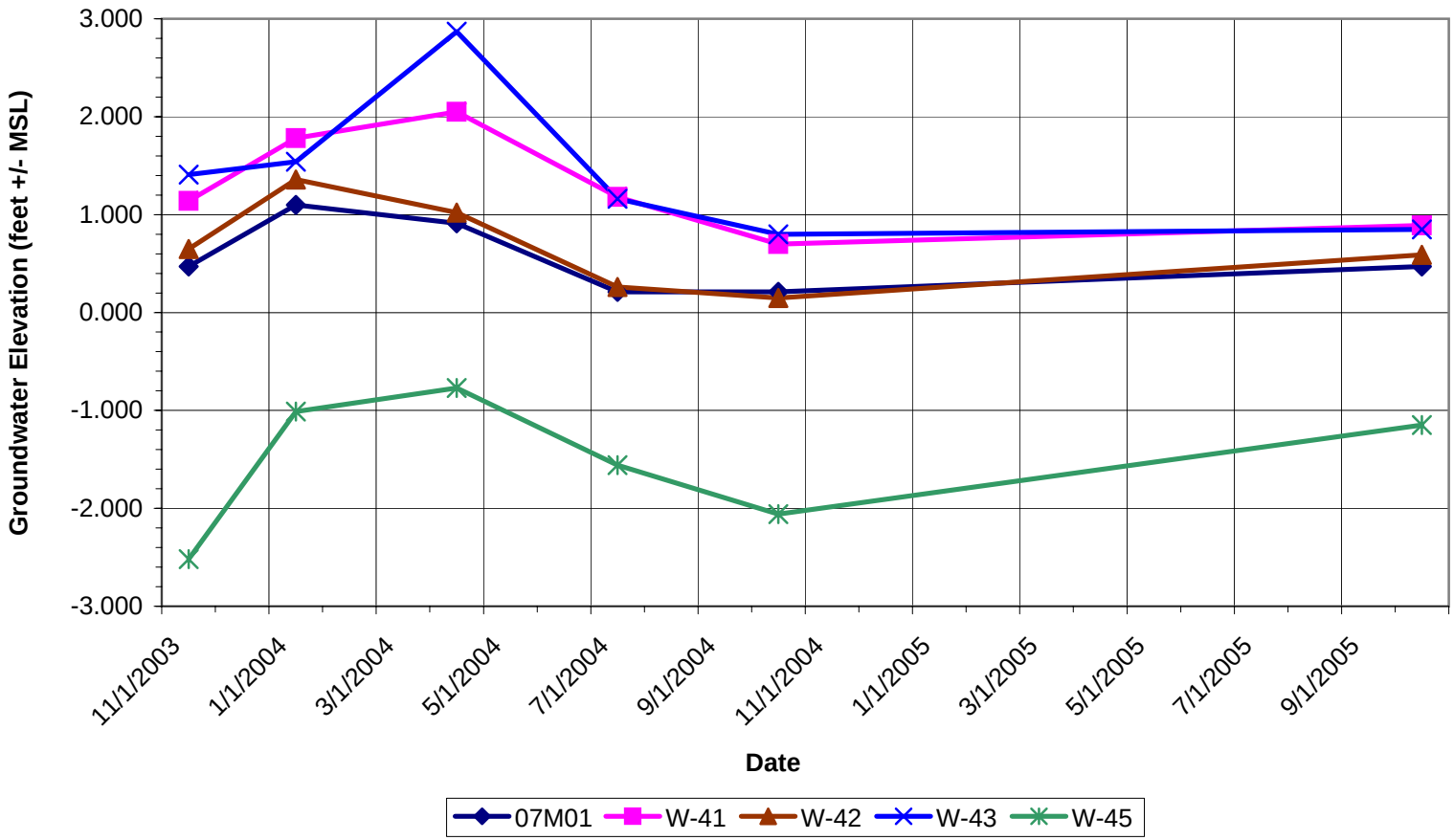
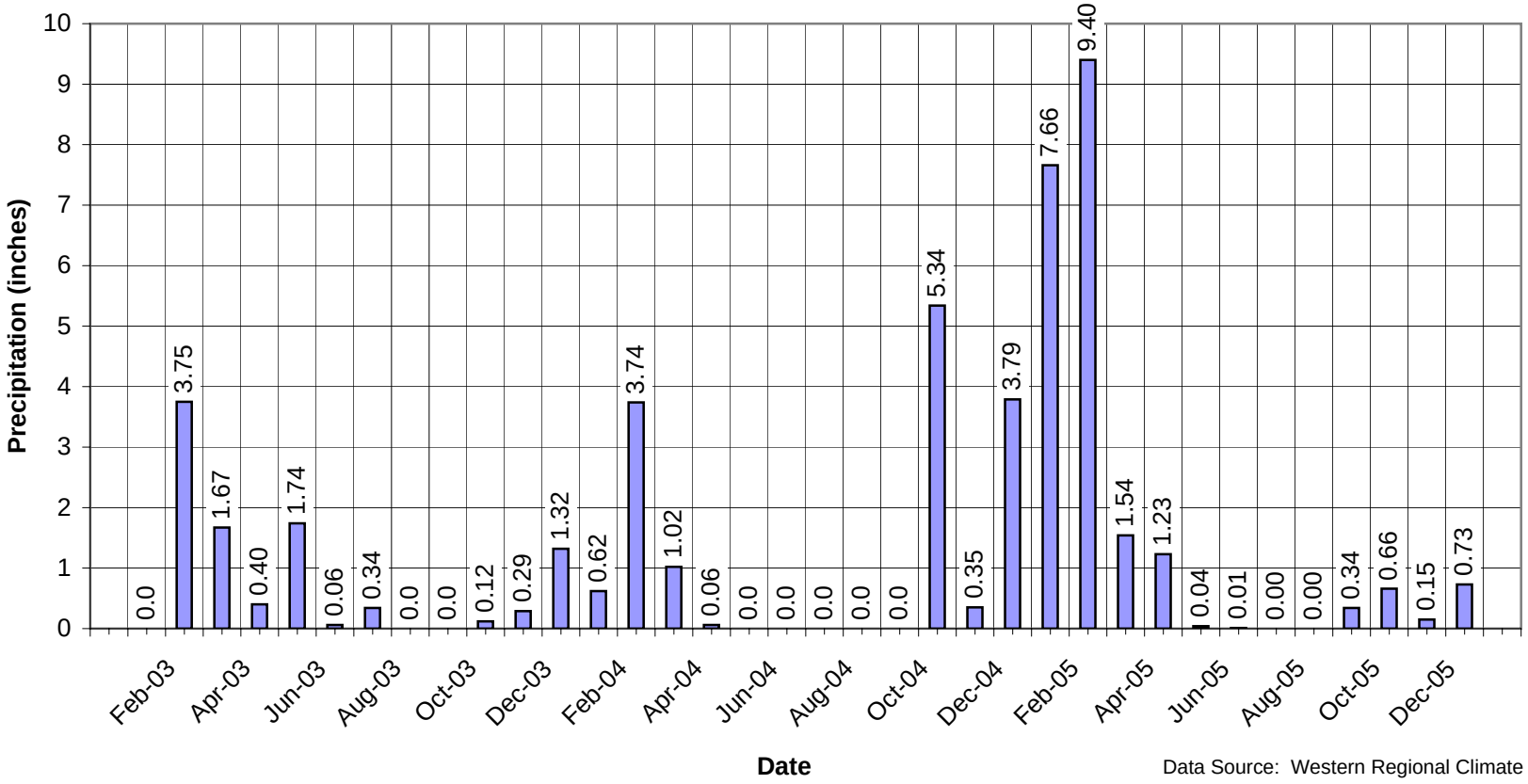


Figure B-3
IRP Site 7 Hydrographs



Data Source: Western Regional Climate Center, Local Climatological Data for Long Beach WSCMO

Zero to trace levels of precipitation are reported as zero.

Figure B-4
Monthly Precipitation
(1-Jan-03 through 14-Dec-05)

APPENDIX C
VALIDATED ANALYTICAL DATA

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
Batch No.	: 05K012	Date Extracted:	11/10/05 18:41
Sample ID:	MW-05-01	Date Analyzed:	11/10/05 18:41
Lab Samp ID:	K024-02	Dilution Factor:	1
Lab File ID:	RKP069	Matrix :	WATER
Ext Btch ID:	VO02K07	% Moisture :	NA
Calib. Ref.:	RKP009	Instrument ID :	T-002

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	.66	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	200E J	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	103	63-143
4-BROMOFLUOROBENZENE	103	63-143
TOLUENE-D8	98	63-143

RL: Reporting Limit

440/1006

2009

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
Batch No.	: 05K012	Date Extracted:	11/11/05 17:19
Sample ID:	MW-05-01DL	Date Analyzed:	11/11/05 17:19
Lab Samp ID:	K024-02T	Dilution Factor:	10
Lab File ID:	RKP099	Matrix :	WATER
Ext Btch ID:	VO02K09	% Moisture :	NA
Calib. Ref.:	RKP009	Instrument ID :	T-002

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND UJ	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND UJ	5	2
1,2,3-TRICHLOROPROPANE	ND	10	5
1,2,4-TRICHLOROBENZENE	ND ↓	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND UJ	10	5
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,2-DIBROMOETHANE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-CHLOROTOLUENE	ND UJ	5	2
4-CHLOROTOLUENE	ND	5	2
BENZENE	ND	5	2
BROMOBENZENE	ND UJ	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND UJ	5	3
BROMOMETHANE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND UJ	5	3
ETHYLBENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND UJ	5	2
XYLENES	ND	5	5
METHYLENE CHLORIDE	ND	10	5
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	10	5
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	5	2
ACETONE	ND	100	50
2-BUTANONE	ND	100	50
MTBE	250	5	2
CARBON DISULFIDE	ND	5	2
2-HEXANONE	ND	100	50
4-METHYL-2-PENTANONE	ND	100	50

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	96	63-143
4-BROMOFLUOROBENZENE	121	63-143
TOLUENE-D8	101	63-143

RL: Reporting Limit

MH01006

2010

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
Batch No.	: 05K012	Date Extracted:	11/10/05 17:55
Sample ID:	MW-05-02	Date Analyzed:	11/10/05 17:55
Lab Samp ID:	K024-01	Dilution Factor:	1
Lab File ID:	RKP068	Matrix :	WATER
Ext Btch ID:	V002K07	% Moisture :	NA
Calib. Ref.:	RKP009	Instrument ID :	T-002

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND UJ	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND UJ	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND UJ	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-CHLOROTOLUENE	ND UJ	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND UJ	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND UJ	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND UJ	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND UJ	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	100	63-143
4-BROMOFLUOROBENZENE	123	63-143
TOLUENE-D8	102	63-143

RL: Reporting Limit

MW-1006

2006

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
Batch No.	: 05K012	Date Extracted:	11/11/05 16:06
Sample ID:	MW-05-03	Date Analyzed:	11/11/05 16:06
Lab Samp ID:	K024-03R	Dilution Factor:	1
Lab File ID:	RKP097	Matrix :	WATER
Ext Btch ID:	VO02K09	% Moisture :	NA
Calib. Ref.:	RKP009	Instrument ID :	T-002

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND UJ	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND UJ	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND UJ	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-CHLOROTOLUENE	ND UJ	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND UJ	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND UJ	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND UJ	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND UJ	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	101	63-143
4-BROMOFLUOROBENZENE	114	63-143
TOLUENE-D8	104	63-143

RL: Reporting Limit

14H01006

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
Batch No.	: 05K012	Date Extracted:	11/11/05 19:45
Sample ID:	MW-05-04	Date Analyzed:	11/11/05 19:45
Lab Samp ID:	K012-02	Dilution Factor:	1
Lab File ID:	RKP103	Matrix	: WATER
Ext Btch ID:	V002K09	% Moisture	: NA
Calib. Ref.:	RKP009	Instrument ID	: T-002

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND UJ	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND UJ	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND UJ	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-CHLOROTOLUENE	ND UJ	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND UJ	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND UJ	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND UJ	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND UJ	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	36	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	102	63-143
4-BROMOFLUOROBENZENE	122	63-143
TOLUENE-D8	103	63-143

RL: Reporting Limit

1411001006

2005

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
Batch No.	: 05K012	Date Extracted:	11/11/05 19:08
Sample ID:	MW-05-05	Date Analyzed:	11/11/05 19:08
Lab Samp ID:	K012-01	Dilution Factor:	1
Lab File ID:	RKP102	Matrix :	WATER
Ext Btch ID:	V002K09	% Moisture :	NA
Calib. Ref.:	RKP009	Instrument ID :	T-002

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND UJ	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND UJ	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND UJ	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	.45J	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-CHLOROTOLUENE	ND UJ	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND UJ	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND UJ	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND UJ	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND UJ	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	1.1	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	99	63-143
4-BROMOFLUOROBENZENE	123	63-143
TOLUENE-D8	101	63-143

RL: Reporting Limit

kw01006

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
Batch No.	: 05K012	Date Extracted:	11/10/05 17:18
Sample ID:	TRIP BLANK	Date Analyzed:	11/10/05 17:18
Lab Samp ID:	K024-05	Dilution Factor:	1
Lab File ID:	RKP067	Matrix :	WATER
Ext Btch ID:	V002K07	% Moisture :	NA
Calib. Ref.:	RKP009	Instrument ID :	T-002

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	.53J	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	99	63-143
4-BROMOFLUOROBENZENE	123	63-143
TOLUENE-D8	103	63-143

RL: Reporting Limit

MH01006

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
Batch No.	: 05K012	Date Extracted:	11/10/05 19:54
Sample ID:	MW-05-DUPLICATE	Date Analyzed:	11/10/05 19:54
Lab Samp ID:	K024-04	Dilution Factor:	1
Lab File ID:	RKP071	Matrix :	WATER
Ext Btch ID:	V002K07	% Moisture :	NA
Calib. Ref.:	RKP009	Instrument ID :	T-002

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	190E J	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	99	63-143
4-BROMOFLUOROBENZENE	140	63-143
TOLUENE-D8	101	63-143

RL: Reporting Limit

1440100 6

2012

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
Batch No.	: 05K012	Date Extracted:	11/15/05 11:24
Sample ID:	MW-05-DUPLICATEDL	Date Analyzed:	11/15/05 11:24
Lab Samp ID:	K024-04T	Dilution Factor:	10
Lab File ID:	RK0418	Matrix :	WATER
Ext Btch ID:	V005K33	% Moisture :	NA
Calib. Ref.:	RK0394	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	5	2
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,1-DICHLOROPROPENE	ND	5	2
1,2,3-TRICHLOROBENZENE	ND	5	2
1,2,3-TRICHLOROPROPANE	ND	10	5
1,2,4-TRICHLOROBENZENE	ND	5	2
1,2,4-TRIMETHYLBENZENE	ND	5	2
1,2-DIBROMO-3-CHLOROPROPANE	ND	10	5
1,2-DICHLOROBENZENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
1,2-DIBROMOETHANE	ND	5	2
1,3,5-TRIMETHYLBENZENE	ND	5	2
1,3-DICHLOROBENZENE	ND	5	2
1,3-DICHLOROPROPANE	ND	5	2
1,4-DICHLOROBENZENE	ND	5	2
2,2-DICHLOROPROPANE	ND	5	2
2-CHLOROTOLUENE	ND	5	2
4-CHLOROTOLUENE	ND	5	2
BENZENE	ND	5	2
BROMOBENZENE	ND	5	2
BROMOCHLOROMETHANE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	3
BROMOMETHANE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
DIBROMOMETHANE	ND	5	2
DICHLORODIFLUOROMETHANE	ND	5	3
ETHYLBENZENE	ND	5	2
HEXACHLOROBUTADIENE	ND	5	2
ISOPROPYL BENZENE	ND	5	2
XYLENES	ND	5	5
METHYLENE CHLORIDE	ND	10	5
N-BUTYLBENZENE	ND	5	2
N-PROPYLBENZENE	ND	5	2
NAPHTHALENE	ND	10	5
P-ISOPROPYLTOLUENE	ND	5	2
SEC-BUTYLBENZENE	ND	5	2
STYRENE	ND	5	2
TERT-BUTYLBENZENE	ND	5	2
TETRACHLOROETHYLENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TRICHLOROFLUOROMETHANE	ND	5	2
VINYL CHLORIDE	ND	5	2
ACETONE	ND UJ	100	50
2-BUTANONE	ND	100	50
MTBE	260	5	2
CARBON DISULFIDE	ND	5	2
2-HEXANONE	ND	100	50
4-METHYL-2-PENTANONE	ND	100	50

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	103	63-143
4-BROMOFLUOROBENZENE	120	63-143
TOLUENE-D8	111	63-143

RL: Reporting Limit

14H01100 6

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/09/05 09:24
Sample ID:	07M01	Date Analyzed:	11/09/05 09:24
Lab Samp ID:	J204-06	Dilution Factor:	1
Lab File ID:	RKD274	Matrix	: WATER
Ext Btch ID:	V094K27	% Moisture	: NA
Calib. Ref.:	RJD292	Instrument ID	: T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	1.5	.5	.2
2,2-DICHLOROPROPANE	ND uJ	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND uJ	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND uJ	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	.22J	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND uJ	.5	.2
DICHLORODIFLUOROMETHANE	ND uJ	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND uJ	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	.72J	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	11	10	5
2-BUTANONE	ND	10	5
MTBE	ND	.5	.2
CARBON DISULFIDE	3.9	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	141	63-143
4-BROMOFLUOROBENZENE	106	63-143
TOLUENE-D8	112	63-143

RL: Reporting Limit

1940/100b

2011

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/09/05 04:11
Sample ID:	W-41	Date Analyzed:	11/09/05 04:11
Lab Samp ID:	J204-01	Dilution Factor:	1
Lab File ID:	RKD266	Matrix :	WATER
Ext Btch ID:	V094K27	% Moisture :	NA
Calib. Ref.:	RJD292	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND uJ	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND uJ	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND uJ	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND uJ	.5	.2
DICHLORODIFLUOROMETHANE	ND ↓	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND uJ	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	138	63-143
4-BROMOFLUOROBENZENE	101	63-143
TOLUENE-D8	112	63-143

RL: Reporting Limit

LM 01006

2004

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/09/05 05:29
Sample ID:	W-42	Date Analyzed:	11/09/05 05:29
Lab Samp ID:	J204-03	Dilution Factor:	1
Lab File ID:	RKD268	Matrix	: WATER
Ext Btch ID:	V094K27	% Moisture	: NA
Calib. Ref.:	RJD292	Instrument ID	: T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND UJ	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND UJ	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND UJ	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND UJ	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND UJ	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	136	63-143
4-BROMOFLUOROBENZENE	98	63-143
TOLUENE-D8	112	63-143

RL: Reporting Limit

14ND1006

2008

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
Batch No.	: 05J204	Date Extracted:	11/09/05 18:44
Sample ID:	W-43	Date Analyzed:	11/09/05 18:44
Lab Samp ID:	K013-03R	Dilution Factor:	1
Lab File ID:	RKD287	Matrix	: WATER
Ext Btch ID:	V094K29	% Moisture	: NA
Calib. Ref.:	RJD292	Instrument ID	: T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND UJ	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND UJ	.5	.3
BROMOMETHANE	ND UJ	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND UJ	.5	.2
DICHLORODIFLUOROMETHANE	ND UJ	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND UJ	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	131	63-143
4-BROMOFLUOROBENZENE	103	63-143
TOLUENE-D8	109	63-143

RL: Reporting Limit

1411006

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
Batch No.	: 05J204	Date Extracted:	11/09/05 07:27
Sample ID:	W-45	Date Analyzed:	11/09/05 07:27
Lab Samp ID:	K013-01	Dilution Factor:	1
Lab File ID:	RKD271	Matrix :	WATER
Ext Btch ID:	V094K27	% Moisture :	NA
Calib. Ref.:	RJD292	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND UJ	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND UJ	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND UJ	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND UJ	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND UJ	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	133	63-143
4-BROMOFLUOROBENZENE	108	63-143
TOLUENE-D8	112	63-143

RL: Reporting Limit

K401006

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/09/05 06:47
Sample ID:	MW-04-02	Date Analyzed:	11/09/05 06:47
Lab Samp ID:	J204-05	Dilution Factor:	1
Lab File ID:	RKD270	Matrix :	WATER
Ext Btch ID:	V094K27	% Moisture :	NA
Calib. Ref.:	RJD292	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND UJ	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND UJ	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND UJ	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND UJ	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND UJ	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	129	63-143
4-BROMOFLUOROBENZENE	112	63-143
TOLUENE-D8	114	63-143

RL: Reporting Limit

MW01006

2010

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/09/05 04:49
Sample ID:	MW-04-03	Date Analyzed:	11/09/05 04:49
Lab Samp ID:	J204-02	Dilution Factor:	1
Lab File ID:	RKD267	Matrix :	WATER
Ext Btch ID:	VO94K27	% Moisture :	NA
Calib. Ref.:	RJD292	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND UJ	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND UJ	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND UJ	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND UJ	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND UJ	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	133	63-143
4-BROMOFLUOROBENZENE	105	63-143
TOLUENE-D8	113	63-143

RL: Reporting Limit

M40110006

2007

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
Batch No.	: 05J204	Date Extracted:	11/11/05 11:26
Sample ID:	MW-04-04	Date Analyzed:	11/11/05 11:26
Lab Samp ID:	K013-02R	Dilution Factor:	1
Lab File ID:	RKD349	Matrix :	WATER
Ext Btch ID:	V094K34	% Moisture :	NA
Calib. Ref.:	RJD292	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND uJ	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND uJ	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND uJ	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND uJ	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	135	63-143
4-BROMOFLUOROBENZENE	95	63-143
TOLUENE-D8	111	63-143

RL: Reporting Limit

14H0110006

2014

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client : MARRS SERVICES, INC.	Date Collected: 10/31/05
Project : SEAL BEACH IR SITE 5&7	Date Received: 10/31/05
Batch No. : 05J204	Date Extracted: 11/09/05 06:08
Sample ID: MW-07-DUPLICATE	Date Analyzed: 11/09/05 06:08
Lab Samp ID: J204-04	Dilution Factor: 1
Lab File ID: RKD269	Matrix : WATER
Ext Btch ID: VO94K27	% Moisture : NA
Calib. Ref.: RJD292	Instrument ID : T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND UJ	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND UJ	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND UJ	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND UJ	.5	.2
DICHLORODIFLUOROMETHANE	ND ↓	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND UJ	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	130	63-143
4-BROMOFLUOROBENZENE	107	63-143
TOLUENE-D8	112	63-143

RL: Reporting Limit

1440|1006

2009

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/09/05 02:13
Sample ID:	TRIP BLANK	Date Analyzed:	11/09/05 02:13
Lab Samp ID:	J204-07	Dilution Factor:	1
Lab File ID:	RKD263	Matrix :	WATER
Ext Btch ID:	VO94K27	% Moisture :	NA
Calib. Ref.:	RJD292	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND UJ	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND UJ	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND UJ	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND UJ	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	ND UJ	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND	10	5
2-BUTANONE	ND	10	5
MTBE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	112	63-143
4-BROMOFLUOROBENZENE	113	63-143
TOLUENE-D8	118	63-143

RL: Reporting Limit

1410||006

2012

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
Batch No.	: 05J204	Date Extracted:	11/15/05 16:28
Sample ID:	TRIP BLANK 11-01-05	Date Analyzed:	11/15/05 16:28
Lab Samp ID:	K013-04R	Dilution Factor:	1
Lab File ID:	RKD429	Matrix :	WATER
Ext Btch ID:	V094K39	% Moisture :	NA
Calib. Ref.:	RKD413	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1,2-TETRACHLOROETHANE	ND	.5	.2
1,1,1-TRICHLOROETHANE	ND	.5	.2
1,1,2,2-TETRACHLOROETHANE	ND	.5	.2
1,1,2-TRICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHANE	ND	.5	.2
1,1-DICHLOROETHENE	ND	.5	.2
1,1-DICHLOROPROPENE	ND	.5	.2
1,2,3-TRICHLOROBENZENE	ND	.5	.2
1,2,3-TRICHLOROPROPANE	ND	1	.5
1,2,4-TRICHLOROBENZENE	ND	.5	.2
1,2,4-TRIMETHYLBENZENE	ND	.5	.2
1,2-DIBROMO-3-CHLOROPROPANE	ND	1	.5
1,2-DICHLOROBENZENE	ND	.5	.2
1,2-DICHLOROETHANE	ND	.5	.2
1,2-DICHLOROPROPANE	ND	.5	.2
1,2-DIBROMOETHANE	ND	.5	.2
1,3,5-TRIMETHYLBENZENE	ND	.5	.2
1,3-DICHLOROBENZENE	ND	.5	.2
1,3-DICHLOROPROPANE	ND	.5	.2
1,4-DICHLOROBENZENE	ND	.5	.2
2,2-DICHLOROPROPANE	ND	.5	.2
2-CHLOROTOLUENE	ND	.5	.2
4-CHLOROTOLUENE	ND	.5	.2
BENZENE	ND	.5	.2
BROMOBENZENE	ND	.5	.2
BROMOCHLOROMETHANE	ND	.5	.2
BROMODICHLOROMETHANE	ND	.5	.2
BROMOFORM	ND	.5	.3
BROMOMETHANE	ND	.5	.2
CARBON TETRACHLORIDE	ND	.5	.2
CHLOROBENZENE	ND	.5	.2
CHLOROETHANE	ND	.5	.2
CHLOROFORM	ND	.5	.2
CHLOROMETHANE	ND	.5	.2
CIS-1,2-DICHLOROETHENE	ND	.5	.2
CIS-1,3-DICHLOROPROPENE	ND	.5	.2
DIBROMOCHLOROMETHANE	ND	.5	.2
DIBROMOMETHANE	ND	.5	.2
DICHLORODIFLUOROMETHANE	ND	.5	.3
ETHYLBENZENE	ND	.5	.2
HEXACHLOROBUTADIENE	ND	.5	.2
ISOPROPYL BENZENE	ND	.5	.2
XYLENES	ND	.5	.5
METHYLENE CHLORIDE	.86J 1 u	1	.5
N-BUTYLBENZENE	ND	.5	.2
N-PROPYLBENZENE	ND	.5	.2
NAPHTHALENE	ND	1	.5
P-ISOPROPYLTOLUENE	ND	.5	.2
SEC-BUTYLBENZENE	ND	.5	.2
STYRENE	ND	.5	.2
TERT-BUTYLBENZENE	ND	.5	.2
TETRACHLOROETHYLENE	ND	.5	.2
TOLUENE	ND	.5	.2
TRANS-1,2-DICHLOROETHENE	ND	.5	.2
TRANS-1,3-DICHLOROPROPENE	ND	.5	.2
TRICHLOROETHENE	ND	.5	.2
TRICHLOROFLUOROMETHANE	ND	.5	.2
VINYL CHLORIDE	ND	.5	.2
ACETONE	ND uJ	10	5
2-BUTANONE	ND	10	5
MTBE	ND	.5	.2
CARBON DISULFIDE	ND	.5	.2
2-HEXANONE	ND	10	5
4-METHYL-2-PENTANONE	ND	10	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	106	63-143
4-BROMOFLUOROBENZENE	101	63-143
TOLUENE-D8	107	63-143

RL: Reporting Limit

KMO/1006

2016

SW 3520C/8270C

SEMI VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
Batch No.	: 05K012	Date Extracted:	11/08/05 17:30
Sample ID:	MW-05-01	Date Analyzed:	11/14/05 21:42
Lab Samp ID:	K024-02	Dilution Factor:	.94
Lab File ID:	RKK328	Matrix :	WATER
Ext Btch ID:	SVK017W	% Moisture :	NA
Calib. Ref.:	RKK059	Instrument ID :	T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ACENAPHTHENE	ND	.19	.094
ACENAPHTHYLENE	ND	.19	.094
ANTHRACENE	ND	.19	.094
BENZO(A)ANTHRACENE	ND	.19	.094
BENZO(A)PYRENE	ND	.19	.094
BENZO(B)FLUORANTHENE	ND	.19	.094
BENZO(K)FLUORANTHENE	ND	.19	.094
BENZO(G,H,I)PERYLENE	ND	.19	.094
CHRYSENE	ND	.19	.094
DIBENZO(A,H)ANTHRACENE	ND	.19	.094
FLUORANTHENE	ND	.19	.094
FLUORENE	ND	.19	.094
INDENO(1,2,3-CD)PYRENE	ND	.19	.094
NAPHTHALENE	ND	.19	.094
PHENANTHRENE	ND	.19	.094
PYRENE	ND	.19	.094

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	85	45-143

RL : Reporting Limit

1411011006

3010

SW 3520C/8270C

SEMI VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
Batch No.	: 05K012	Date Extracted:	11/08/05 17:30
Sample ID:	MW-05-02	Date Analyzed:	11/14/05 20:45
Lab Samp ID:	K024-01	Dilution Factor:	.99
Lab File ID:	RKK325	Matrix :	WATER
Ext Btch ID:	SVK017W	% Moisture :	NA
Calib. Ref.:	RKK059	Instrument ID :	T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ACENAPHTHENE	ND	.2	.099
ACENAPHTHYLENE	ND	.2	.099
ANTHRACENE	ND	.2	.099
BENZO(A)ANTHRACENE	ND	.2	.099
BENZO(A)PYRENE	ND	.2	.099
BENZO(B)FLUORANTHENE	ND	.2	.099
BENZO(K)FLUORANTHENE	ND	.2	.099
BENZO(G,H,I)PERYLENE	ND	.2	.099
CHRYSENE	ND	.2	.099
DIBENZO(A,H)ANTHRACENE	ND	.2	.099
FLUORANTHENE	ND	.2	.099
FLUORENE	ND	.2	.099
INDENO(1,2,3-CD)PYRENE	ND	.2	.099
NAPHTHALENE	ND	.2	.099
PHENANTHRENE	ND	.2	.099
PYRENE	ND	.2	.099

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	84	45-143

RL : Reporting Limit

1440 1006

SW 3520C/8270C

SEMI VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
Batch No.	: 05K012	Date Extracted:	11/08/05 17:30
Sample ID:	MW-05-03	Date Analyzed:	11/14/05 22:01
Lab Samp ID:	K024-03	Dilution Factor:	.94
Lab File ID:	RKK329	Matrix :	WATER
Ext Btch ID:	SVK017W	% Moisture :	NA
Calib. Ref.:	RKK059	Instrument ID :	T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ACENAPHTHENE	1.9	.19	.094
ACENAPHTHYLENE	ND	.19	.094
ANTHRACENE	ND	.19	.094
BENZO(A)ANTHRACENE	ND	.19	.094
BENZO(A)PYRENE	ND	.19	.094
BENZO(B)FLUORANTHENE	ND	.19	.094
BENZO(K)FLUORANTHENE	ND	.19	.094
BENZO(G,H,I)PERYLENE	ND	.19	.094
CHRYSENE	ND	.19	.094
DIBENZO(A,H)ANTHRACENE	ND	.19	.094
FLUORANTHENE	.17J	.19	.094
FLUORENE	ND	.19	.094
INDENO(1,2,3-CD)PYRENE	ND	.19	.094
NAPHTHALENE	ND	.19	.094
PHENANTHRENE	ND	.19	.094
PYRENE	ND	.19	.094

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	74	45-143

RL : Reporting Limit

MW0/1006

SW 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
Batch No.	: 05K012	Date Extracted:	11/08/05 17:30
Sample ID:	MW-05-04	Date Analyzed:	11/14/05 20:26
Lab Samp ID:	K012-02	Dilution Factor:	.94
Lab File ID:	RKK324	Matrix :	WATER
Ext Btch ID:	SVK017W	% Moisture :	NA
Calib. Ref.:	RKK059	Instrument ID :	T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ACENAPHTHENE	ND	.19	.094
ACENAPHTHYLENE	ND	.19	.094
ANTHRACENE	ND	.19	.094
BENZO(A)ANTHRACENE	ND	.19	.094
BENZO(A)PYRENE	ND	.19	.094
BENZO(B)FLUORANTHENE	ND	.19	.094
BENZO(K)FLUORANTHENE	ND	.19	.094
BENZO(G,H,I)PERYLENE	ND	.19	.094
CHRYSENE	ND	.19	.094
DIBENZO(A,H)ANTHRACENE	ND	.19	.094
FLUORANTHENE	ND	.19	.094
FLUORENE	ND	.19	.094
INDENO(1,2,3-CD)PYRENE	ND	.19	.094
NAPHTHALENE	ND	.19	.094
PHENANTHRENE	ND	.19	.094
PYRENE	ND	.19	.094

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	79	45-143

RL : Reporting Limit

4N01006

SW 3520C/8270C

SEMI VOLATILE ORGANICS BY GC/MS

Client : MARRS SERVICES, INC.	Date Collected: 11/01/05
Project : SEAL BEACH IR SITE 5&7	Date Received: 11/01/05
Batch No. : 05K012	Date Extracted: 11/08/05 17:30
Sample ID: MW-05-05	Date Analyzed: 11/14/05 20:07
Lab Samp ID: K012-01	Dilution Factor: .94
Lab File ID: RKK323	Matrix : WATER
Ext Btch ID: SVK017W	% Moisture : NA
Calib. Ref.: RKK059	Instrument ID : T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ACENAPHTHENE	ND	.19	.094
ACENAPHTHYLENE	ND	.19	.094
ANTHRACENE	ND	.19	.094
BENZO(A)ANTHRACENE	ND	.19	.094
BENZO(A)PYRENE	ND	.19	.094
BENZO(B)FLUORANTHENE	ND	.19	.094
BENZO(K)FLUORANTHENE	ND	.19	.094
BENZO(G,H,I)PERYLENE	ND	.19	.094
CHRYSENE	ND	.19	.094
DIBENZO(A,H)ANTHRACENE	ND	.19	.094
FLUORANTHENE	ND	.19	.094
FLUORENE	ND	.19	.094
INDENO(1,2,3-CD)PYRENE	ND	.19	.094
NAPHTHALENE	ND	.19	.094
PHENANTHRENE	ND	.19	.094
PYRENE	ND	.19	.094

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	87	45-143

RL : Reporting Limit

1440/100b

SW 3520C/8270C

SEMI VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
Batch No.	: 05K012	Date Extracted:	11/08/05 17:30
Sample ID:	MW-05-DUPLICATE	Date Analyzed:	11/14/05 22:19
Lab Samp ID:	K024-04	Dilution Factor:	.94
Lab File ID:	RKK330	Matrix :	WATER
Ext Btch ID:	SVK017W	% Moisture :	NA
Calib. Ref.:	RKK059	Instrument ID :	T-052

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ACENAPHTHENE	ND	.19	.094
ACENAPHTHYLENE	ND	.19	.094
ANTHRACENE	ND	.19	.094
BENZO(A)ANTHRACENE	ND	.19	.094
BENZO(A)PYRENE	ND	.19	.094
BENZO(B)FLUORANTHENE	ND	.19	.094
BENZO(K)FLUORANTHENE	ND	.19	.094
BENZO(G,H,I)PERYLENE	ND	.19	.094
CHRYSENE	ND	.19	.094
DIBENZO(A,H)ANTHRACENE	ND	.19	.094
FLUORANTHENE	ND	.19	.094
FLUORENE	ND	.19	.094
INDENO(1,2,3-CD)PYRENE	ND	.19	.094
NAPHTHALENE	ND	.19	.094
PHENANTHRENE	ND	.19	.094
PYRENE	ND	.19	.094

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	89	45-143

RL : Reporting Limit

4401006

SW 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	07M01	Date Analyzed:	11/11/05 14:30
Lab Samp ID:	J204-06	Dilution Factor:	.94
Lab File ID:	RKX210	Matrix :	WATER
Ext Btch ID:	SVK013W	% Moisture :	NA
Calib. Ref.:	RIX122	Instrument ID :	T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	24	4.7
2,4-DINITROTOLUENE	ND	9.4	4.7
2,6-DINITROTOLUENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	24	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	24	4.7
3-NITROANILINE	ND	24	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	24	4.7
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	24	4.7
4-NITROPHENOL	ND	24	4.7
ACENAPHTHENE	7.2J	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND UJ	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND UJ	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND ↓	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	9.4	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROBUTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NAPHTHALENE	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	24	4.7
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
ANILINE	ND	24	4.7
BENZOIC ACID	ND	24	9.4
BENZYL ALCOHOL	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
N-NITROSODIMETHYLAMINE	ND	24	4.7
PYRIDINE	ND	47	19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	118	36-143
2-FLUOROBIPHENYL	90	36-143
2-FLUOROPHENOL	70	36-143
NITROBENZENE-D5	84	36-143
PHENOL-D5	72	36-143
TERPHENYL-D14	120	45-143

RL: Reporting Limit
(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

M401006

SW 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	W-41	Date Analyzed:	11/11/05 12:25
Lab Samp ID:	J204-01	Dilution Factor:	.94
Lab File ID:	RKX205	Matrix	: WATER
Ext Btch ID:	SVK013W	% Moisture	: NA
Calib. Ref.:	RIX122	Instrument ID	: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	24	4.7
2,4-DINITROTOLUENE	ND	9.4	4.7
2,6-DINITROTOLUENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	24	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	24	4.7
3-NITROANILINE	ND	24	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	24	4.7
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	24	4.7
4-NITROPHENOL	ND	24	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND uJ	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND uJ	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	11	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	9.4	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROBUTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NAPHTHALENE	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	24	4.7
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
ANILINE	ND	24	4.7
BENZOIC ACID	ND	24	9.4
BENZYL ALCOHOL	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
N-NITROSODIMETHYLAMINE	ND	24	4.7
PYRIDINE	ND	47	19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	89	36-143
2-FLUOROBIPHENYL	74	36-143
2-FLUOROPHENOL	63	36-143
NITROBENZENE-D5	70	36-143
PHENOL-D5	67	36-143
TERPHENYL-D14	109	45-143

RL: Reporting Limit
(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

1411 0 1006

SW 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	W-42	Date Analyzed:	11/14/05 12:54
Lab Samp ID:	J204-03W	Dilution Factor:	.94
Lab File ID:	RKX229	Matrix	: WATER
Ext Btch ID:	SVK013W	% Moisture	: NA
Calib. Ref.:	RIX122	Instrument ID	: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	24	4.7
2,4-DINITROTOLUENE	ND	9.4	4.7
2,6-DINITROTOLUENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	24	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	24	4.7
3-NITROANILINE	ND	24	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	24	4.7
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	24	4.7
4-NITROPHENOL	ND	24	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND uJ	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	9.4	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROBUTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NAPHTHALENE	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	24	4.7
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
ANILINE	ND	24	4.7
BENZOIC ACID	ND	24	9.4
BENZYL ALCOHOL	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
N-NITROSODIMETHYLAMINE	ND	24	4.7
PYRIDINE	ND	47	19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	95	36-143
2-FLUOROBIPHENYL	73	36-143
2-FLUOROPHENOL	57	36-143
NITROBENZENE-D5	67	36-143
PHENOL-D5	65	36-143
TERPHENYL-D14	99	45-143

RL: Reporting Limit
(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

MMO/1006

SW 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	W-43	Date Analyzed:	11/11/05 15:46
Lab Samp ID:	K013-03	Dilution Factor:	.96
Lab File ID:	RKX213	Matrix	: WATER
Ext Btch ID:	SVK013W	% Moisture	: NA
Calib. Ref.:	RIX122	Instrument ID	: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.6	4.8
2,4,6-TRICHLOROPHENOL	ND	9.6	4.8
2,4-DICHLOROPHENOL	ND	9.6	4.8
2,4-DIMETHYLPHENOL	ND	9.6	4.8
2,4-DINITROPHENOL	ND	24	4.8
2,4-DINITROTOLUENE	ND	9.6	4.8
2,6-DINITROTOLUENE	ND	9.6	4.8
2-CHLOROPHENOL	ND	9.6	4.8
2-METHYLNAPHTHALENE	ND	9.6	4.8
2-METHYLPHENOL	ND	9.6	4.8
2-NITROANILINE	ND	24	4.8
2-NITROPHENOL	ND	9.6	4.8
3,3'-DICHLOROBENZIDINE	ND	24	4.8
3-NITROANILINE	ND	24	4.8
4,6-DINITRO-2-METHYLPHENOL	ND	24	4.8
4-BROMOPHENYL-PHENYL ETHER	ND	9.6	4.8
4-CHLORO-3-METHYLPHENOL	ND	9.6	4.8
4-CHLOROANILINE	ND	9.6	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.6	4.8
4-METHYLPHENOL (1)	ND	9.6	4.8
4-NITROANILINE	ND	24	4.8
4-NITROPHENOL	ND	24	4.8
ACENAPHTHENE	ND	9.6	4.8
ACENAPHTHYLENE	ND	9.6	4.8
ANTHRACENE	ND	9.6	4.8
BENZO(A)ANTHRACENE	ND	9.6	4.8
BENZO(A)PYRENE	ND	9.6	4.8
BENZO(B)FLUORANTHENE	ND	9.6	4.8
BENZO(K)FLUORANTHENE	ND u J	9.6	4.8
BENZO(G,H,I)PERYLENE	ND	9.6	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.6	4.8
BIS(2-CHLOROETHYL)ETHER	ND	9.6	4.8
BIS(2-CHLOROISOPROPYL)ETHER	ND u J	9.6	4.8
BIS(2-ETHYLHEXYL)PHTHALATE	6.6J J	9.6	4.8
BUTYLBENZYLPHTHALATE	ND	9.6	4.8
CHRYSENE	ND	9.6	4.8
DI-N-BUTYLPHTHALATE	ND	9.6	4.8
DI-N-OCTYLPHTHALATE	ND	9.6	4.8
DIBENZO(A,H)ANTHRACENE	ND	9.6	4.8
DIBENZOFURAN	ND	9.6	4.8
DIETHYLPHTHALATE	ND	9.6	4.8
DIMETHYLPHTHALATE	ND	9.6	4.8
FLUORANTHENE	ND	9.6	4.8
FLUORENE	ND	9.6	4.8
HEXACHLOROBENZENE	ND	9.6	4.8
HEXACHLOROBUTADIENE	ND	9.6	4.8
HEXACHLOROETHANE	ND	9.6	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.6	4.8
ISOPHORONE	ND	9.6	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	9.6	4.8
N-NITROSODIPHENYLAMINE (2)	ND	9.6	4.8
NAPHTHALENE	ND	9.6	4.8
NITROBENZENE	ND	9.6	4.8
PENTACHLOROPHENOL	ND	24	4.8
PHENANTHRENE	ND	9.6	4.8
PHENOL	ND	9.6	4.8
PYRENE	ND	9.6	4.8
ANILINE	ND	24	4.8
BENZOIC ACID	ND	24	9.6
BENZYL ALCOHOL	ND	9.6	4.8
CARBAZOLE	ND	9.6	4.8
N-NITROSODIMETHYLAMINE	ND	24	4.8
PYRIDINE	ND	48	19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	98	36-143
2-FLUOROBIPHENYL	80	36-143
2-FLUOROPHENOL	59	36-143
NITROBENZENE-D5	69	36-143
PHENOL-D5	63	36-143
TERPHENYL-D14	108	45-143

RL: Reporting Limit
(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

1440/1006

SW 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	W-45	Date Analyzed:	11/11/05 14:56
Lab Samp ID:	K013-01	Dilution Factor:	.95
Lab File ID:	RKX211	Matrix	: WATER
Ext Btch ID:	SVK013W	% Moisture	: NA
Calib. Ref.:	RIX122	Instrument ID	: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.5	4.8
2,4,6-TRICHLOROPHENOL	ND	9.5	4.8
2,4-DICHLOROPHENOL	ND	9.5	4.8
2,4-DIMETHYLPHENOL	ND	9.5	4.8
2,4-DINITROPHENOL	ND	24	4.8
2,4-DINITROTOLUENE	ND	9.5	4.8
2,6-DINITROTOLUENE	ND	9.5	4.8
2-CHLOROPHENOL	ND	9.5	4.8
2-METHYLNAPHTHALENE	ND	9.5	4.8
2-METHYLPHENOL	ND	9.5	4.8
2-NITROANILINE	ND	24	4.8
2-NITROPHENOL	ND	9.5	4.8
3,3'-DICHLOROBENZIDINE	ND	24	4.8
3-NITROANILINE	ND	24	4.8
4,6-DINITRO-2-METHYLPHENOL	ND	24	4.8
4-BROMOPHENYL-PHENYL ETHER	ND	9.5	4.8
4-CHLORO-3-METHYLPHENOL	ND	9.5	4.8
4-CHLOROANILINE	ND	9.5	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.5	4.8
4-METHYLPHENOL (1)	ND	9.5	4.8
4-NITROANILINE	ND	24	4.8
4-NITROPHENOL	ND	24	4.8
ACENAPHTHENE	ND	9.5	4.8
ACENAPHTHYLENE	ND	9.5	4.8
ANTHRACENE	ND	9.5	4.8
BENZO(A)ANTHRACENE	ND	9.5	4.8
BENZO(A)PYRENE	ND	9.5	4.8
BENZO(B)FLUORANTHENE	ND	9.5	4.8
BENZO(K)FLUORANTHENE	ND UJ	9.5	4.8
BENZO(G,H,I)PERYLENE	ND	9.5	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.5	4.8
BIS(2-CHLOROETHYL)ETHER	ND	9.5	4.8
BIS(2-CHLOROISOPROPYL)ETHER	ND UJ	9.5	4.8
BIS(2-ETHYLHEXYL)PHTHALATE	8.3J UJ	9.5	4.8
BUTYLBENZYLPHTHALATE	ND	9.5	4.8
CHRYSENE	ND	9.5	4.8
DI-N-BUTYLPHTHALATE	ND	9.5	4.8
DI-N-OCTYLPHTHALATE	ND	9.5	4.8
DIBENZO(A,H)ANTHRACENE	ND	9.5	4.8
DIBENZOFURAN	ND	9.5	4.8
DIETHYLPHTHALATE	ND	9.5	4.8
DIMETHYLPHTHALATE	ND	9.5	4.8
FLUORANTHENE	ND	9.5	4.8
FLUORENE	ND	9.5	4.8
HEXACHLOROBENZENE	ND	9.5	4.8
HEXACHLOROBUTADIENE	ND	9.5	4.8
HEXACHLOROETHANE	ND	9.5	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.5	4.8
ISOPHORONE	ND	9.5	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	9.5	4.8
N-NITROSODIPHENYLAMINE (2)	ND	9.5	4.8
NAPHTHALENE	ND	9.5	4.8
NITROBENZENE	ND	9.5	4.8
PENTACHLOROPHENOL	ND	24	4.8
PHENANTHRENE	ND	9.5	4.8
PHENOL	ND	9.5	4.8
PYRENE	ND	9.5	4.8
ANILINE	ND	24	4.8
BENZOIC ACID	ND	24	9.5
BENZYL ALCOHOL	ND	9.5	4.8
CARBAZOLE	ND	9.5	4.8
N-NITROSODIMETHYLAMINE	ND	24	4.8
PYRIDINE	ND	47	19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	102	36-143
2-FLUOROBIPHENYL	79	36-143
2-FLUOROPHENOL	68	36-143
NITROBENZENE-D5	79	36-143
PHENOL-D5	68	36-143
TERPHENYL-D14	120	45-143

RL: Reporting Limit
(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

M401006

SW 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	MW-04-02	Date Analyzed:	11/11/05 14:05
Lab Samp ID:	J204-05	Dilution Factor:	.94
Lab File ID:	RKX209	Matrix	: WATER
Ext Btch ID:	SVK013W	% Moisture	: NA
Calib. Ref.:	RIX122	Instrument ID	: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	24	4.7
2,4-DINITROTOLUENE	ND	9.4	4.7
2,6-DINITROTOLUENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	24	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	24	4.7
3-NITROANILINE	ND	24	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	24	4.7
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	24	4.7
4-NITROPHENOL	ND	24	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND UJ	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND UJ	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND ↓	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	9.4	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROBUTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NAPHTHALENE	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	24	4.7
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
ANILINE	ND	24	4.7
BENZOIC ACID	ND	24	9.4
BENZYL ALCOHOL	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
N-NITROSODIMETHYLAMINE	ND	24	4.7
PYRIDINE	ND	47	19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	105	36-143
2-FLUOROBIPHENYL	85	36-143
2-FLUOROPHENOL	72	36-143
NITROBENZENE-D5	79	36-143
PHENOL-D5	77	36-143
TERPHENYL-D14	111	45-143

RL: Reporting Limit
(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

1440 1006

SW 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	MW-04-03	Date Analyzed:	11/11/05 12:50
Lab Samp ID:	J204-02	Dilution Factor:	.95
Lab File ID:	RKX206	Matrix	: WATER
Ext Btch ID:	SVK013W	% Moisture	: NA
Calib. Ref.:	RIX122	Instrument ID	: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.5	4.8
2,4,6-TRICHLOROPHENOL	ND	9.5	4.8
2,4-DICHLOROPHENOL	ND	9.5	4.8
2,4-DIMETHYLPHENOL	ND	9.5	4.8
2,4-DINITROPHENOL	ND	24	4.8
2,4-DINITROTOLUENE	ND	9.5	4.8
2,6-DINITROTOLUENE	ND	9.5	4.8
2-CHLOROPHENOL	ND	9.5	4.8
2-METHYLNAPHTHALENE	ND	9.5	4.8
2-METHYLPHENOL	ND	9.5	4.8
2-NITROANILINE	ND	24	4.8
2-NITROPHENOL	ND	9.5	4.8
3,3'-DICHLOROBENZIDINE	ND	24	4.8
3-NITROANILINE	ND	24	4.8
4,6-DINITRO-2-METHYLPHENOL	ND	24	4.8
4-BROMOPHENYL-PHENYL ETHER	ND	9.5	4.8
4-CHLORO-3-METHYLPHENOL	ND	9.5	4.8
4-CHLOROANILINE	ND	9.5	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.5	4.8
4-METHYLPHENOL (1)	ND	9.5	4.8
4-NITROANILINE	ND	24	4.8
4-NITROPHENOL	ND	24	4.8
ACENAPHTHENE	ND	9.5	4.8
ACENAPHTHYLENE	ND	9.5	4.8
ANTHRACENE	ND	9.5	4.8
BENZO(A)ANTHRACENE	ND	9.5	4.8
BENZO(A)PYRENE	ND	9.5	4.8
BENZO(B)FLUORANTHENE	ND	9.5	4.8
BENZO(K)FLUORANTHENE	ND uJ	9.5	4.8
BENZO(G,H,I)PERYLENE	ND	9.5	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.5	4.8
BIS(2-CHLOROETHYL)ETHER	ND	9.5	4.8
BIS(2-CHLOROISOPROPYL)ETHER	ND uJ	9.5	4.8
BIS(2-ETHYLHEXYL)PHTHALATE	ND ↓	9.5	4.8
BUTYLBENZYLPHTHALATE	ND	9.5	4.8
CHRYSENE	ND	9.5	4.8
DI-N-BUTYLPHTHALATE	ND	9.5	4.8
DI-N-OCTYLPHTHALATE	ND	9.5	4.8
DIBENZO(A,H)ANTHRACENE	ND	9.5	4.8
DIBENZOFURAN	ND	9.5	4.8
DIETHYLPHTHALATE	ND	9.5	4.8
DIMETHYLPHTHALATE	ND	9.5	4.8
FLUORANTHENE	ND	9.5	4.8
FLUORENE	ND	9.5	4.8
HEXACHLOROBENZENE	ND	9.5	4.8
HEXACHLOROBUTADIENE	ND	9.5	4.8
HEXACHLOROETHANE	ND	9.5	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.5	4.8
ISOPHORONE	ND	9.5	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	9.5	4.8
N-NITROSODIPHENYLAMINE (2)	ND	9.5	4.8
NAPHTHALENE	ND	9.5	4.8
NITROBENZENE	ND	9.5	4.8
PENTACHLOROPHENOL	ND	24	4.8
PHENANTHRENE	ND	9.5	4.8
PHENOL	ND	9.5	4.8
PYRENE	ND	9.5	4.8
ANILINE	ND	24	4.8
BENZOIC ACID	ND	24	9.5
BENZYL ALCOHOL	ND	9.5	4.8
CARBAZOLE	ND	9.5	4.8
N-NITROSODIMETHYLAMINE	ND	24	4.8
PYRIDINE	ND	47	19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	99	36-143
2-FLUOROBIPHENYL	83	36-143
2-FLUOROPHENOL	64	36-143
NITROBENZENE-D5	69	36-143
PHENOL-D5	70	36-143
TERPHENYL-D14	114	45-143

RL: Reporting Limit
(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

MW-1006

SW 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	MW-04-04	Date Analyzed:	11/11/05 15:21
Lab Samp ID:	K013-02	Dilution Factor:	.94
Lab File ID:	RKX212	Matrix	: WATER
Ext Btch ID:	SVK013W	% Moisture	: NA
Calib. Ref.:	RIX122	Instrument ID	: T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.4	4.7
2,4,6-TRICHLOROPHENOL	ND	9.4	4.7
2,4-DICHLOROPHENOL	ND	9.4	4.7
2,4-DIMETHYLPHENOL	ND	9.4	4.7
2,4-DINITROPHENOL	ND	24	4.7
2,4-DINITROTOLUENE	ND	9.4	4.7
2,6-DINITROTOLUENE	ND	9.4	4.7
2-CHLOROPHENOL	ND	9.4	4.7
2-METHYLNAPHTHALENE	ND	9.4	4.7
2-METHYLPHENOL	ND	9.4	4.7
2-NITROANILINE	ND	24	4.7
2-NITROPHENOL	ND	9.4	4.7
3,3'-DICHLOROBENZIDINE	ND	24	4.7
3-NITROANILINE	ND	24	4.7
4,6-DINITRO-2-METHYLPHENOL	ND	24	4.7
4-BROMOPHENYL-PHENYL ETHER	ND	9.4	4.7
4-CHLORO-3-METHYLPHENOL	ND	9.4	4.7
4-CHLOROANILINE	ND	9.4	4.7
4-CHLOROPHENYL-PHENYL ETHER	ND	9.4	4.7
4-METHYLPHENOL (1)	ND	9.4	4.7
4-NITROANILINE	ND	24	4.7
4-NITROPHENOL	ND	24	4.7
ACENAPHTHENE	ND	9.4	4.7
ACENAPHTHYLENE	ND	9.4	4.7
ANTHRACENE	ND	9.4	4.7
BENZO(A)ANTHRACENE	ND	9.4	4.7
BENZO(A)PYRENE	ND	9.4	4.7
BENZO(B)FLUORANTHENE	ND	9.4	4.7
BENZO(K)FLUORANTHENE	ND uJ	9.4	4.7
BENZO(G,H,I)PERYLENE	ND	9.4	4.7
BIS(2-CHLOROETHOXY)METHANE	ND	9.4	4.7
BIS(2-CHLOROETHYL)ETHER	ND	9.4	4.7
BIS(2-CHLOROISOPROPYL)ETHER	ND uJ	9.4	4.7
BIS(2-ETHYLHEXYL)PHTHALATE	ND	9.4	4.7
BUTYLBENZYLPHTHALATE	ND	9.4	4.7
CHRYSENE	ND	9.4	4.7
DI-N-BUTYLPHTHALATE	ND	9.4	4.7
DI-N-OCTYLPHTHALATE	ND	9.4	4.7
DIBENZO(A,H)ANTHRACENE	ND	9.4	4.7
DIBENZOFURAN	ND	9.4	4.7
DIETHYLPHTHALATE	ND	9.4	4.7
DIMETHYLPHTHALATE	ND	9.4	4.7
FLUORANTHENE	ND	9.4	4.7
FLUORENE	ND	9.4	4.7
HEXACHLOROBENZENE	ND	9.4	4.7
HEXACHLOROBUTADIENE	ND	9.4	4.7
HEXACHLOROETHANE	ND	9.4	4.7
INDENO(1,2,3-CD)PYRENE	ND	9.4	4.7
ISOPHORONE	ND	9.4	4.7
N-NITROSO-DI-N-PROPYLAMINE	ND	9.4	4.7
N-NITROSODIPHENYLAMINE (2)	ND	9.4	4.7
NAPHTHALENE	ND	9.4	4.7
NITROBENZENE	ND	9.4	4.7
PENTACHLOROPHENOL	ND	24	4.7
PHENANTHRENE	ND	9.4	4.7
PHENOL	ND	9.4	4.7
PYRENE	ND	9.4	4.7
ANILINE	ND	24	4.7
BENZOIC ACID	ND	24	9.4
BENZYL ALCOHOL	ND	9.4	4.7
CARBAZOLE	ND	9.4	4.7
N-NITROSODIMETHYLAMINE	ND	24	4.7
PYRIDINE	ND	47	19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	116	36-143
2-FLUOROBIPHENYL	100	36-143
2-FLUOROPHENOL	79	36-143
NITROBENZENE-D5	88	36-143
PHENOL-D5	83	36-143
TERPHENYL-D14	127	45-143

RL: Reporting Limit
(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

14401006

SW 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	MW-07-DUPLICATE	Date Analyzed:	11/11/05 13:40
Lab Samp ID:	J204-04	Dilution Factor:	.99
Lab File ID:	RKX208	Matrix :	WATER
Ext Btch ID:	SVK013W	% Moisture :	NA
Calib. Ref.:	RIX122	Instrument ID :	T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
2,4,5-TRICHLOROPHENOL	ND	9.9	4.9
2,4,6-TRICHLOROPHENOL	ND	9.9	4.9
2,4-DICHLOROPHENOL	ND	9.9	4.9
2,4-DIMETHYLPHENOL	ND	9.9	4.9
2,4-DINITROPHENOL	ND	25	4.9
2,4-DINITROTOLUENE	ND	9.9	4.9
2,6-DINITROTOLUENE	ND	9.9	4.9
2-CHLOROPHENOL	ND	9.9	4.9
2-METHYLNAPHTHALENE	ND	9.9	4.9
2-METHYLPHENOL	ND	9.9	4.9
2-NITROANILINE	ND	25	4.9
2-NITROPHENOL	ND	9.9	4.9
3,3'-DICHLOROBENZIDINE	ND	25	4.9
3-NITROANILINE	ND	25	4.9
4,6-DINITRO-2-METHYLPHENOL	ND	25	4.9
4-BROMOPHENYL-PHENYL ETHER	ND	9.9	4.9
4-CHLORO-3-METHYLPHENOL	ND	9.9	4.9
4-CHLOROANILINE	ND	9.9	4.9
4-CHLOROPHENYL-PHENYL ETHER	ND	9.9	4.9
4-METHYLPHENOL (1)	ND	9.9	4.9
4-NITROANILINE	ND	25	4.9
4-NITROPHENOL	ND	25	4.9
ACENAPHTHENE	ND	9.9	4.9
ACENAPHTHYLENE	ND	9.9	4.9
ANTHRACENE	ND	9.9	4.9
BENZO(A)ANTHRACENE	ND	9.9	4.9
BENZO(A)PYRENE	ND	9.9	4.9
BENZO(B)FLUORANTHENE	ND	9.9	4.9
BENZO(K)FLUORANTHENE	ND uJ	9.9	4.9
BENZO(G,H,I)PERYLENE	ND	9.9	4.9
BIS(2-CHLOROETHOXY)METHANE	ND	9.9	4.9
BIS(2-CHLOROETHYL)ETHER	ND	9.9	4.9
BIS(2-CHLOROISOPROPYL)ETHER	ND uJ	9.9	4.9
BIS(2-ETHYLHEXYL)PHTHALATE	ND ↓	9.9	4.9
BUTYLBENZYLPHTHALATE	ND	9.9	4.9
CHRYSENE	ND	9.9	4.9
DI-N-BUTYLPHTHALATE	ND	9.9	4.9
DI-N-OCTYLPHTHALATE	ND	9.9	4.9
DIBENZO(A,H)ANTHRACENE	ND	9.9	4.9
DIBENZOFURAN	ND	9.9	4.9
DIETHYLPHTHALATE	ND	9.9	4.9
DIMETHYLPHTHALATE	ND	9.9	4.9
FLUORANTHENE	ND	9.9	4.9
FLUORENE	ND	9.9	4.9
HEXACHLOROBENZENE	ND	9.9	4.9
HEXACHLOROBUTADIENE	ND	9.9	4.9
HEXACHLOROETHANE	ND	9.9	4.9
INDENO(1,2,3-CD)PYRENE	ND	9.9	4.9
ISOPHORONE	ND	9.9	4.9
N-NITROSO-DI-N-PROPYLAMINE	ND	9.9	4.9
N-NITROSODIPHENYLAMINE (2)	ND	9.9	4.9
NAPHTHALENE	ND	9.9	4.9
NITROBENZENE	ND	9.9	4.9
PENTACHLOROPHENOL	ND	25	4.9
PHENANTHRENE	ND	9.9	4.9
PHENOL	ND	9.9	4.9
PYRENE	ND	9.9	4.9
ANILINE	ND	25	4.9
BENZOIC ACID	ND	25	9.9
BENZYL ALCOHOL	ND	9.9	4.9
CARBAZOLE	ND	9.9	4.9
N-NITROSODIMETHYLAMINE	ND	25	4.9
PYRIDINE	ND	50	20

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	122	36-143
2-FLUOROBIPHENYL	98	36-143
2-FLUOROPHENOL	76	36-143
NITROBENZENE-D5	88	36-143
PHENOL-D5	82	36-143
TERPHENYL-D14	128	45-143

RL: Reporting Limit
(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

4401006

3010

METHOD 3010A/6020A
METALS BY ICP-MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
SDG NO.	: 05K012	Date Extracted:	11/07/05 10:15
Sample ID:	MW-05-01	Date Analyzed:	12/06/05 20:51
Lab Samp ID:	K024-02	Dilution Factor:	1
Lab File ID:	98L04032	Matrix :	WATER
Ext Btch ID:	IMK005W	% Moisture :	NA
Calib. Ref.:	98L04030	Instrument ID :	EMAXTI98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	79.1J	100	50
Antimony	ND	1	.5
Arsenic	1.21	1	.5
Barium	181	1	.5
Beryllium	ND	1	.5
Cadmium	ND	1	.5
Calcium	129000	100	50
Chromium	1.03	1	.5
Cobalt	ND	1	.5
Copper	4.11	1	.5
Iron	ND	100	20
Lead	ND	1	.5
Magnesium	23200	100	20
Manganese	21.6	1	.5
Nickel	.864J u	1	.1
Potassium	4260	100	50
Selenium	.519J	1	.5
Silver	ND	1	.5
Sodium	226000	100	50
Thallium	ND	1	.5
Vanadium	1.65	1	.5
Zinc	ND	10	5

M4-11006

METHOD 3010A/6020A
METALS BY ICP-MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
SDG NO.	: 05K012	Date Extracted:	11/07/05 10:15
Sample ID:	MW-05-02	Date Analyzed:	12/06/05 20:13
Lab Samp ID:	K024-01	Dilution Factor:	1
Lab File ID:	98L04027	Matrix :	WATER
Ext Btch ID:	IMK005W	% Moisture :	NA
Calib. Ref.:	98L04019	Instrument ID :	EMAXTI98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	66.3J	100	50
Antimony	.595J	1	.5
Arsenic	14	1	.5
Barium	3530	1	.5
Beryllium	ND	1	.5
Cadmium	.686J U	1	.5
Calcium^	1380000	1000	500
Chromium	1.09	1	.5
Cobalt	4.25	1	.5
Copper	4.49	1	.5
Iron	9980	100	20
Lead	.565J	1	.5
Magnesium	464000	100	20
Manganese	12200	1	.5
Nickel	4.08	1	.1
Potassium	46800	100	50
Selenium	.563J	1	.5
Silver	ND	1	.5
Sodium^	3880000	1000	500
Thallium	.697J U	1	.5
Vanadium	.807J	1	.5
Zinc	8.38J	10	5

^: Analyzed @ DF 10 on 11/29/05 02:18 | File I98K24069

14401006

7005

METHOD 3010A/6020A
METALS BY ICP-MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
SDG NO.	: 05K012	Date Extracted:	11/07/05 10:15
Sample ID:	MW-05-03	Date Analyzed:	12/06/05 20:58
Lab Samp ID:	K024-03	Dilution Factor:	1
Lab File ID:	98L04033	Matrix :	WATER
Ext Btch ID:	IMK005W	% Moisture :	NA
Calib. Ref.:	98L04030	Instrument ID :	EMAXTI98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	50
Antimony	ND	1	.5
Arsenic	5	1	.5
Barium	125	1	.5
Beryllium	ND	1	.5
Cadmium	ND	1	.5
Calcium	392000	100	50
Chromium	1.07	1	.5
Cobalt	3.43	1	.5
Copper	2.29	1	.5
Iron	3430	100	20
Lead	ND	1	.5
Magnesium^	1370000	1000	200
Manganese	4650	1	.5
Nickel	2.68	1	.1
Potassium	315000	100	50
Selenium	.694J	1	.5
Silver	ND	1	.5
Sodium^	12100000	1000	500
Thallium	ND	1	.5
Vanadium	1.42	1	.5
Zinc	ND	10	5

^: Analyzed @ DF 10 on 11/29/05 02:55 | File I98K24074

MH01100b

METHOD 3010A/6020A
METALS BY ICP-MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
SDG NO.	: 05K012	Date Extracted:	11/07/05 10:15
Sample ID:	MW-05-04	Date Analyzed:	12/06/05 21:21
Lab Samp ID:	K012-02	Dilution Factor:	1
Lab File ID:	98L04036	Matrix :	WATER
Ext Btch ID:	IMK005W	% Moisture :	NA
Calib. Ref.:	98L04030	Instrument ID :	EMAXTI98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	80.7J	100	50
Antimony	ND	1	.5
Arsenic	3.16	1	.5
Barium	79.8	1	.5
Beryllium	ND	1	.5
Cadmium	4.59	1	.5
Calcium	892000	100	50
Chromium	1.03	1	.5
Cobalt	5.03	1	.5
Copper	3.97	1	.5
Iron	190	100	20
Lead	.931J	1	.5
Magnesium	559000	100	20
Manganese	1430	1	.5
Nickel	3.59	1	.1
Potassium	28900	100	50
Selenium	ND	1	.5
Silver	ND	1	.5
Sodium^	4940000	1000	500
Thallium	ND	1	.5
Vanadium	.981J	1	.5
Zinc	14.3	10	5

^: Analyzed @ DF 10 on 11/29/05 03:18 | File I98K24077

MW-1006

METHOD 3010A/6020A
METALS BY ICP-MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
SDG NO.	: 05K012	Date Extracted:	11/07/05 10:15
Sample ID:	MW-05-05	Date Analyzed:	12/06/05 21:13
Lab Samp ID:	K012-01	Dilution Factor:	1
Lab File ID:	98L04035	Matrix :	WATER
Ext Btch ID:	IMK005W	% Moisture :	NA
Calib. Ref.:	98L04030	Instrument ID :	EMAXTI98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	50
Antimony	ND	1	.5
Arsenic	1.85	1	.5
Barium	79	1	.5
Beryllium	ND	1	.5
Cadmium	ND	1	.5
Calcium	614000	100	50
Chromium	ND	1	.5
Cobalt	3.54	1	.5
Copper	.807J	1	.5
Iron	21.4J	100	20
Lead	ND	1	.5
Magnesium	289000	100	20
Manganese	1910	1	.5
Nickel	1.65 U	1	.1
Potassium	23100	100	50
Selenium	ND	1	.5
Silver	ND	1	.5
Sodium^	2190000	1000	500
Thallium	ND	1	.5
Vanadium	2.94	1	.5
Zinc	ND	10	5

^: Analyzed @ DF 10 on 11/29/05 03:11 | File I98K24076

MH01006

METHOD 3010A/6020A
METALS BY ICP-MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
SDG NO.	: 05K012	Date Extracted:	11/07/05 10:15
Sample ID:	MW-05-DUPLICATE	Date Analyzed:	12/06/05 21:06
Lab Samp ID:	K024-04	Dilution Factor:	1
Lab File ID:	98L04034	Matrix :	WATER
Ext Btch ID:	IMK005W	% Moisture :	NA
Calib. Ref.:	98L04030	Instrument ID :	EMAXTI98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	57.1J	100	50
Antimony	ND	1	.5
Arsenic	1.39	1	.5
Barium	185	1	.5
Beryllium	ND	1	.5
Cadmium	ND	1	.5
Calcium	130000	100	50
Chromium	1.15	1	.5
Cobalt	ND	1	.5
Copper	3.87	1	.5
Iron	48.3J	100	20
Lead	ND	1	.5
Magnesium	24400	100	20
Manganese	21.3	1	.5
Nickel	16.6	1	.1
Potassium	4660	100	50
Selenium	ND	1	.5
Silver	ND	1	.5
Sodium	237000	100	50
Thallium	ND	1	.5
Vanadium	3.65	1	.5
Zinc	8.74J	10	5

MW01006

METHOD 3010A/6020A
METALS BY ICP-MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
SDG NO.	: 05J204	Date Extracted:	11/07/0510:30
Sample ID:	07M01	Date Analyzed:	11/10/05 23:59
Lab Samp ID:	J204-06	Dilution Factor:	1
Lab File ID:	98K10049	Matrix :	WATER
Ext Btch ID:	IMK006W	% Moisture :	NA
Calib. Ref.:	98K10040	Instrument ID :	EMAXTI98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	50
Antimony	7.31	1	.5
Arsenic	9.56	1	.5
Barium	1330	1	.5
Beryllium	ND	1	.5
Cadmium	ND	1	.5
Calcium	467000	100	50
Chromium	4.28	1	.5
Cobalt	2.1	1	.5
Copper	1.07 U	1	.5
Iron	30.5J	100	20
Lead	ND	1	.5
Magnesium^	1520000	1000	200
Manganese	417	1	.5
Nickel	1.44 U	1	.1
Potassium	388000	100	50
Selenium	.509J	1	.5
Silver	ND	1	.5
Sodium^	12900000	1000	500
Thallium	ND	1	.5
Vanadium	6.38	1	.5
Zinc	28.3 J	10	5

^ : Analyzed @ DF 10 on 11/29/05 00:38 | File I98K24056

MU0100b

7008

METHOD 3010A/6020A
METALS BY ICP-MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
SDG NO.	: 05J204	Date Extracted:	11/07/0510:30
Sample ID:	W-41	Date Analyzed:	11/10/05 23:20
Lab Samp ID:	J204-01	Dilution Factor:	1
Lab File ID:	98K10044	Matrix :	WATER
Ext Btch ID:	IMK006W	% Moisture :	NA
Calib. Ref.:	98K10040	Instrument ID :	EMAXTI98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	50
Antimony	.53J	1	.5
Arsenic	3.08	1	.5
Barium	86.4	1	.5
Beryllium	ND	1	.5
Cadmium	4.18	1	.5
Calcium	933000	100	50
Chromium	1.93	1	.5
Cobalt	32.1	1	.5
Copper	3.03 U	1	.5
Iron	4530	100	20
Lead	ND	1	.5
Magnesium^	1710000	1000	200
Manganese	5750	1	.5
Nickel	12.5	1	.1
Potassium	207000	100	50
Selenium	.587J	1	.5
Silver	ND	1	.5
Sodium^	13900000	1000	500
Thallium	ND	1	.5
Vanadium	1.94 U	1	.5
Zinc	29.4 J	10	5

^ : Analyzed @ DF 10 on 11/28/05 23:52 | File I98K24050

H40110006

METHOD 3010A/6020A
METALS BY ICP-MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
SDG NO.	: 05J204	Date Extracted:	11/07/0510:30
Sample ID:	W-42	Date Analyzed:	11/10/05 23:36
Lab Samp ID:	J204-03	Dilution Factor:	1
Lab File ID:	98K10046	Matrix :	WATER
Ext Btch ID:	IMK006W	% Moisture :	NA
Calib. Ref.:	98K10040	Instrument ID :	EMAXTI98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	50
Antimony	1.14	1	.5
Arsenic	7.57	1	.5
Barium	126	1	.5
Beryllium	ND	1	.5
Cadmium	1.31	1	.5
Calcium	662000	100	50
Chromium	1.28	1	.5
Cobalt	8.4	1	.5
Copper	7.68 U	1	.5
Iron	376	100	20
Lead	ND	1	.5
Magnesium^	1620000	1000	200
Manganese	3420	1	.5
Nickel	7.24	1	.1
Potassium	386000	100	50
Selenium	1.65	1	.5
Silver	ND	1	.5
Sodium^	13200000	1000	500
Thallium	ND	1	.5
Vanadium	10.3	1	.5
Zinc	32.9 J	10	5

^ : Analyzed @ DF 10 on 11/29/05 00:15 | File I98K24053

MH01006

7005

METHOD 3010A/6020A
METALS BY ICP-MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
SDG NO.	: 05J204	Date Extracted:	11/07/0510:30
Sample ID:	W-43	Date Analyzed:	11/11/05 01:08
Lab Samp ID:	K013-03	Dilution Factor:	1
Lab File ID:	98K10058	Matrix :	WATER
Ext Btch ID:	IMK006W	% Moisture :	NA
Calib. Ref.:	98K10056	Instrument ID :	EMAXTI98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	71.4J	100	50
Antimony	.78J	1	.5
Arsenic	3.62	1	.5
Barium	62	1	.5
Beryllium^^	ND	1	.5
Cadmium	2.15	1	.5
Calcium	757000	100	50
Chromium	1.19	1	.5
Cobalt	9.26	1	.5
Copper	6.36 U	1	.5
Iron	193	100	20
Lead	ND	1	.5
Magnesium^	1980000	1000	200
Manganese	6150	1	.5
Nickel	9.03	1	.1
Potassium	526000	100	50
Selenium	.949J	1	.5
Silver	ND	1	.5
Sodium^	16100000	1000	500
Thallium	ND	1	.5
Vanadium	3.92	1	.5
Zinc	21.6 J	10	5

^ : Analyzed @ DF 10 on 11/29/05 01:47 | File ID I98K24065

^^: Analyzed @ DF 10 on 12/05/05 23:58 | File ID 98L03092

MH 11.06

7011

METHOD 3010A/6020A
METALS BY ICP-MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
SDG NO.	: 05J204	Date Extracted:	11/07/0510:30
Sample ID:	W-45	Date Analyzed:	11/11/05 00:07
Lab Samp ID:	K013-01	Dilution Factor:	1
Lab File ID:	98K10050	Matrix :	WATER
Ext Btch ID:	IMK006W	% Moisture :	NA
Calib. Ref.:	98K10040	Instrument ID :	EMAXTI98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	68.6J	100	50
Antimony	.594J	1	.5
Arsenic	2.14	1	.5
Barium	72.2	1	.5
Beryllium	ND	1	.5
Cadmium	4.39	1	.5
Calcium^	295000	1000	500
Chromium	.634J	1	.5
Cobalt	6.97	1	.5
Copper	2.2 u	1	.5
Iron	41.1J	100	20
Lead	ND	1	.5
Magnesium^	1820000	1000	200
Manganese	3810	1	.5
Nickel	9.7	1	.1
Potassium	114000	100	50
Selenium	1.3	1	.5
Silver	ND	1	.5
Sodium^	13200000	1000	500
Thallium	ND	1	.5
Vanadium	2.58 u	1	.5
Zinc	28.8 J	10	5

^ : Analyzed @ DF 10 on 11/29/05 00:46 | File I98K24057

WH011006

7009

METHOD 3010A/6020A
METALS BY ICP-MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
SDG NO.	: 05J204	Date Extracted:	11/07/0510:30
Sample ID:	MW-04-02	Date Analyzed:	11/10/05 23:51
Lab Samp ID:	J204-05	Dilution Factor:	1
Lab File ID:	98K10048	Matrix :	WATER
Ext Btch ID:	IMK006W	% Moisture :	NA
Calib. Ref.:	98K10040	Instrument ID :	EMAXTI98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	50
Antimony	.564J	1	.5
Arsenic	2.82	1	.5
Barium	86.6	1	.5
Beryllium	ND	1	.5
Cadmium	2.94	1	.5
Calcium	622000	100	50
Chromium	.608J	1	.5
Cobalt	14.2	1	.5
Copper	6.03 u	1	.5
Iron	610	100	20
Lead	.859J	1	.5
Magnesium^	1510000	1000	200
Manganese	6790	1	.5
Nickel	8.16	1	.1
Potassium	389000	100	50
Selenium	.827J	1	.5
Silver	ND	1	.5
Sodium^	12900000	1000	500
Thallium	ND	1	.5
Vanadium	4.25	1	.5
Zinc	31.1 J	10	5

^ : Analyzed @ DF 10 on 11/29/05 00:30 | File I98K24055

MW01006

7007

METHOD 3010A/6020A
METALS BY ICP-MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
SDG NO.	: 05J204	Date Extracted:	11/07/0510:30
Sample ID:	MW-04-03	Date Analyzed:	11/10/05 23:28
Lab Samp ID:	J204-02	Dilution Factor:	1
Lab File ID:	98K10045	Matrix :	WATER
Ext Btch ID:	IMK006W	% Moisture :	NA
Calib. Ref.:	98K10040	Instrument ID :	EMAXTI98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	78.4J	100	50
Antimony	ND	1	.5
Arsenic	8.41	1	.5
Barium	111	1	.5
Beryllium	ND	1	.5
Cadmium	.839J	1	.5
Calcium	623000	100	50
Chromium	.694J	1	.5
Cobalt	7.11	1	.5
Copper	4.72 U	1	.5
Iron	3840	100	20
Lead	ND	1	.5
Magnesium^	1730000	1000	200
Manganese	3850	1	.5
Nickel	6.23	1	.1
Potassium	415000	100	50
Selenium	.615J	1	.5
Silver	ND	1	.5
Sodium^	13700000	1000	500
Thallium	ND	1	.5
Vanadium	4.92	1	.5
Zinc	26.1 J	10	5

^ : Analyzed @ DF 10 on 11/29/05 00:07 | File I98K24052

MH01006

7004

METHOD 3010A/6020A
METALS BY ICP-MS

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
SDG NO.	: 05J204	Date Extracted:	11/07/0510:30
Sample ID:	MW-04-04	Date Analyzed:	11/11/05 00:14
Lab Samp ID:	K013-02	Dilution Factor:	1
Lab File ID:	98K10051	Matrix :	WATER
Ext Btch ID:	IMK006W	% Moisture :	NA
Calib. Ref.:	98K10040	Instrument ID :	EMAXTI98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	56.6J	100	50
Antimony	.617J	1	.5
Arsenic	3.85	1	.5
Barium	61.7	1	.5
Beryllium	ND	1	.5
Cadmium	ND	1	.5
Calcium	469000	100	50
Chromium	.719J	1	.5
Cobalt	5.84	1	.5
Copper	4.03 U	1	.5
Iron	740	100	20
Lead	ND	1	.5
Magnesium^	1130000	1000	200
Manganese	7830	1	.5
Nickel	4.93	1	.1
Potassium	345000	100	50
Selenium	.63J	1	.5
Silver	ND	1	.5
Sodium^	10600000	1000	500
Thallium	ND	1	.5
Vanadium	3.26	1	.5
Zinc	45.3 J	10	5

^ : Analyzed @ DF 10 on 11/29/05 01:39 | File I98K24064

MW-1006

7010

METHOD 3010A/6020A
METALS BY ICP-MS

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
SDG NO.	: 05J204	Date Extracted:	11/07/0510:30
Sample ID:	MW-07-DUPLICATE	Date Analyzed:	11/10/05 23:43
Lab Samp ID:	J204-04	Dilution Factor:	1
Lab File ID:	98K10047	Matrix :	WATER
Ext Btch ID:	IMK006W	% Moisture :	NA
Calib. Ref.:	98K10040	Instrument ID :	EMAXTI98

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Aluminum	ND	100	50
Antimony	.694J	1	.5
Arsenic	8.6	1	.5
Barium	104	1	.5
Beryllium	ND	1	.5
Cadmium	.583J	1	.5
Calcium	587000	100	50
Chromium	.63J	1	.5
Cobalt	6.93	1	.5
Copper	3.92 U	1	.5
Iron	3590	100	20
Lead	ND	1	.5
Magnesium^	1610000	1000	200
Manganese	3630	1	.5
Nickel	5.45	1	.1
Potassium	390000	100	50
Selenium	.589J	1	.5
Silver	ND	1	.5
Sodium^	12800000	1000	500
Thallium	ND	1	.5
Vanadium	5.85	1	.5
Zinc	31.3 J	10	5

^ : Analyzed @ DF 10 on 11/29/05 00:23 | File I98K24054

MH01006

7006

SW3520C/8081A
PESTICIDES

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	07M01	Date Analyzed:	11/15/05 23:13
Lab Samp ID:	J204-06	Dilution Factor:	.98
Lab File ID:	SK14056A	Matrix :	WATER
Ext Btch ID:	CPK012W	% Moisture :	NA
Calib. Ref.:	SK14051A	Instrument ID :	GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)|ND	.02	.0098|.0098
GAMMA-BHC (LINDANE)	.028|(ND)	.02	.0098|.0098
BETA-BHC	1.3|(ND) UJ	.02	.0098|.0098
HEPTACHLOR	.029|(ND)	.02	.0098|.0098
DELTA-BHC	(ND)|.011J	.02	.0098|.0098
ALDRIN	(ND)|.45	.02	.0098|.0098
HEPTACHLOR EPOXIDE	(ND)|.14	.02	.0098|.0098
GAMMA-CHLORDANE	(ND)|.54	.02	.0098|.0098
ALPHA-CHLORDANE	(ND)|ND	.02	.0098|.0098
ENDOSULFAN I	.04|(ND)	.02	.0098|.0098
4,4'-DDE	(ND)|ND	.039	.02|.02
DIELDRIN	(ND)|ND	.039	.02|.02
ENDRIN	(ND)|ND	.039	.02|.02
4,4'-DDD	(ND)|ND	.039	.02|.02
ENDOSULFAN II	(ND)|.2	.039	.02|.02
4,4'-DDT	(ND)|ND	.039	.02|.02
ENDRIN ALDEHYDE	(ND)|ND	.039	.02|.02
ENDOSULFAN SULFATE	(ND)|ND UJ	.039	.02|.02
ENDRIN KETONE	(ND)|.057	.039	.02|.02
METHOXYCHLOR	(ND)|ND	.2	.098|.098
TOXAPHENE	(ND)|ND	.39	.2|.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	3460*|(87)	45-143
DECACHLOROBIPHENYL	(105)|93	54-154

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

LMD11006

5011

SW3520C/8081A
PESTICIDES

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	W-41	Date Analyzed:	11/15/05 18:58
Lab Samp ID:	J204-01	Dilution Factor:	.97
Lab File ID:	SK14045A	Matrix :	WATER
Ext Btch ID:	CPK012W	% Moisture :	NA
Calib. Ref.:	SK14025A	Instrument ID :	GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)|ND	.019	.0097|.0097
GAMMA-BHC (LINDANE)	(ND)|ND	.019	.0097|.0097
BETA-BHC	(ND)|.013J uJ	.019	.0097|.0097
HEPTACHLOR	.48|(ND)	.019	.0097|.0097
DELTA-BHC	(ND)|ND	.019	.0097|.0097
ALDRIN	.011J|(ND)	.019	.0097|.0097
HEPTACHLOR EPOXIDE	(ND)|ND	.019	.0097|.0097
GAMMA-CHLORDANE	.01J|(ND)	.019	.0097|.0097
ALPHA-CHLORDANE	(ND)|ND	.019	.0097|.0097
ENDOSULFAN I	(ND)|ND	.019	.0097|.0097
4,4'-DDE	(ND)|ND	.039	.019|.019
DIELDRIN	(ND)|ND	.039	.019|.019
ENDRIN	(ND)|ND	.039	.019|.019
4,4'-DDD	(ND)|ND	.039	.019|.019
ENDOSULFAN II	(ND)|ND	.039	.019|.019
4,4'-DDT	(ND)|ND	.039	.019|.019
ENDRIN ALDEHYDE	(ND)|ND	.039	.019|.019
ENDOSULFAN SULFATE	(ND)|ND uJ	.039	.019|.019
ENDRIN KETONE	(ND)|ND	.039	.019|.019
METHOXYCHLOR	(ND)|ND	.19	.097|.097
TOXAPHENE	(ND)|ND	.39	.19|.19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(73)|62	45-143
DECACHLOROBIPHENYL	(111)|101	54-154

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

1U40l006

SW3520C/8081A
PESTICIDES

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	W-42	Date Analyzed:	11/15/05 19:45
Lab Samp ID:	J204-03	Dilution Factor:	.94
Lab File ID:	SK14047A	Matrix :	WATER
Ext Btch ID:	CPK012W	% Moisture :	NA
Calib. Ref.:	SK14025A	Instrument ID :	GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	.011J | (ND)	.019	.0094 | .0094
GAMMA-BHC (LINDANE)	(ND) | ND	.019	.0094 | .0094
BETA-BHC	(ND) | .024 UJ	.019	.0094 | .0094
HEPTACHLOR	.026 | (ND)	.019	.0094 | .0094
DELTA-BHC	(ND) | ND	.019	.0094 | .0094
ALDRIN	(ND) | ND	.019	.0094 | .0094
HEPTACHLOR EPOXIDE	(ND) | ND	.019	.0094 | .0094
GAMMA-CHLORDANE	.012J | (ND)	.019	.0094 | .0094
ALPHA-CHLORDANE	(ND) | ND	.019	.0094 | .0094
ENDOSULFAN I	(ND) | ND	.019	.0094 | .0094
4,4'-DDE	(ND) | ND	.038	.019 | .019
DIELDRIN	(ND) | ND	.038	.019 | .019
ENDRIN	(ND) | ND	.038	.019 | .019
4,4'-DDD	(ND) | ND	.038	.019 | .019
ENDOSULFAN II	(ND) | ND	.038	.019 | .019
4,4'-DDT	(ND) | ND	.038	.019 | .019
ENDRIN ALDEHYDE	(ND) | ND	.038	.019 | .019
ENDOSULFAN SULFATE	(ND) | ND UJ	.038	.019 | .019
ENDRIN KETONE	(ND) | ND	.038	.019 | .019
METHOXYCHLOR	(ND) | ND	.19	.094 | .094
TOXAPHENE	(ND) | ND	.38	.19 | .19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(79) | 53	45-143
DECACHLOROBIPHENYL	(88) | 86	54-154

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

MHO|1006

SW3520C/8081A
PESTICIDES

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	W-43	Date Analyzed:	11/16/05 00:23
Lab Samp ID:	K013-03	Dilution Factor:	.96
Lab File ID:	SK14059A	Matrix :	WATER
Ext Btch ID:	CPK012W	% Moisture :	NA
Calib. Ref.:	SK14051A	Instrument ID :	GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)|ND	.019	.0096|.0096
GAMMA-BHC (LINDANE)	(ND)|ND	.019	.0096|.0096
BETA-BHC	(ND)|.022 UJ	.019	.0096|.0096
HEPTACHLOR	.074|(ND)	.019	.0096|.0096
DELTA-BHC	(ND)|ND	.019	.0096|.0096
ALDRIN	(ND)|ND	.019	.0096|.0096
HEPTACHLOR EPOXIDE	(ND)|ND	.019	.0096|.0096
GAMMA-CHLORDANE	(ND)|ND	.019	.0096|.0096
ALPHA-CHLORDANE	(ND)|ND	.019	.0096|.0096
ENDOSULFAN I	(ND)|ND	.019	.0096|.0096
4,4'-DDE	(ND)|ND	.038	.019|.019
DIELDRIN	(ND)|ND	.038	.019|.019
ENDRIN	(ND)|ND	.038	.019|.019
4,4'-DDD	(ND)|ND	.038	.019|.019
ENDOSULFAN II	(ND)|ND	.038	.019|.019
4,4'-DDT	(ND)|ND	.038	.019|.019
ENDRIN ALDEHYDE	(ND)|ND	.038	.019|.019
ENDOSULFAN SULFATE	(ND)|ND UJ	.038	.019|.019
ENDRIN KETONE	(ND)|.12	.038	.019|.019
METHOXYCHLOR	(ND)|ND	.19	.096|.096
TOXAPHENE	(ND)|ND	.38	.19|.19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(61)|58	45-143
DECACHLOROBIPHENYL	(88)|79	54-154

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

1440/1006

5014

SW3520C/8081A
PESTICIDES

Client : MARRS SERVICES, INC.	Date Collected: 11/01/05
Project : SEAL BEACH IR SITE 5&7	Date Received: 11/01/05
Batch No. : 05J204	Date Extracted: 11/07/05 15:00
Sample ID: W-45	Date Analyzed: 11/15/05 23:36
Lab Samp ID: K013-01	Dilution Factor: .94
Lab File ID: SK14057A	Matrix : WATER
Ext Btch ID: CPK012W	% Moisture : NA
Calib. Ref.: SK14051A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)|ND	.019	.0094|.0094
GAMMA-BHC (LINDANE)	(ND)|ND	.019	.0094|.0094
BETA-BHC	(ND)|.017J UJ	.019	.0094|.0094
HEPTACHLOR	.39|(ND)	.019	.0094|.0094
DELTA-BHC	(ND)|ND	.019	.0094|.0094
ALDRIN	(ND)|ND	.019	.0094|.0094
HEPTACHLOR EPOXIDE	.059|(ND)	.019	.0094|.0094
GAMMA-CHLORDANE	(ND)|ND	.019	.0094|.0094
ALPHA-CHLORDANE	(ND)|ND	.019	.0094|.0094
ENDOSULFAN I	(ND)|ND	.019	.0094|.0094
4,4'-DDE	(ND)|ND	.038	.019|.019
DIELDRIN	(ND)|ND	.038	.019|.019
ENDRIN	(ND)|ND	.038	.019|.019
4,4'-DDD	(ND)|ND	.038	.019|.019
ENDOSULFAN II	(ND)|ND	.038	.019|.019
4,4'-DDT	(ND)|ND	.038	.019|.019
ENDRIN ALDEHYDE	(ND)|ND	.038	.019|.019
ENDOSULFAN SULFATE	(ND)|ND UJ	.038	.019|.019
ENDRIN KETONE	(ND)|.18	.038	.019|.019
METHOXYCHLOR	(ND)|ND	.19	.094|.094
TOXAPHENE	(ND)|ND	.38	.19|.19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	66|(69)	45-143
DECACHLOROBIPHENYL	(112)|103	54-154

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

1440 1100 6

SW3520C/8081A
PESTICIDES

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	MW-04-02	Date Analyzed:	11/15/05 22:50
Lab Samp ID:	J204-05	Dilution Factor:	.94
Lab File ID:	SK14055A	Matrix :	WATER
Ext Btch ID:	CPK012W	% Moisture :	NA
Calib. Ref.:	SK14051A	Instrument ID :	GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)|ND	.019	.0094|.0094
GAMMA-BHC (LINDANE)	(ND)|ND	.019	.0094|.0094
BETA-BHC	.011J|(.019) J	.019	.0094|.0094
HEPTACHLOR	.059|(ND)	.019	.0094|.0094
DELTA-BHC	(ND)|ND	.019	.0094|.0094
ALDRIN	(ND)|ND	.019	.0094|.0094
HEPTACHLOR EPOXIDE	(ND)|ND	.019	.0094|.0094
GAMMA-CHLORDANE	(ND)|ND	.019	.0094|.0094
ALPHA-CHLORDANE	(ND)|ND	.019	.0094|.0094
ENDOSULFAN I	(ND)|ND	.019	.0094|.0094
4,4'-DDE	(ND)|ND	.038	.019|.019
DIELDRIN	(ND)|ND	.038	.019|.019
ENDRIN	(ND)|ND	.038	.019|.019
4,4'-DDD	(ND)|ND	.038	.019|.019
ENDOSULFAN II	(ND)|ND	.038	.019|.019
4,4'-DDT	(ND)|ND	.038	.019|.019
ENDRIN ALDEHYDE	(ND)|ND	.038	.019|.019
ENDOSULFAN SULFATE	(ND)|ND UJ	.038	.019|.019
ENDRIN KETONE	(ND)|ND	.038	.019|.019
METHOXYCHLOR	(ND)|ND	.19	.094|.094
TOXAPHENE	(ND)|ND	.38	.19|.19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(64)|54	45-143
DECACHLOROBIPHENYL	91|(105)	54-154

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

MH01006

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SW3520C/8081A
PESTICIDES

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	MW-04-03	Date Analyzed:	11/15/05 19:21
Lab Samp ID:	J204-02	Dilution Factor:	.94
Lab File ID:	SK14046A	Matrix :	WATER
Ext Btch ID:	CPK012W	% Moisture :	NA
Calib. Ref.:	SK14025A	Instrument ID :	GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) | ND	.019	.0094 | .0094
GAMMA-BHC (LINDANE)	(ND) | ND	.019	.0094 | .0094
BETA-BHC	(ND) | .016J uJ	.019	.0094 | .0094
HEPTACHLOR	.081 | (ND)	.019	.0094 | .0094
DELTA-BHC	(ND) | ND	.019	.0094 | .0094
ALDRIN	(ND) | ND	.019	.0094 | .0094
HEPTACHLOR EPOXIDE	(ND) | ND	.019	.0094 | .0094
GAMMA-CHLORDANE	(ND) | ND	.019	.0094 | .0094
ALPHA-CHLORDANE	(ND) | ND	.019	.0094 | .0094
ENDOSULFAN I	(ND) | ND	.019	.0094 | .0094
4,4'-DDE	(ND) | ND	.038	.019 | .019
DIELDRIN	(ND) | ND	.038	.019 | .019
ENDRIN	(ND) | ND	.038	.019 | .019
4,4'-DDD	(ND) | ND	.038	.019 | .019
ENDOSULFAN II	(ND) | ND	.038	.019 | .019
4,4'-DDT	(ND) | ND	.038	.019 | .019
ENDRIN ALDEHYDE	(ND) | ND	.038	.019 | .019
ENDOSULFAN SULFATE	(ND) | ND uJ	.038	.019 | .019
ENDRIN KETONE	(ND) | ND	.038	.019 | .019
METHOXYCHLOR	(ND) | ND	.19	.094 | .094
TOXAPHENE	(ND) | ND	.38	.19 | .19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(64) | 59	45-143
DECACHLOROBIPHENYL	(110) | 95	54-154

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

MH01006

SW3520C/8081A
PESTICIDES

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID	: MW-04-04	Date Analyzed:	11/16/05 00:00
Lab Samp ID	: K013-02	Dilution Factor:	.94
Lab File ID	: SK14058A	Matrix :	WATER
Ext Btch ID	: CPK012W	% Moisture :	NA
Calib. Ref.	: SK14051A	Instrument ID :	GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND) | .015J	.019	.0094 | .0094
GAMMA-BHC (LINDANE)	(ND) | ND	.019	.0094 | .0094
BETA-BHC	.035 | (.043) J	.019	.0094 | .0094
HEPTACHLOR	.096 | (ND)	.019	.0094 | .0094
DELTA-BHC	(ND) | ND	.019	.0094 | .0094
ALDRIN	.01J | (ND)	.019	.0094 | .0094
HEPTACHLOR EPOXIDE	(ND) | ND	.019	.0094 | .0094
GAMMA-CHLORDANE	(ND) | ND	.019	.0094 | .0094
ALPHA-CHLORDANE	(ND) | ND	.019	.0094 | .0094
ENDOSULFAN I	(ND) | .0096J	.019	.0094 | .0094
4,4'-DDE	(ND) | ND	.038	.019 | .019
DIELDRIN	(ND) | ND	.038	.019 | .019
ENDRIN	(ND) | ND	.038	.019 | .019
4,4'-DDD	(ND) | ND	.038	.019 | .019
ENDOSULFAN II	(ND) | ND	.038	.019 | .019
4,4'-DDT	(ND) | ND	.038	.019 | .019
ENDRIN ALDEHYDE	(ND) | ND	.038	.019 | .019
ENDOSULFAN SULFATE	.019J | (ND) UJ	.038	.019 | .019
ENDRIN KETONE	.019J | (ND)	.038	.019 | .019
METHOXYCHLOR	(ND) | ND	.19	.094 | .094
TOXAPHENE	(ND) | ND	.38	.19 | .19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(79) | 70	45-143
DECACHLOROBIPHENYL	(88) | 66	54-154

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

1440/1006

5013

SW3520C/8081A
PESTICIDES

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	MW-07-DUPLICATE	Date Analyzed:	11/15/05 20:08
Lab Samp ID:	J204-04	Dilution Factor:	.94
Lab File ID:	SK14048A	Matrix :	WATER
Ext Btch ID:	CPK012W	% Moisture :	NA
Calib. Ref.:	SK14025A	Instrument ID :	GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ALPHA-BHC	(ND)|ND	.019	.0094|.0094
GAMMA-BHC (LINDANE)	(ND)|ND	.019	.0094|.0094
BETA-BHC	(ND)|.016J uJ	.019	.0094|.0094
HEPTACHLOR	.13|(ND)	.019	.0094|.0094
DELTA-BHC	.01J|(ND)	.019	.0094|.0094
ALDRIN	(ND)|ND	.019	.0094|.0094
HEPTACHLOR EPOXIDE	(ND)|ND	.019	.0094|.0094
GAMMA-CHLORDANE	(ND)|ND	.019	.0094|.0094
ALPHA-CHLORDANE	(ND)|ND	.019	.0094|.0094
ENDOSULFAN I	(ND)|ND	.019	.0094|.0094
4,4'-DDE	(ND)|ND	.038	.019|.019
DIELDRIN	(ND)|ND	.038	.019|.019
ENDRIN	(ND)|ND	.038	.019|.019
4,4'-DDD	(ND)|ND	.038	.019|.019
ENDOSULFAN II	(ND)|ND	.038	.019|.019
4,4'-DDT	(ND)|ND	.038	.019|.019
ENDRIN ALDEHYDE	(ND)|ND	.038	.019|.019
ENDOSULFAN SULFATE	(ND)|ND uJ	.038	.019|.019
ENDRIN KETONE	(ND)|ND	.038	.019|.019
METHOXYCHLOR	(ND)|ND	.19	.094|.094
TOXAPHENE	(ND)|ND	.38	.19|.19

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(56)|51	45-143
DECACHLOROBIPHENYL	(104)|101	54-154

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )

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SW3520C/8082
PCBs

Client : MARRS SERVICES, INC.	Date Collected: 10/31/05
Project : SEAL BEACH IR SITE 5&7	Date Received: 10/31/05
Batch No. : 05J204	Date Extracted: 11/07/05 15:00
Sample ID: 07M01	Date Analyzed: 11/15/05 23:13
Lab Samp ID: J204-06	Dilution Factor: .98
Lab File ID: SK14056A	Matrix : WATER
Ext Btch ID: CPK012W	% Moisture : NA
Calib. Ref.: SK14054A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)|ND	.2	.098|.098
PCB-1221	(ND)|ND	.2	.098|.098
PCB-1232	(ND)|ND	.2	.098|.098
PCB-1242	(ND)|ND	.2	.098|.098
PCB-1248	(ND)|ND	.2	.098|.098
PCB-1254	(ND)|ND	.2	.098|.098
PCB-1260	(ND)|ND	.2	.098|.098

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	3105*|(84)	45-165
DECACHLOROBIPHENYL	(101)|88	63-165

RL: Reporting Limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )
* Out side of QC Limit

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SW3520C/8082
PCBs

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	W-41	Date Analyzed:	11/15/05 18:58
Lab Samp ID:	J204-01	Dilution Factor:	.97
Lab File ID:	SK14045A	Matrix	: WATER
Ext Btch ID:	CPK012W	% Moisture	: NA
Calib. Ref.:	SK14028A	Instrument ID	: GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)|ND	.19	.097|.097
PCB-1221	(ND)|ND	.19	.097|.097
PCB-1232	(ND)|ND	.19	.097|.097
PCB-1242	(ND)|ND	.19	.097|.097
PCB-1248	(ND)|ND	.19	.097|.097
PCB-1254	(ND)|ND	.19	.097|.097
PCB-1260	(ND)|ND	.19	.097|.097

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(66)|60	45-165
DECACHLOROBIPHENYL	(106)|96	63-165

RL: Reporting Limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )
* Out side of QC Limit

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SW3520C/8082
PCBs

Client : MARRS SERVICES, INC.	Date Collected: 10/31/05
Project : SEAL BEACH IR SITE 5&7	Date Received: 10/31/05
Batch No. : 05J204	Date Extracted: 11/07/05 15:00
Sample ID: W-42	Date Analyzed: 11/15/05 19:45
Lab Samp ID: J204-03	Dilution Factor: .94
Lab File ID: SK14047A	Matrix : WATER
Ext Btch ID: CPK012W	% Moisture : NA
Calib. Ref.: SK14028A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)|ND	.19	.094|.094
PCB-1221	(ND)|ND	.19	.094|.094
PCB-1232	(ND)|ND	.19	.094|.094
PCB-1242	(ND)|ND	.19	.094|.094
PCB-1248	(ND)|ND	.19	.094|.094
PCB-1254	(ND)|ND	.19	.094|.094
PCB-1260	(ND)|ND	.19	.094|.094

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(71)|61	45-165
DECACHLOROBIPHENYL	(84)|69	63-165

RL: Reporting Limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )
* Out side of QC Limit

4401006

SW3520C/8082
PCBs

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	W-43	Date Analyzed:	11/16/05 00:23
Lab Samp ID:	K013-03	Dilution Factor:	.96
Lab File ID:	SK14059A	Matrix :	WATER
Ext Btch ID:	CPK012W	% Moisture :	NA
Calib. Ref.:	SK14054A	Instrument ID :	GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)|ND	.19	.096|.096
PCB-1221	(ND)|ND	.19	.096|.096
PCB-1232	(ND)|ND	.19	.096|.096
PCB-1242	(ND)|ND	.19	.096|.096
PCB-1248	(ND)|ND	.19	.096|.096
PCB-1254	(ND)|ND	.19	.096|.096
PCB-1260	(ND)|ND	.19	.096|.096

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(53)|56	45-165
DECACHLOROBIPHENYL	(84)|75	63-165

RL: Reporting Limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )
* Out side of QC Limit

1411011006

SW3520C/8082
PCBs

Client	: MARRS SERVICES, INC.	Date Collected:	11/01/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/01/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	W-45	Date Analyzed:	11/15/05 23:36
Lab Samp ID:	K013-01	Dilution Factor:	.94
Lab File ID:	SK14057A	Matrix :	WATER
Ext Btch ID:	CPK012W	% Moisture :	NA
Calib. Ref.:	SK14054A	Instrument ID :	GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)|ND	.19	.094|.094
PCB-1221	(ND)|ND	.19	.094|.094
PCB-1232	(ND)|ND	.19	.094|.094
PCB-1242	(ND)|ND	.19	.094|.094
PCB-1248	(ND)|ND	.19	.094|.094
PCB-1254	(ND)|ND	.19	.094|.094
PCB-1260	(ND)|ND	.19	.094|.094

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(59)|69	45-165
DECACHLOROBIPHENYL	(107)|97	63-165

RL: Reporting Limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )
* Out side of QC Limit

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5140

SW3520C/8082
PCBs

Client : MARRS SERVICES, INC.	Date Collected: 10/31/05
Project : SEAL BEACH IR SITE 5&7	Date Received: 10/31/05
Batch No. : 05J204	Date Extracted: 11/07/05 15:00
Sample ID: MW-04-02	Date Analyzed: 11/15/05 22:50
Lab Samp ID: J204-05	Dilution Factor: .94
Lab File ID: SK14055A	Matrix : WATER
Ext Btch ID: CPK012W	% Moisture : NA
Calib. Ref.: SK14054A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)|ND	.19	.094|.094
PCB-1221	(ND)|ND	.19	.094|.094
PCB-1232	(ND)|ND	.19	.094|.094
PCB-1242	(ND)|ND	.19	.094|.094
PCB-1248	(ND)|ND	.19	.094|.094
PCB-1254	(ND)|ND	.19	.094|.094
PCB-1260	(ND)|ND	.19	.094|.094

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(57)|58	45-165
DECACHLOROBIPHENYL	(86)|70	63-165

RL: Reporting Limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )
* Out side of QC Limit

MH01006

SW3520C/8082
PCBs

Client : MARRS SERVICES, INC.	Date Collected: 10/31/05
Project : SEAL BEACH IR SITE 5&7	Date Received: 10/31/05
Batch No. : 05J204	Date Extracted: 11/07/05 15:00
Sample ID: MW-04-03	Date Analyzed: 11/15/05 19:21
Lab Samp ID: J204-02	Dilution Factor: .94
Lab File ID: SK14046A	Matrix : WATER
Ext Btch ID: CPK012W	% Moisture : NA
Calib. Ref.: SK14028A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)|ND	.19	.094|.094
PCB-1221	(ND)|ND	.19	.094|.094
PCB-1232	(ND)|ND	.19	.094|.094
PCB-1242	(ND)|ND	.19	.094|.094
PCB-1248	(ND)|ND	.19	.094|.094
PCB-1254	(ND)|ND	.19	.094|.094
PCB-1260	(ND)|ND	.19	.094|.094

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(57)|64	45-165
DECACHLOROBIPHENYL	(104)|90	63-165

RL: Reporting Limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )
* Out side of QC Limit

14401006

SW3520C/8082
PCBs

Client : MARRS SERVICES, INC.	Date Collected: 11/01/05
Project : SEAL BEACH IR SITE 5&7	Date Received: 11/01/05
Batch No. : 05J204	Date Extracted: 11/07/05 15:00
Sample ID: MW-04-04	Date Analyzed: 11/16/05 00:00
Lab Samp ID: K013-02	Dilution Factor: .94
Lab File ID: SK14058A	Matrix : WATER
Ext Btch ID: CPK012W	% Moisture : NA
Calib. Ref.: SK14054A	Instrument ID : GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)|ND	.19	.094|.094
PCB-1221	(ND)|ND	.19	.094|.094
PCB-1232	(ND)|ND	.19	.094|.094
PCB-1242	(ND)|ND	.19	.094|.094
PCB-1248	(ND)|ND	.19	.094|.094
PCB-1254	(ND)|ND	.19	.094|.094
PCB-1260	(ND)|ND	.19	.094|.094

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(71)|78	45-165
DECACHLOROBIPHENYL	(84)|70	63-165

RL: Reporting Limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )
* Out side of QC Limit

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5141

SW3520C/8082
PCBs

Client	: MARRS SERVICES, INC.	Date Collected:	10/31/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	10/31/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	MW-07-DUPLICATE	Date Analyzed:	11/15/05 20:08
Lab Samp ID:	J204-04	Dilution Factor:	.94
Lab File ID:	SK14048A	Matrix :	WATER
Ext Btch ID:	CPK012W	% Moisture :	NA
Calib. Ref.:	SK14028A	Instrument ID :	GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)|ND	.19	.094|.094
PCB-1221	(ND)|ND	.19	.094|.094
PCB-1232	(ND)|ND	.19	.094|.094
PCB-1242	(ND)|ND	.19	.094|.094
PCB-1248	(ND)|ND	.19	.094|.094
PCB-1254	(ND)|ND	.19	.094|.094
PCB-1260	(ND)|ND	.19	.094|.094

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(58)|57	45-165
DECACHLOROBIPHENYL	(99)|84	63-165

RL: Reporting Limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )
* Out side of QC Limit

MW01006

SW3520C/8082
PCBs

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	SW-1	Date Analyzed:	11/16/05 00:46
Lab Samp ID:	K025-01	Dilution Factor:	.94
Lab File ID:	SK14060A	Matrix :	WATER
Ext Btch ID:	CPK012W	% Moisture :	NA
Calib. Ref.:	SK14054A	Instrument ID :	GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)|ND	.19	.094|.094
PCB-1221	(ND)|ND	.19	.094|.094
PCB-1232	(ND)|ND	.19	.094|.094
PCB-1242	(ND)|ND	.19	.094|.094
PCB-1248	(ND)|ND	.19	.094|.094
PCB-1254	(ND)|ND	.19	.094|.094
PCB-1260	(ND)|ND	.19	.094|.094

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(61)|58	45-165
DECACHLOROBIPHENYL	(103)|90	63-165

RL: Reporting Limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )
* Out side of QC Limit

W4011006

SW3520C/8082
PCBs

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	SW-2	Date Analyzed:	11/16/05 01:09
Lab Samp ID:	K025-02	Dilution Factor:	.95
Lab File ID:	SK14061A	Matrix :	WATER
Ext Btch ID:	CPK012W	% Moisture :	NA
Calib. Ref.:	SK14054A	Instrument ID :	GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)|ND	.19	.095|.095
PCB-1221	(ND)|ND	.19	.095|.095
PCB-1232	(ND)|ND	.19	.095|.095
PCB-1242	(ND)|ND	.19	.095|.095
PCB-1248	(ND)|ND	.19	.095|.095
PCB-1254	(ND)|ND	.19	.095|.095
PCB-1260	(ND)|ND	.19	.095|.095

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(73)|77	45-165
DECACHLOROBIPHENYL	(103)|90	63-165

RL: Reporting Limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )
* Out side of QC Limit

MH01006

5144

SW3520C/8082
PCBs

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	SW-3	Date Analyzed:	11/16/05 01:32
Lab Samp ID:	K025-03	Dilution Factor:	.94
Lab File ID:	SK14062A	Matrix :	WATER
Ext Btch ID:	CPK012W	% Moisture :	NA
Calib. Ref.:	SK14054A	Instrument ID :	GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)|ND	.19	.094|.094
PCB-1221	(ND)|ND	.19	.094|.094
PCB-1232	(ND)|ND	.19	.094|.094
PCB-1242	(ND)|ND	.19	.094|.094
PCB-1248	(ND)|ND	.19	.094|.094
PCB-1254	(ND)|ND	.19	.094|.094
PCB-1260	(ND)|ND	.19	.094|.094

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(80)|85	45-165
DECACHLOROBIPHENYL	(107)|94	63-165

RL: Reporting Limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )
* Out side of QC Limit

MH01006

SW3520C/8082
PCBs

Client	: MARRS SERVICES, INC.	Date Collected:	11/02/05
Project	: SEAL BEACH IR SITE 5&7	Date Received:	11/02/05
Batch No.	: 05J204	Date Extracted:	11/07/05 15:00
Sample ID:	SW-DUPLICATE	Date Analyzed:	11/16/05 01:55
Lab Samp ID:	K025-04	Dilution Factor:	1
Lab File ID:	SK14063A	Matrix :	WATER
Ext Btch ID:	CPK012W	% Moisture :	NA
Calib. Ref.:	SK14054A	Instrument ID :	GCT008

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND)|ND	.2	.1|.1
PCB-1221	(ND)|ND	.2	.1|.1
PCB-1232	(ND)|ND	.2	.1|.1
PCB-1242	(ND)|ND	.2	.1|.1
PCB-1248	(ND)|ND	.2	.1|.1
PCB-1254	(ND)|ND	.2	.1|.1
PCB-1260	(ND)|ND	.2	.1|.1

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(75)|67	45-165
DECACHLOROBIPHENYL	(105)|92	63-165

RL: Reporting Limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ( )
* Out side of QC Limit

MM01006

5146

METHOD 7196A
HEXAVALENT CHROMIUM

Client : MARRS SERVICES, INC.
Project : SEAL BEACH IR SITE 5&7
Batch No. : 05K012

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	CRK002WB	ND	1	NA	.01	.005	11/01/0519:22	NA	CRK002W-09	CRK002W-07	CRK002W	NA	NA
LCS1W	CRK002WL	.203	1	NA	.01	.005	11/01/0519:23	NA	CRK002W-10	CRK002W-07	CRK002W	NA	NA
LCD1W	CRK002WC	.201	1	NA	.01	.005	11/01/0519:24	NA	CRK002W-11	CRK002W-07	CRK002W	NA	NA
MW-05-05	K012-01	ND	1	NA	.01	.005	11/01/0519:25	NA	CRK002W-12	CRK002W-07	CRK002W	11/01/05	11/01/05
MW-05-04	K012-02	ND	1	NA	.01	.005	11/01/0519:26	NA	CRK002W-13	CRK002W-07	CRK002W	11/01/05	11/01/05
MBLK2W	CRK004WB	ND	1	NA	.01	.005	11/02/0517:22	NA	CRK004W-09	CRK004W-07	CRK004W	NA	NA
LCS2W	CRK004WL	.201	1	NA	.01	.005	11/02/0517:23	NA	CRK004W-10	CRK004W-07	CRK004W	NA	NA
MW-05-02	K024-01	ND	1	NA	.01	.005	11/02/0517:24	NA	CRK004W-11	CRK004W-07	CRK004W	11/02/05	11/02/05
MW-05-02DUP	K024-01D	ND	1	NA	.01	.005	11/02/0517:25	NA	CRK004W-12	CRK004W-07	CRK004W	11/02/05	11/02/05
MW-05-02MS	K024-01M	.189	1	NA	.01	.005	11/02/0517:26	NA	CRK004W-13	CRK004W-07	CRK004W	11/02/05	11/02/05
MW-05-01	K024-02	ND	1	NA	.01	.005	11/02/0517:27	NA	CRK004W-14	CRK004W-07	CRK004W	11/02/05	11/02/05
MW-05-03	K024-03	ND	1	NA	.01	.005	11/02/0517:28	NA	CRK004W-15	CRK004W-07	CRK004W	11/02/05	11/02/05
MW-05-DUPLICATE	K024-04	ND	1	NA	.01	.005	11/02/0517:29	NA	CRK004W-16	CRK004W-07	CRK004W	11/02/05	11/02/05

8102

Lmw11-05

METHOD 350.2
AMMONIA (NH3-N)

Client : MARRS SERVICES, INC.
Project : SEAL BEACH IR SITE 5&7
Batch No. : 05K012

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	NHK006WB	ND	1	NA	.1	.03	11/16/0515:11	11/16/0510:00	NHK006W-12	NHK006W-10	NHK006W	NA	11/16/05
LCS1W	NHK006WL	1.00	1	NA	.1	.03	11/16/0515:12	11/16/0510:00	NHK006W-13	NHK006W-10	NHK006W	NA	11/16/05
LCD1W	NHK006WC	.989	1	NA	.1	.03	11/16/0515:13	11/16/0510:00	NHK006W-14	NHK006W-10	NHK006W	NA	11/16/05
MW-05-05	K012-01	.217	1	NA	.1	.03	11/16/0515:14	11/16/0510:00	NHK006W-15	NHK006W-10	NHK006W	11/01/05	11/01/05
MW-05-04	K012-02	.391	1	NA	.1	.03	11/16/0515:15	11/16/0510:00	NHK006W-16	NHK006W-10	NHK006W	11/01/05	11/01/05
MW-05-02	K024-01R	2.61	4	NA	.4	.12	11/16/0515:17	11/16/0510:00	NHK006W-18	NHK006W-10	NHK006W	11/02/05	11/02/05
MW-05-02DUP	K024-01D	2.74	4	NA	.4	.12	11/16/0515:18	11/16/0510:00	NHK006W-19	NHK006W-10	NHK006W	11/02/05	11/02/05
MW-05-02MS	K024-01M	7.17	4	NA	.4	.12	11/16/0515:19	11/16/0510:00	NHK006W-20	NHK006W-10	NHK006W	11/02/05	11/02/05
MW-05-01	K024-02	ND	1	NA	.1	.03	11/16/0515:20	11/16/0510:00	NHK006W-21	NHK006W-10	NHK006W	11/02/05	11/02/05
MW-05-03	K024-03R	8.20	10	NA	1	.3	11/16/0515:24	11/16/0510:00	NHK006W-25	NHK006W-22	NHK006W	11/02/05	11/02/05
MW-05-DUPLICATE	K024-04	.152	1	NA	.1	.03	11/16/0515:25	11/16/0510:00	NHK006W-26	NHK006W-22	NHK006W	11/02/05	11/02/05

8094

KMo|1006

METHOD 300.0
CHLORIDE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH IR SITE 5&7
Batch No. : 05K012

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICK003WB	ND	1	NA	.2	.1	11/02/0510:15	NA	AK02-04	AK02-01	ICK003W	NA	NA
LCS1W	ICK003WL	4.68	1	NA	.2	.1	11/02/0510:35	NA	AK02-05	AK02-01	ICK003W	NA	NA
LCD1W	ICK003WC	4.7	1	NA	.2	.1	11/02/0510:55	NA	AK02-06	AK02-01	ICK003W	NA	NA
MW-05-05	K012-01	4020	1000	NA	200	100	11/02/0517:11	NA	AK02-24	AK02-13	ICK003W	11/01/05	11/01/05
MW-05-04	K012-02	8870	2000	NA	400	200	11/02/0518:11	NA	AK02-27	AK02-25	ICK003W	11/01/05	11/01/05
MBLK2W	ICK006WB	ND	1	NA	.2	.1	11/03/0521:36	NA	AK03-34	AK03-25	ICK006W	NA	NA
LCS2W	ICK006WL	4.77	1	NA	.2	.1	11/03/0521:56	NA	AK03-35	AK03-25	ICK006W	NA	NA
LCD2W	ICK006WC	4.7	1	NA	.2	.1	11/03/0522:16	NA	AK03-36	AK03-25	ICK006W	NA	NA
MW-05-02	K024-01	10100	2000	NA	400	200	11/04/0505:18	NA	AK03-57	AK03-49	ICK006W	11/02/05	11/02/05
MW-05-02DUP	K024-01D	10300	2000	NA	400	200	11/04/0505:38	NA	AK03-58	AK03-49	ICK006W	11/02/05	11/02/05
MW-05-02MS	K024-01M	20400	2000	NA	400	200	11/04/0505:58	NA	AK03-59	AK03-49	ICK006W	11/02/05	11/02/05
MW-05-01	K024-02	215	50	NA	10	5	11/04/0506:18	NA	AK03-60	AK03-49	ICK006W	11/02/05	11/02/05
MW-05-03	K024-03	22000	4000	NA	800	400	11/04/0507:18	NA	AK03-63	AK03-61	ICK006W	11/02/05	11/02/05
MW-05-DUPLICATE	K024-04	215	50	NA	10	5	11/04/0507:58	NA	AK03-65	AK03-61	ICK006W	11/02/05	11/02/05

8003

km01006

METHOD 300.0
NITRATE-N

Client : MARRS SERVICES, INC.
Project : SEAL BEACH IR SITE 5&7
Batch No. : 05K012

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICK002WB	ND	1	NA	.1	.05	11/02/0503:38	NA	AK01-39	AK01-37	ICK002W	NA	NA
LCS1W	ICK002WL	1.83	1	NA	.1	.05	11/02/0503:58	NA	AK01-40	AK01-37	ICK002W	NA	NA
LCD1W	ICK002WC	1.83	1	NA	.1	.05	11/02/0504:19	NA	AK01-41	AK01-37	ICK002W	NA	NA
MW-05-05	K012-01	.577	1	NA	.1	.05	11/02/0505:59	NA	AK01-46	AK01-37	ICK002W	11/01/05	11/01/05
MW-05-04	K012-02	.181	1	NA	.1	.05	11/02/0506:19	NA	AK01-47	AK01-37	ICK002W	11/01/05	11/01/05
MBLK2W	ICK003WB	ND	1	NA	.1	.05	11/02/0510:15	NA	AK02-04	AK02-01	ICK003W	NA	NA
LCS2W	ICK003WL	1.84	1	NA	.1	.05	11/02/0510:35	NA	AK02-05	AK02-01	ICK003W	NA	NA
LCD2W	ICK003WC	1.85	1	NA	.1	.05	11/02/0510:55	NA	AK02-06	AK02-01	ICK003W	NA	NA
MW-05-01	K024-02	4.41	2	NA	.2	.1	11/02/0519:59	NA	AK02-32	AK02-25	ICK003W	11/02/05	11/02/05
MW-05-03	K024-03	ND	2	NA	.2	.1	11/02/0520:19	NA	AK02-33	AK02-25	ICK003W	11/02/05	11/02/05
MW-05-DUPLICATE	K024-04	4.38	2	NA	.2	.1	11/02/0520:39	NA	AK02-34	AK02-25	ICK003W	11/02/05	11/02/05
MBLK3W	ICK004WB	ND	1	NA	.1	.05	11/02/0522:05	NA	AK02-38	AK02-36	ICK004W	NA	NA
LCS3W	ICK004WL	1.86	1	NA	.1	.05	11/02/0522:25	NA	AK02-39	AK02-36	ICK004W	NA	NA
LCD3W	ICK004WC	1.88	1	NA	.1	.05	11/02/0522:45	NA	AK02-40	AK02-36	ICK004W	NA	NA
MW-05-02	K024-01	ND	2	NA	.2	.1	11/02/0523:05	NA	AK02-41	AK02-36	ICK004W	11/02/05	11/02/05
MW-05-02DUP	K024-01D	ND	2	NA	.2	.1	11/02/0523:25	NA	AK02-42	AK02-36	ICK004W	11/02/05	11/02/05
MW-05-02MS	K024-01M	4.09	2	NA	.2	.1	11/02/0523:45	NA	AK02-43	AK02-36	ICK004W	11/02/05	11/02/05

8004

Jmo 11006

METHOD 300.0
SULFATE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH IR SITE 5&7
Batch No. : 05K012

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICK003WB	ND	1	NA	.5	.25	11/02/0510:15	NA	AK02-04	AK02-01	ICK003W	NA	NA
LCS1W	ICK003WL	4.89	1	NA	.5	.25	11/02/0510:35	NA	AK02-05	AK02-01	ICK003W	NA	NA
LCD1W	ICK003WC	4.95	1	NA	.5	.25	11/02/0510:55	NA	AK02-06	AK02-01	ICK003W	NA	NA
MW-05-05	K012-01	461	100	NA	50	25	11/02/0516:30	NA	AK02-22	AK02-13	ICK003W	11/01/05	11/01/05
MW-05-04	K012-02	1060	100	NA	50	25	11/02/0516:51	NA	AK02-23	AK02-13	ICK003W	11/01/05	11/01/05
MBLK2W	ICK006WB	ND	1	NA	.5	.25	11/03/0521:36	NA	AK03-34	AK03-25	ICK006W	NA	NA
LCS2W	ICK006WL	4.82	1	NA	.5	.25	11/03/0521:56	NA	AK03-35	AK03-25	ICK006W	NA	NA
LCD2W	ICK006WC	4.86	1	NA	.5	.25	11/03/0522:16	NA	AK03-36	AK03-25	ICK006W	NA	NA
MW-05-02	K024-01	60.1	10	NA	5	2.5	11/04/0504:17	NA	AK03-54	AK03-49	ICK006W	11/02/05	11/02/05
MW-05-02DUP	K024-01D	59.8	10	NA	5	2.5	11/04/0504:37	NA	AK03-55	AK03-49	ICK006W	11/02/05	11/02/05
MW-05-02MS	K024-01M	114	10	NA	5	2.5	11/04/0504:57	NA	AK03-56	AK03-49	ICK006W	11/02/05	11/02/05
MW-05-01	K024-02	130	50	NA	25	12.5	11/04/0506:18	NA	AK03-60	AK03-49	ICK006W	11/02/05	11/02/05
MW-05-03	K024-03	1750	200	NA	100	50	11/04/0507:38	NA	AK03-64	AK03-61	ICK006W	11/02/05	11/02/05
MW-05-DUPLICATE	K024-04	132	50	NA	25	12.5	11/04/0507:58	NA	AK03-65	AK03-61	ICK006W	11/02/05	11/02/05

8005

MW-1006

METHOD 7196A
HEXAVALENT CHROMIUM

Client : MARRS SERVICES, INC.
Project : SEAL BEACH IR SITE 5&7
Batch No. : 05J204

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	CRK001WB	ND	1	NA	.01	.005	11/01/0508:12	NA	CRK001W-09	CRK001W-07	CRK001W	NA	NA
LCS1W	CRK001WL	.202	1	NA	.01	.005	11/01/0508:13	NA	CRK001W-10	CRK001W-07	CRK001W	NA	NA
W-41	J204-01	ND	1	NA	.01	.005	11/01/0508:14	NA	CRK001W-11	CRK001W-07	CRK001W	10/31/05	10/31/05
MW-04-03	J204-02	ND	1	NA	.01	.005	11/01/0508:15	NA	CRK001W-12	CRK001W-07	CRK001W	10/31/05	10/31/05
W-42	J204-03	ND	1	NA	.01	.005	11/01/0508:16	NA	CRK001W-13	CRK001W-07	CRK001W	10/31/05	10/31/05
MW-07-DUPLICATE	J204-04	ND	1	NA	.01	.005	11/01/0508:17	NA	CRK001W-14	CRK001W-07	CRK001W	10/31/05	10/31/05
MW-04-02	J204-05	ND	1	NA	.01	.005	11/01/0508:18	NA	CRK001W-15	CRK001W-07	CRK001W	10/31/05	10/31/05
07M01	J204-06	ND	1	NA	.01	.005	11/01/0508:19	NA	CRK001W-16	CRK001W-07	CRK001W	10/31/05	10/31/05
07M01DUP	J204-06D	ND	1	NA	.01	.005	11/01/0508:20	NA	CRK001W-17	CRK001W-07	CRK001W	10/31/05	10/31/05
07M01MS	J204-06M	.10	1	NA	.01	.005	11/01/0508:21	NA	CRK001W-18	CRK001W-07	CRK001W	10/31/05	10/31/05
MBLK2W	CRK002WB	ND	1	NA	.01	.005	11/01/0519:22	NA	CRK002W-09	CRK002W-07	CRK002W	NA	NA
LCS2W	CRK002WL	.203	1	NA	.01	.005	11/01/0519:23	NA	CRK002W-10	CRK002W-07	CRK002W	NA	NA
LCD2W	CRK002WC	.201	1	NA	.01	.005	11/01/0519:24	NA	CRK002W-11	CRK002W-07	CRK002W	NA	NA
W-45	K013-01	ND	1	NA	.01	.005	11/01/0519:27	NA	CRK002W-14	CRK002W-07	CRK002W	11/01/05	11/01/05
MW-04-04	K013-02	ND	1	NA	.01	.005	11/01/0519:28	NA	CRK002W-15	CRK002W-07	CRK002W	11/01/05	11/01/05
W-43	K013-03	ND	1	NA	.01	.005	11/01/0519:29	NA	CRK002W-16	CRK002W-07	CRK002W	11/01/05	11/01/05
W-43DUP	K013-03D	ND	1	NA	.01	.005	11/01/0519:30	NA	CRK002W-17	CRK002W-07	CRK002W	11/01/05	11/01/05
W-43MS	K013-03M	.195	1	NA	.01	.005	11/01/0519:31	NA	CRK002W-18	CRK002W-07	CRK002W	11/01/05	11/01/05

80 12

MW 11/06

METHOD 335.2
TOTAL CYANIDE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH IR SITE 5&7
Batch No. : 05J204

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	CNK003WB	ND	1	NA	.01	.005	11/08/0514:49	11/08/0509:30	CNK003W-12	CNK003W-08	CNK003W	NA	11/08/05
LCS1W	CNK003WL	.099	1	NA	.01	.005	11/08/0514:50	11/08/0509:30	CNK003W-13	CNK003W-08	CNK003W	NA	11/08/05
LCD1W	CNK003WC	.100	1	NA	.01	.005	11/08/0514:51	11/08/0509:30	CNK003W-14	CNK003W-08	CNK003W	NA	11/08/05
W-41	J204-01	ND	1	NA	.01	.005	11/08/0514:54	11/08/0509:30	CNK003W-17	CNK003W-08	CNK003W	10/31/05	10/31/05
MW-04-03	J204-02	ND	1	NA	.01	.005	11/08/0514:55	11/08/0509:30	CNK003W-18	CNK003W-08	CNK003W	10/31/05	10/31/05
W-42	J204-03	ND	1	NA	.01	.005	11/08/0514:56	11/08/0509:30	CNK003W-19	CNK003W-08	CNK003W	10/31/05	10/31/05
MW-07-DUPLICATE	J204-04	ND	1	NA	.01	.005	11/08/0514:59	11/08/0509:30	CNK003W-22	CNK003W-20	CNK003W	10/31/05	10/31/05
MW-04-02	J204-05	ND	1	NA	.01	.005	11/08/0515:00	11/08/0509:30	CNK003W-23	CNK003W-20	CNK003W	10/31/05	10/31/05
07M01	J204-06	.123	1	NA	.01	.005	11/08/0515:01	11/08/0509:30	CNK003W-24	CNK003W-20	CNK003W	10/31/05	10/31/05
MBLK2W	CNK005WB	ND	1	NA	.01	.005	11/14/0508:19	11/12/0509:30	CNK005W-12	CNK005W-08	CNK005W	NA	11/12/05
LCS2W	CNK005WL	.099	1	NA	.01	.005	11/14/0508:20	11/12/0509:30	CNK005W-13	CNK005W-08	CNK005W	NA	11/12/05
LCD2W	CNK005WC	.098	1	NA	.01	.005	11/14/0508:21	11/12/0509:30	CNK005W-14	CNK005W-08	CNK005W	NA	11/12/05
W-45	K013-01	ND	1	NA	.01	.005	11/14/0508:22	11/12/0509:30	CNK005W-15	CNK005W-08	CNK005W	11/01/05	11/01/05
MW-04-04	K013-02	ND	1	NA	.01	.005	11/14/0508:23	11/12/0509:30	CNK005W-16	CNK005W-08	CNK005W	11/01/05	11/01/05
W-43	K013-03	ND	1	NA	.01	.005	11/14/0508:24	11/12/0509:30	CNK005W-17	CNK005W-08	CNK005W	11/01/05	11/01/05

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APPENDIX D
VALIDATION REPORT

NWS Seal Beach, IR Site 5 & 7
Data Validation Reports
LDC# 14459

Volatiles

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 5 & 7

Collection Date: November 1 through November 2, 2005

LDC Report Date: January 3, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 05K012

Sample Identification

MW-05-05
MW-05-04
MW-05-02**
MW-05-01
MW-05-01DL
MW-05-03
MW-05-DUPLICATE
MW-05-DUPLICATEDL
TRIP BLANK
MW-05-02MS
MW-05-02MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination (r^2) were greater than or equal to 0.990.

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
11/14/05	Acetone	0.049 (≥0.05)	MW-05-DUPLICATEDL MBLK3W	J (all detects) UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
11/11/05	Dichlorodifluoromethane	31.6	MW-05-05	J (all detects)	A
	Isopropylbenzene	37.9	MW-05-04	UJ (all non-detects)	
	Bromoform	49.3	MW-05-01DL		
	1,1,2,2-Tetrachloroethane	33.2	MW-05-03		
	1,2,3-Trichloropropane	43.9	MBLK2W		
	Bromobenzene	42.6			
	2-Chlorotoluene	26.6			
	1,2-Dibromo-3-chloropropane	25.7			
	1,2,4-Trichlorobenzene	29.3			
	1,2,3-Trichlorobenzene	30.8			

All of the continuing calibration RRF values were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
11/15/05	Acetone	0.044 (≥0.05)	MW-05-DUPLICATEDL	J (all detects)	A
			MBLK3W	UJ (all non-detects)	
	2-Butanone	0.046 (≥0.05)		J (all detects)	
				UJ (all non-detects)	

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
MW-05-01 MW-05-DUPLICATE	Methyl-tert-butyl ether	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

Samples MW-05-01 and MW-05-DUPLICATE and samples MW-05-01DL and MW-05-DUPLICATEDL were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-05-01	MW-05-DUPLICATE	
Chloromethane	0.66	0.5U	200
Methyl-tert-butyl ether	200	190	5

Compound	Concentration (ug/L)		RPD
	MW-05-01DL	MW-05-DUPLICATEDL	
Methyl-tert-butyl ether	250	260	4

XVII. Field Blanks

Sample "TRIP BLANK" was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
TRIP BLANK	Methylene chloride	0.53

NWS Seal Beach, IR Site 5 & 7
Volatiles - Data Qualification Summary - SDG 05K012

SDG	Sample	Compound	Flag	A or P	Reason
05K012	MW-05-DUPLICATEDL	Acetone	J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
05K012	MW-05-05 MW-05-04 MW-05-01DL MW-05-03	Dichlorodifluoromethane Isopropylbenzene Bromoform 1,1,2,2-Tetrachloroethane 1,2,3-Trichloropropane Bromobenzene 2-Chlorotoluene 1,2-Dibromo-3-chloropropane 1,2,4-Trichlorobenzene 1,2,3-Trichlorobenzene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
05K012	MW-05-DUPLICATEDL	Acetone 2-Butanone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)
05K012	MW-05-01 MW-05-DUPLICATE	Methyl-tert-butyl ether	J (all detects)	A	Compound quantitation and CRQLs

NWS Seal Beach, IR Site 5 & 7
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05K012

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 5 & 7

Collection Date: October 31 through November 1, 2005

LDC Report Date: January 3, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 05J204

Sample Identification

W-41**
MW-04-03
W-42
MW-07-DUPLICATE
MW-04-02
07M01
TRIP BLANK
W-45
MW-04-04
W-43
TRIP BLANK 11-01-05

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination (r^2) were greater than or equal to 0.990.

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
11/14/05	Acetone	0.031 (≥0.05)	TRIP BLANK 11-01-05 MBLK4W	J (all detects) UJ (all non-detects)	A
	2-Butanone	0.047 (≥0.05)		J (all detects) UJ (all non-detects)	

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
11/8/05	Dichlorodifluoromethane Methylene chloride 2,2-Dichloropropane Bromochloromethane Dibromomethane Bromoform	28.7 33.5 39.4 30.9 34.8 45.0	W-41** MW-04-03 W-42 MW-07-DUPLICATE MW-04-02 07M01 TRIP BLANK W-45 MBLK1W	J (all detects) UJ (all non-detects)	A
11/9/05	Dichlorodifluoromethane Bromomethane Methylene chloride Bromochloromethane Dibromomethane Bromoform	27.8 27.5 28.4 26.6 28.3 42.3	W-43 MBLK2W	J (all detects) UJ (all non-detects)	A
11/11/05	Methylene chloride Bromochloromethane Dibromomethane Bromoform	29.8 29.7 37.6 46.3	MW-04-04 MBLK3W	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
11/15/05	Acetone	0.034 (≥0.05)	TRIP BLANK 11-01-05 MBLK4W	J (all detects) UJ (all non-detects)	A

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MBLK4W	11/15/05	Methylene chloride	0.58 ug/L	TRIP BLANK 11-01-05

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
TRIP BLANK 11-01-05	Methylene chloride	0.86 ug/L	1U ug/L

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 05J204	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None	P

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

Samples MW-04-03 and MW-07-DUPLICATE were identified as field duplicates. No volatiles were detected in any of the samples.

XVII. Field Blanks

Samples "TRIP BLANK" and TRIP BLANK 11-01-05 were identified as trip blanks. No volatile contaminants were found in these blanks with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
TRIP BLANK 11-01-05	Methylene chloride	0.86

NWS Seal Beach, IR Site 5 & 7
Volatiles - Data Qualification Summary - SDG 05J204

SDG	Sample	Compound	Flag	A or P	Reason
05J204	TRIP BLANK 11-01-05	Acetone 2-Butanone	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
05J204	W-41** MW-04-03 W-42 MW-07-DUPLICATE MW-04-02 07M01 TRIP BLANK W-45	Dichlorodifluoromethane Methylene chloride 2,2-Dichloropropane Bromochloromethane Dibromomethane Bromoform	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
05J204	W-43	Dichlorodifluoromethane Bromomethane Methylene chloride Bromochloromethane Dibromomethane Bromoform	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
05J204	MW-04-04	Methylene chloride Bromochloromethane Dibromomethane Bromoform	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
05J204	TRIP BLANK 11-01-05	Acetone	J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)
05J204	W-41** MW-04-03 W-42 MW-07-DUPLICATE MW-04-02 07M01 TRIP BLANK W-45 MW-04-04 W-43 TRIP BLANK 11-01-05	All TCL compounds	None	P	Matrix spike/Matrix spike duplicates

NWS Seal Beach, IR Site 5 & 7
Volatiles - Laboratory Blank Data Qualification Summary - SDG 05J204

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
05J204	TRIP BLANK 11-01-05	Methylene chloride	1U ug/L	A

NWS Seal Beach, IR Site 5 & 7
Data Validation Reports
LDC# 14459

Semivolatiles

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 5 & 7

Collection Date: November 1 through November 2, 2005

LDC Report Date: January 3, 2006

Matrix: Water

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 05K012

Sample Identification

MW-05-05
MW-05-04
MW-05-02**
MW-05-01
MW-05-03
MW-05-DUPLICATE
MW-05-02MS
MW-05-02MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Polynuclear Aromatic Hydrocarbons.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

Average relative response factors (RRF) for all target compounds and system monitoring compounds were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

The percent difference (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds.

All of the continuing calibration RRF values were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polynuclear aromatic hydrocarbon contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

All tentatively identified compounds were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIV. System Performance

The system performance was acceptable for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

Samples MW-05-01 and MW-05-DUPLICATE were identified as field duplicates. No polynuclear aromatic hydrocarbons were detected in any of the samples.

XVII. Field Blanks

No field blanks were identified in this SDG.

NWS Seal Beach, IR Site 5 & 7
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 05K012

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 5 & 7
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 05K012

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 5 & 7

Collection Date: October 31 through November 1, 2005

LDC Report Date: January 3, 2006

Matrix: Water

Parameters: Semivolatiles

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 05J204

Sample Identification

W-41**
MW-04-03
W-42
MW-07-DUPLICATE
MW-04-02
07M01
W-45
MW-04-04
W-43

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination (r^2) were greater than or equal to 0.990.

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all semivolatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
11/9/05	2,4-Dinitrophenol 4-Nitrophenol	33.4 33.5	MBLK1W	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
11/11/05	Bis(2-chloroisopropyl)ether Bis(2-ethylhexyl)phthalate Benzo(k)fluoranthene	28.4 25.4 38.3	W-41** MW-04-03 MW-07-DUPLICATE MW-04-02 07M01 W-45 MW-04-04 W-43	J (all detects) UJ (all non-detects)	A
11/14/05	Benzo(k)fluoranthene	27.2	W-42	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 05J204	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None	P

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

Samples MW-04-03 and MW-07-DUPLICATE were identified as field duplicates. No semivolatiles were detected in any of the samples.

XVII. Field Blanks

No field blanks were identified in this SDG.

NWS Seal Beach, IR Site 5 & 7
Semivolatiles - Data Qualification Summary - SDG 05J204

SDG	Sample	Compound	Flag	A or P	Reason
05J204	W-41** MW-04-03 MW-07-DUPLICATE MW-04-02 07M01 W-45 MW-04-04 W-43	Bis(2-chloroisopropyl)ether Bis(2-ethylhexyl)phthalate Benzo(k)fluoranthene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
05J204	W-42	Benzo(k)fluoranthene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
05J204	W-41** MW-04-03 W-42 MW-07-DUPLICATE MW-04-02 07M01 W-45 MW-04-04 W-43	All TCL compounds	None	P	Matrix spike/Matrix spike duplicates

NWS Seal Beach, IR Site 5 & 7
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 05J204

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 5 & 7
Data Validation Reports
LDC# 14459

Metals

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 5 & 7

Collection Date: November 1 through November 2, 2005

LDC Report Date: January 4, 2006

Matrix: Water

Parameters: Metals

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 05K012

Sample Identification

MW-05-05
MW-05-04
MW-05-02**
MW-05-01
MW-05-03
MW-05-DUPLICATE
MW-05-02MS
MW-05-02MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6020A and 7470 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Nickel Potassium Sodium	0.147 ug/L 103 ug/L 108 ug/L	All samples in SDG 05K012
ICB/CCB	Cadmium Nickel Potassium Thallium	0.131 ug/L 0.085 ug/L 27.3 ug/L 0.133 ug/L	All samples in SDG 05K012
ICB/CCB	Magnesium	4.22 ug/L	MW-05-05 MW-05-04 MW-05-02** MW-05-01 MW-05-DUPLICATE
ICB/CCB	Sodium	218 ug/L	MW-05-01 MW-05-DUPLICATE
ICB/CCB	Sodium	68.5 ug/L	MW-05-05 MW-05-04 MW-05-02** MW-05-03

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-05-05	Nickel	1.65 ug/L	1.65U ug/L
MW-05-02**	Cadmium Thallium	0.686 ug/L 0.697 ug/L	0.686U ug/L 0.697U ug/L
MW-05-01	Nickel	0.864 ug/L	0.864U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-05-02MS/MSD (All samples in SDG 05K012)	Mercury	34 (75-125)	39 (75-125)	-	J (all detects) UJ (all non-detects)	A

VI. Duplicate Sample Analysis

Duplicate sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications met validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

Samples MW-05-01 and MW-05-DUPLICATE were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-05-01	MW-05-DUPLICATE	
Aluminum	79.1	57.1	32
Arsenic	1.21	1.39	14
Barium	181	185	2
Calcium	129000	130000	1
Chromium	1.03	1.15	11
Copper	4.11	3.87	6

Compound	Concentration (ug/L)		RPD
	MW-05-01	MW-05-DUPLICATE	
Iron	100U	48.3	200
Magnesium	23200	24400	5
Manganese	21.6	21.3	1
Nickel	0.864	16.6	180
Potassium	4260	4660	9
Selenium	0.519	1U	200
Sodium	226000	237000	5
Vanadium	1.65	3.65	75
Zinc	10U	8.74	200

XIV. Field Blanks

No field blanks were identified in this SDG.

NWS Seal Beach, IR Site 5 & 7
Metals - Data Qualification Summary - SDG 05K012

SDG	Sample	Analyte	Flag	A or P	Reason
05K012	MW-05-05 MW-05-04 MW-05-02** MW-05-01 MW-05-03 MW-05-DUPLICATE	Mercury	J (all detects) UJ (all non-detects)	A	Matrix spike analysis (%R)

NWS Seal Beach, IR Site 5 & 7
Metals - Laboratory Blank Data Qualification Summary - SDG 05K012

SDG	Sample	Analyte	Modified Final Concentration	A or P
05K012	MW-05-05	Nickel	1.65U ug/L	A
05K012	MW-05-02**	Cadmium Thallium	0.686U ug/L 0.697U ug/L	A
05K012	MW-05-01	Nickel	0.864U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 5 & 7

Collection Date: October 31 through November 1, 2005

LDC Report Date: January 4, 2006

Matrix: Water

Parameters: Metals

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 05J204

Sample Identification

W-41**
MW-04-03
W-42
MW-07-DUPLICATE
MW-04-02
07M01
W-45
MW-04-04
W-43

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6020A and 7470 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Nickel Potassium Sodium	0.443 ug/L 55.7 ug/L 176 ug/L	All samples in SDG 05J204
ICB/CCB	Copper Potassium Sodium Vanadium	0.400 ug/L 42.5 ug/L 68.5 ug/L 0.126 ug/L	All samples in SDG 05J204

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
W-41**	Copper Vanadium	3.03 ug/L 1.94 ug/L	3.03U ug/L 1.94U ug/L
MW-04-03	Copper	4.72 ug/L	4.72U ug/L
W-42	Copper	7.68 ug/L	7.68U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-07-DUPLICATE	Copper	3.92 ug/L	3.92U ug/L
MW-04-02	Copper	6.03 ug/L	6.03U ug/L
07M01	Copper Nickel	1.07 ug/L 1.44 ug/L	1.07U ug/L 1.44U ug/L
W-45	Copper Vanadium	2.2 ug/L 2.58 ug/L	2.2U ug/L 2.58U ug/L
MW-04-04	Copper	4.03 ug/L	4.03U ug/L
W-43	Copper	6.36 ug/L	6.36U ug/L

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 05J204	All TAL metals	No MS associated with these samples.	MS required.	None	P

VI. Duplicate Sample Analysis

Duplicate sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 05J204	All TAL metals	No DUP analysis associated with these samples.	DUP analysis required.	None	P

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Analyte	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
LCS/LCSD (All samples in SDG 05J204)	Zinc	176 (80-120)	-	47 (≤20)	J (all detects) UJ (all non-detects)	P

VIII. Internal Standards

All internal standard percent recoveries (%R) were within QC limits for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

XI. Sample Result Verification

All sample result verifications met validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

Samples MW-04-03 and MW-07-DUPLICATE were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-04-03	MW-07-DUPLICATE	
Aluminum	78.4	100U	200

Compound	Concentration (ug/L)		RPD
	MW-04-03	MW-07-DUPLICATE	
Antimony	1U	0.694	200
Arsenic	8.41	8.6	2
Barium	111	104	7
Cadmium	0.839	0.583	36
Calcium	623000	587000	6
Chromium	0.694	0.63	10
Cobalt	7.11	6.93	3
Copper	4.72	3.92	19
Iron	3840	3590	7
Magnesium	1730000	1610000	7
Manganese	3850	3630	6
Nickel	6.23	5.45	13
Potassium	415000	390000	6
Selenium	0.615	0.589	4
Sodium	13700000	12800000	7
Vanadium	4.92	5.85	17
Zinc	26.1	31.3	18

XIV. Field Blanks

No field blanks were identified in this SDG.

NWS Seal Beach, IR Site 5 & 7
Metals - Data Qualification Summary - SDG 05J204

SDG	Sample	Analyte	Flag	A or P	Reason
05J204	W-41** MW-04-03 W-42 MW-07-DUPLICATE MW-04-02 07M01 W-45 MW-04-04 W-43	All TAL metals	None	P	Matrix spike analysis
05J204	W-41** MW-04-03 W-42 MW-07-DUPLICATE MW-04-02 07M01 W-45 MW-04-04 W-43	All TAL metals	None	P	Duplicate analysis
05J204	W-41** MW-04-03 W-42 MW-07-DUPLICATE MW-04-02 07M01 W-45 MW-04-04 W-43	Zinc	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)(RPD)

NWS Seal Beach, IR Site 5 & 7
Metals - Laboratory Blank Data Qualification Summary - SDG 05J204

SDG	Sample	Analyte	Modified Final Concentration	A or P
05J204	W-41**	Copper Vanadium	3.03U ug/L 1.94U ug/L	A
05J204	MW-04-03	Copper	4.72U ug/L	A
05J204	W-42	Copper	7.68U ug/L	A
05J204	MW-07-DUPLICATE	Copper	3.92U ug/L	A
05J204	MW-04-02	Copper	6.03U ug/L	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
05J204	07M01	Copper Nickel	1.07U ug/L 1.44U ug/L	A
05J204	W-45	Copper Vanadium	2.2U ug/L 2.58U ug/L	A
05J204	MW-04-04	Copper	4.03U ug/L	A
05J204	W-43	Copper	6.36U ug/L	A

NWS Seal Beach, IR Site 5 & 7
Data Validation Reports
LDC# 14459

Polychlorinated Biphenyls

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 5 & 7

Collection Date: October 31 through November 2, 2005

LDC Report Date: January 3, 2006

Matrix: Water

Parameters: Polychlorinated Biphenyls

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 04J204

Sample Identification

W-41**
MW-04-03
W-42
MW-07-DUPLICATE
MW-04-02
07M01
W-45
MW-04-04
W-43
SW-1
SW-2
SW-3
SW-DUPLICATE

**Indicates sample underwent NFESC Level IV review.

Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

III. Initial Calibration

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Retention times (RT) of all compounds in the calibration standards were within QC limits for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 05J204	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None	P

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Pesticide Cleanup Checks

a. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

b. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

XI. Target Compound Identification

All target compound identifications were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Compound Quantitation and Reported CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which an NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIV. Field Duplicates

Samples MW-04-03 and MW-07-DUPLICATE and samples SW-3 and SW-DUPLICATE were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

XV. Field Blanks

No field blanks were identified in this SDG.

NWS Seal Beach, IR Site 5 & 7
Polychlorinated Biphenyls - Data Qualification Summary - SDG 04J204

SDG	Sample	Compound	Flag	A or P	Reason
05J204	W-41** MW-04-03 W-42 MW-07-DUPLICATE MW-04-02 07M01 W-45 MW-04-04 W-43 SW-1 SW-2 SW-3 SW-DUPLICATE	All TCL compounds	None	P	Matrix spike/Matrix spike duplicates

NWS Seal Beach, IR Site 5 & 7
Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 04J204

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 5 & 7
Data Validation Reports
LDC# 14459

Wet Chemistry

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 5 & 7

Collection Date: November 1 through November 2, 2005

LDC Report Date: January 4, 2006

Matrix: Water

Parameters: Wet Chemistry

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 05K012

Sample Identification

MW-05-05
MW-05-04
MW-05-02**
MW-05-01
MW-05-03
MW-05-DUPLICATE
MW-05-02MS
MW-05-02DUP

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, EPA Method 350.2 for Ammonia as Nitrogen, and EPA SW 846 Method 7196A for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-05-05 MW-05-04	Chloride Sulfate Hexavalent chromium	No MS associated with these samples.	MS required.	None None None	P
MW-05-05 MW-05-04 MW-05-01 MW-05-03 MW-05-DUPLICATE	Nitrate as N	No MS associated with these samples.	MS required.	None	P

Percent recoveries (%R) were within QC limits.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
MW-05-05 MW-05-04	Chloride Sulfate Hexavalent chromium	No DUP analysis associated with these samples.	DUP analysis required.	None None None	P
MW-05-05 MW-05-04 MW-05-01 MW-05-03 MW-05-DUPLICATE	Nitrate as N	No DUP analysis associated with these samples.	DUP analysis required.	None	P

Results were within QC limits.

VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VII. Sample Result Verification

All sample result verifications were acceptable for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

IX. Field Duplicates

Samples MW-05-01 and MW-05-DUPLICATE were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	MW-05-01	MW-05-DUPLICATE	
Chloride	215	215	0
Nitrate as N	4.41	4.38	1
Sulfate	130	132	2
Ammonia as N	0.1U	0.152	200

X. Field Blanks

No field blanks were identified in this SDG.

NWS Seal Beach, IR Site 5 & 7
Wet Chemistry - Data Qualification Summary - SDG 05K012

SDG	Sample	Analyte	Flag	A or P	Reason
05K012	MW-05-05 MW-05-04	Chloride Sulfate Hexavalent chromium	None None None	P	Matrix spike analysis
05K012	MW-05-05 MW-05-04 MW-05-01 MW-05-03 MW-05-DUPLICATE	Nitrate as N	None	P	Matrix spike analysis
05K012	MW-05-05 MW-05-04	Chloride Sulfate Hexavalent chromium	None None None	P	Duplicate analysis
05K012	MW-05-05 MW-05-04 MW-05-01 MW-05-03 MW-05-DUPLICATE	Nitrate as N	None	P	Duplicate analysis

NWS Seal Beach, IR Site 5 & 7
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 05K012

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 5 & 7

Collection Date: October 31 through November 1, 2005

LDC Report Date: January 4, 2006

Matrix: Water

Parameters: Wet Chemistry

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 05J204

Sample Identification

W-41**
MW-04-03
W-42
MW-07-DUPLICATE
MW-04-02
07M01
W-45
MW-04-04
W-43
07M01MS
07M01DUP
W-43MS
W-43DUP

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 335.2 for Cyanide and EPA SW 846 Method 7196A for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

The laboratory has indicated that there was insufficient sample volume for cyanide analysis of the matrix spike.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

The laboratory has indicated that there was insufficient sample volume for cyanide analysis of the duplicate.

VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VII. Sample Result Verification

All sample result verifications were acceptable for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

IX. Field Duplicates

Samples MW-04-03 and MW-07-DUPLICATE were identified as field duplicates. No contaminant concentrations were detected in any of the samples.

X. Field Blanks

No field blanks were identified in this SDG.

NWS Seal Beach, IR Site 5 & 7
Wet Chemistry - Data Qualification Summary - SDG 05J204

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 5 & 7
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 05J204

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 5 & 7
Data Validation Reports
LDC# 14459

Chlorinated Pesticides

LDC

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 5 & 7

Collection Date: October 31 through November 1, 2005

LDC Report Date: January 3, 2006

Matrix: Water

Parameters: Chlorinated Pesticides

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 05J204

Sample Identification

W-41**
MW-04-03
W-42
MW-07-DUPLICATE
MW-04-02
07M01
W-45
MW-04-04
W-43

**Indicates sample underwent NFESC Level IV review.

Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

III. Initial Calibration

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
11/15/05	SK14025A	RTX-CLP	beta-BHC Endosulfan sulfate	28 16	W-41** MW-04-03 W-42 MW-07-DUPLICATE MBLK1W	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
11/15/05	SK14025A	RTX-CLPII	beta-BHC	20	W-41** MW-04-03 W-42 MW-07-DUPLICATE MBLK1W	J (all detects) UJ (all non-detects)	A
11/15/05	SK14051A	RTX-CLP	beta-BHC Endosulfan sulfate	34 24	MW-04-02 07M01 W-45 MW-04-04 W-43	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
11/15/05	SK14051A	RTX-CLPII	beta-BHC Endosulfan sulfate	23 19	MW-04-02 07M01 W-45 MW-04-04 W-43	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

Retention times (RT) of all compounds in the calibration standards were within QC limits for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

The individual 4,4'-DDT and Endrin breakdowns (%BD) were less than or equal to 15.0%.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 05J204	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None	P

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Pesticide Cleanup Checks

a. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

b. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

XI. Target Compound Identification

All target compound identifications were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Compound Quantitation and Reported CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIV. Field Duplicates

Samples MW-04-03 and MW-07-DUPLICATE were identified as field duplicates. No chlorinated pesticides were detected in any of the samples.

XV. Field Blanks

No field blanks were identified in this SDG.

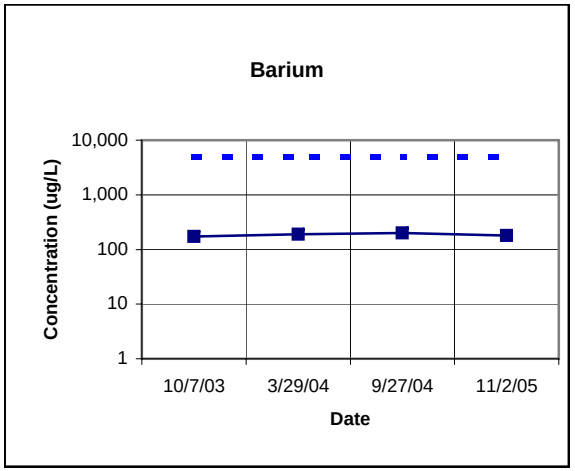
NWS Seal Beach, IR Site 5 & 7
Chlorinated Pesticides - Data Qualification Summary - SDG 05J204

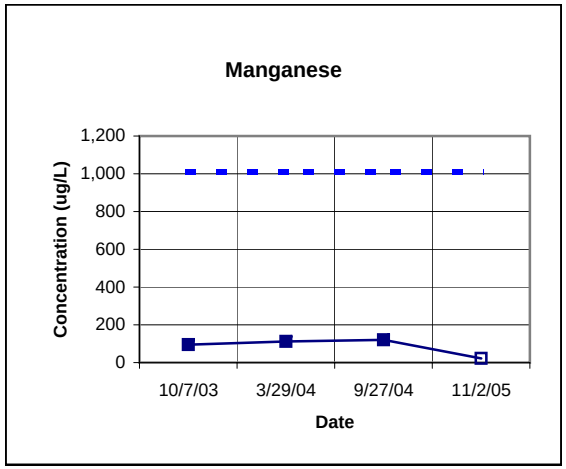
SDG	Sample	Compound	Flag	A or P	Reason
05J204	W-41** MW-04-03 W-42 MW-07-DUPLICATE MW-04-02 07M01 W-45 MW-04-04 W-43	beta-BHC Endosulfan sulfate	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
05J204	W-41** MW-04-03 W-42 MW-07-DUPLICATE MW-04-02 07M01 W-45 MW-04-04 W-43	All TCL compounds	None	P	Matrix spike/Matrix spike duplicates

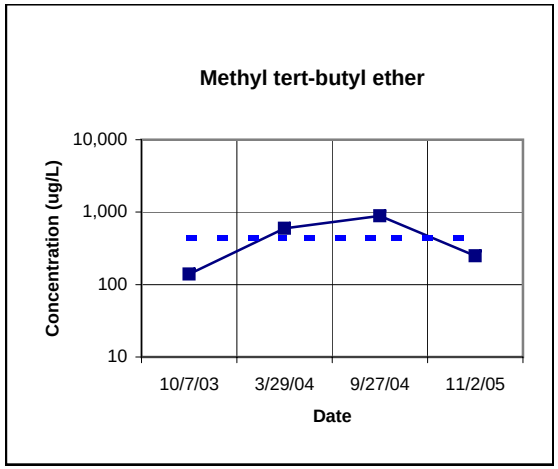
NWS Seal Beach, IR Site 5 & 7
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 05J204

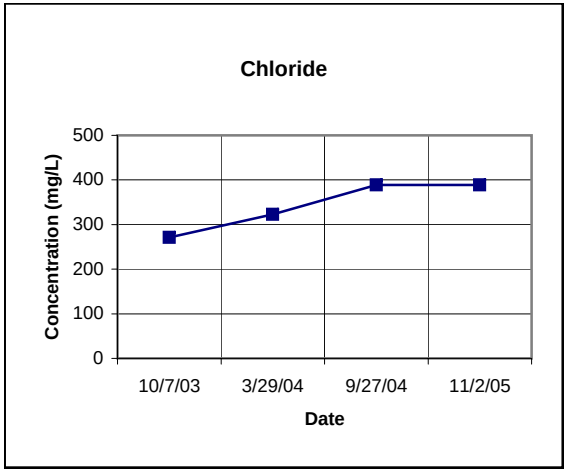
No Sample Data Qualified in this SDG

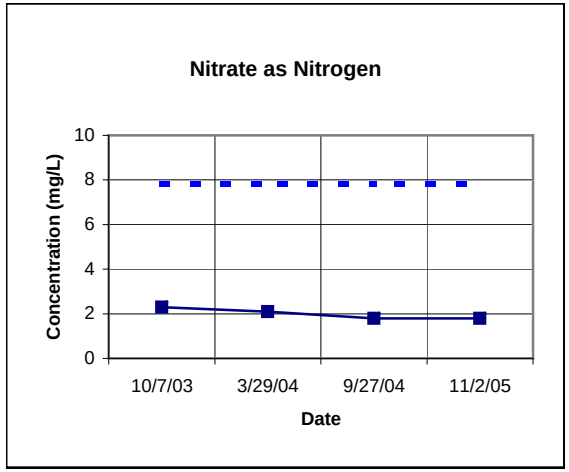
APPENDIX E
TIME SERIES CONCENTRATION PLOTS











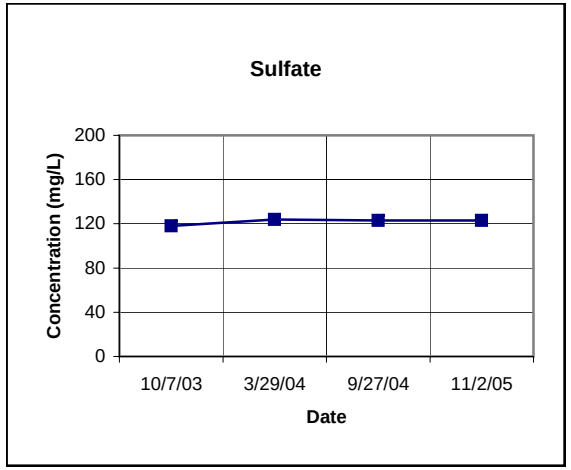


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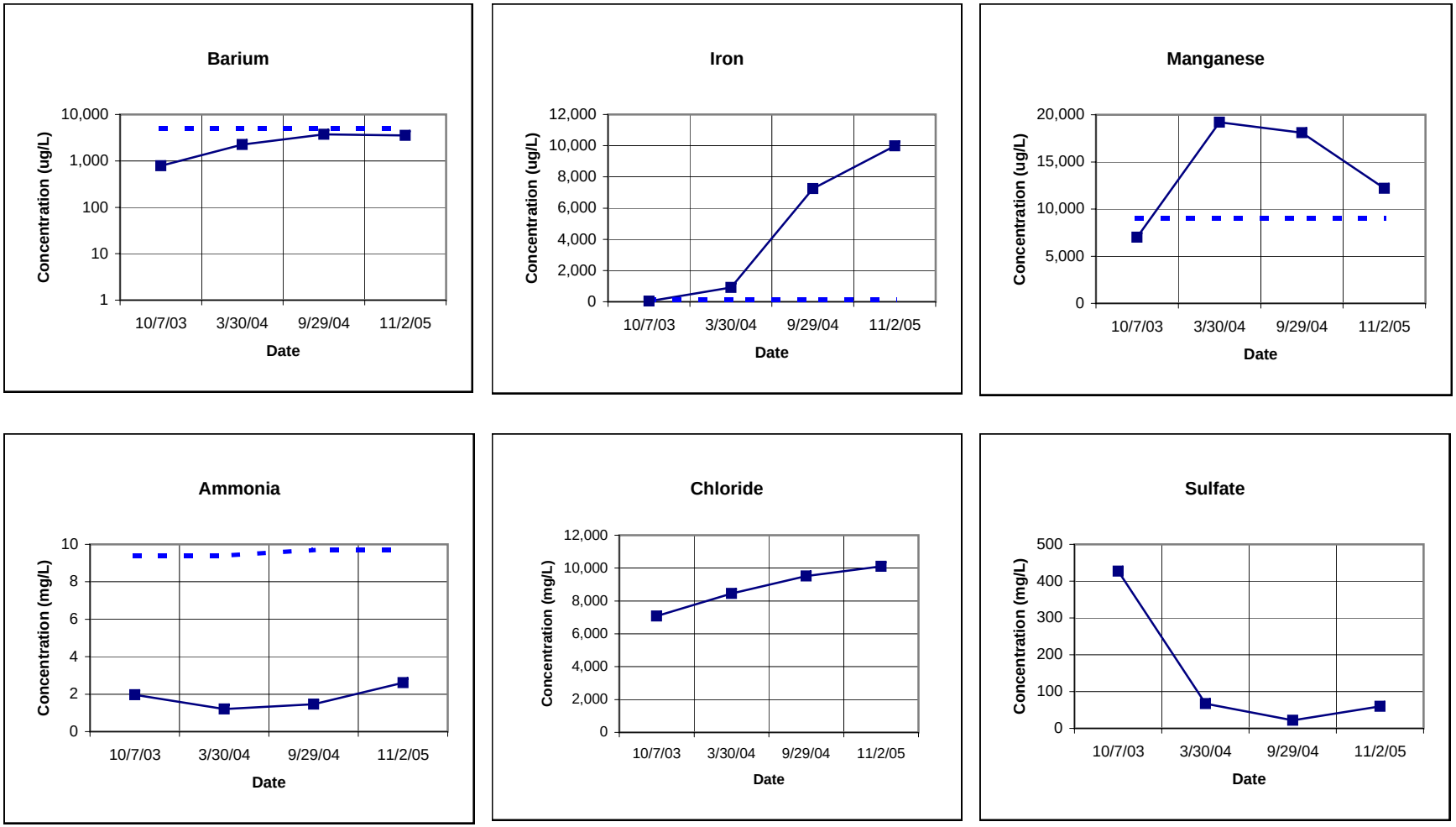
Figure E-1
Time Series Concentration Plots
IR Site 5, Well MW-05-01



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Detected Values

Screening Value

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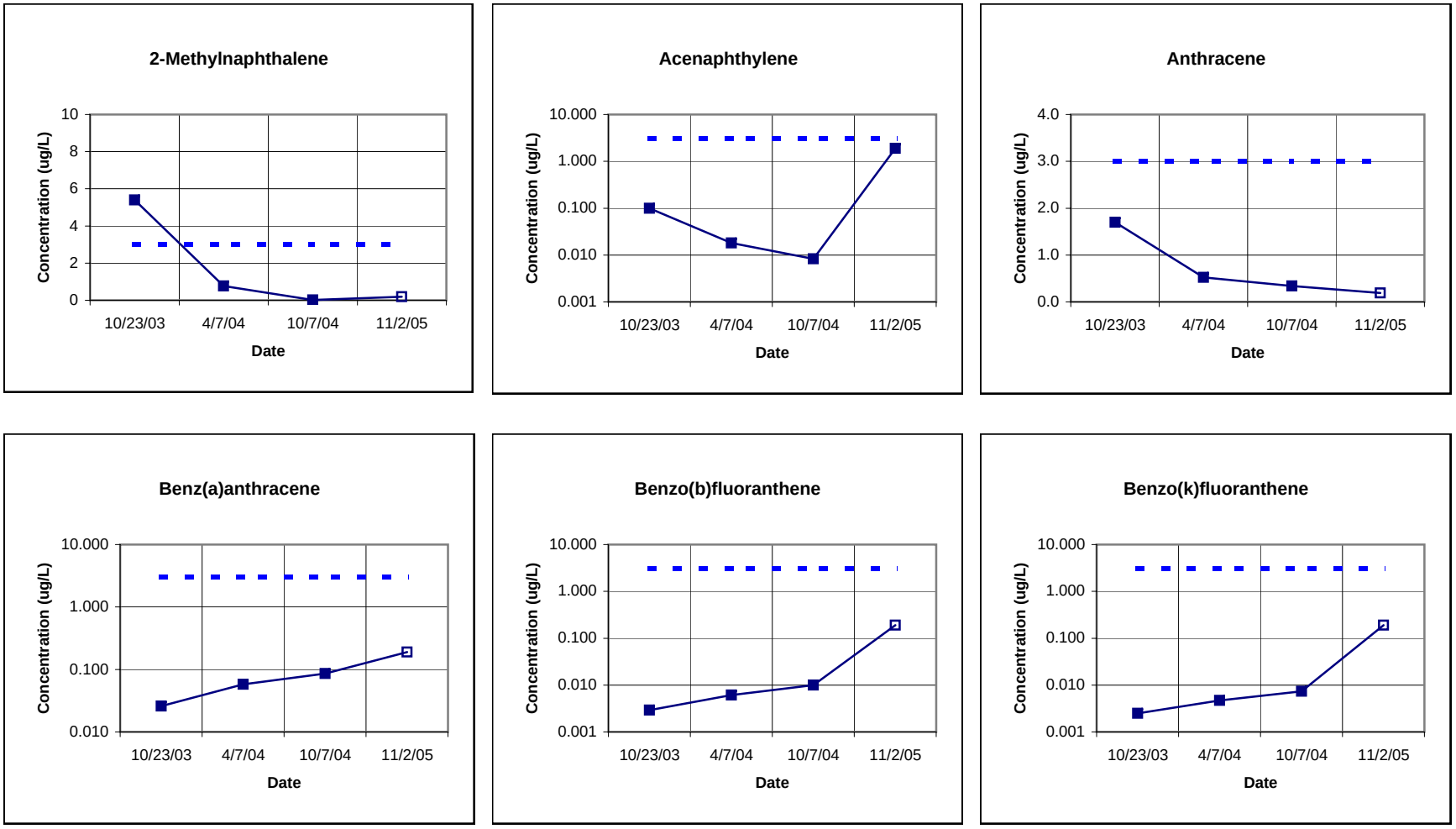
Figure E-2
Time Series Concentration Plots
IR Site 5, Well MW-05-02



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Detected Values

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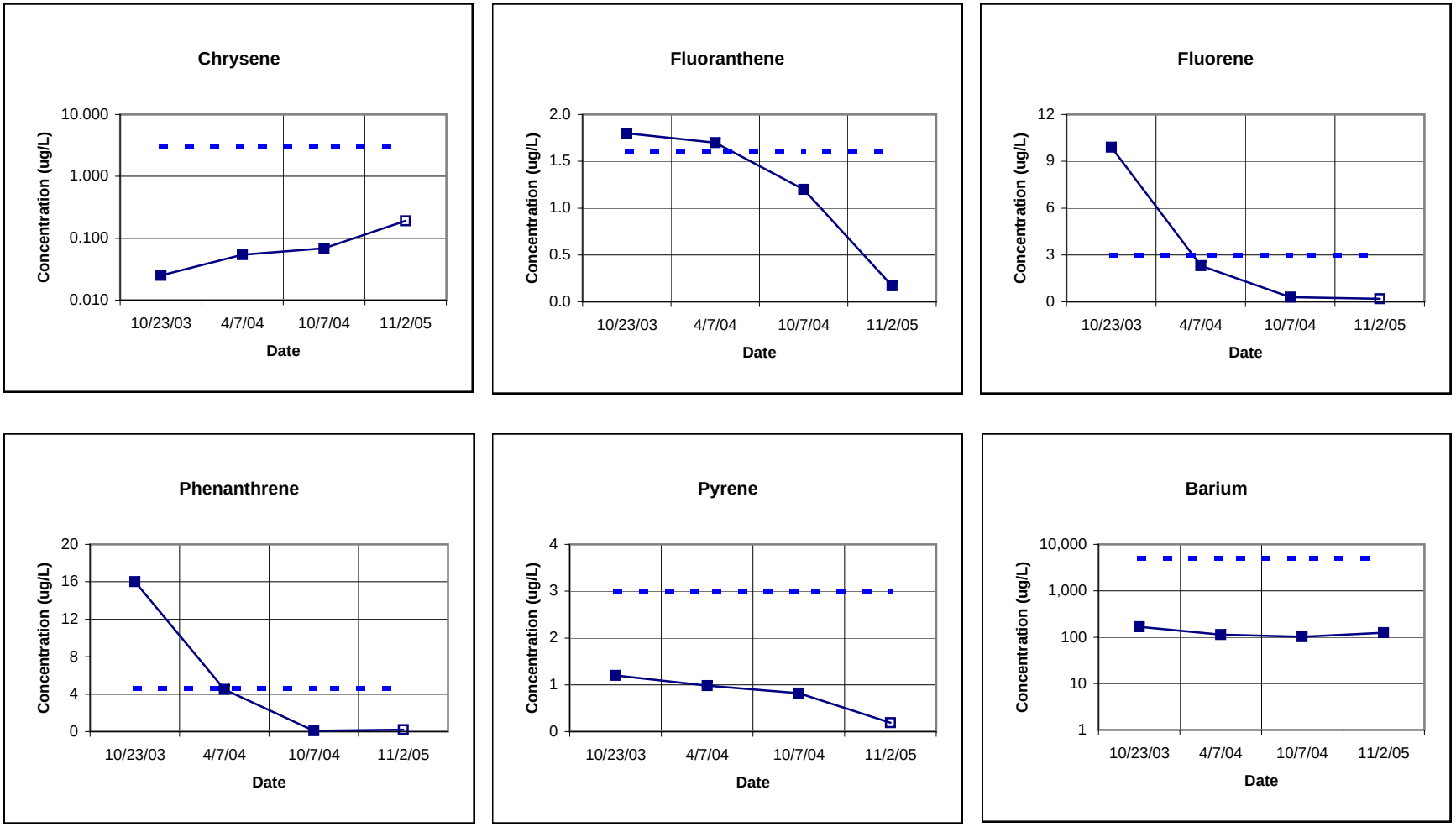
Figure E-3
Time Series Concentration Plots
IR Site 5, Well MW-05-03



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Detected Values

Screening Value

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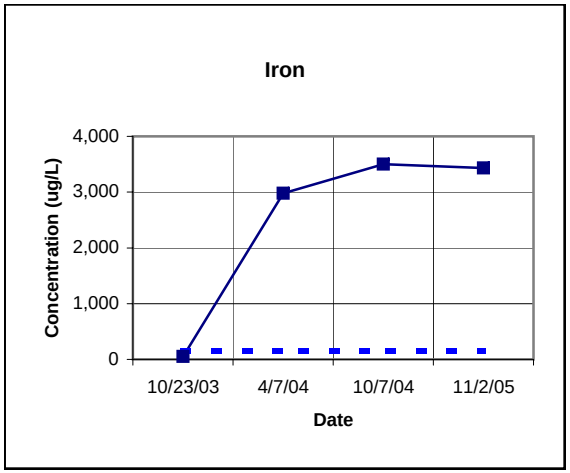
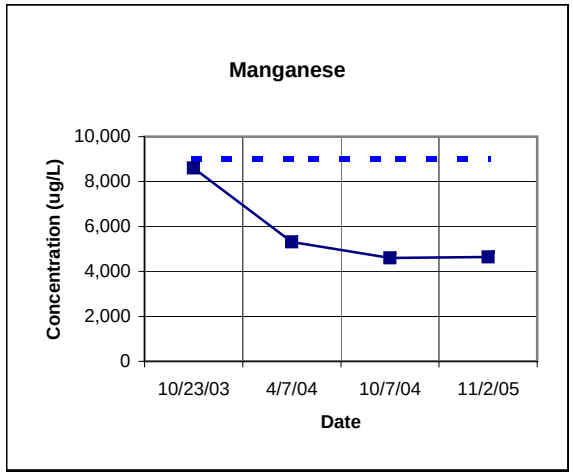
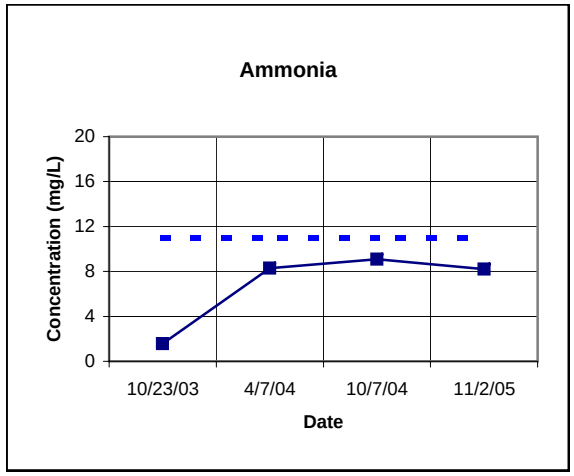
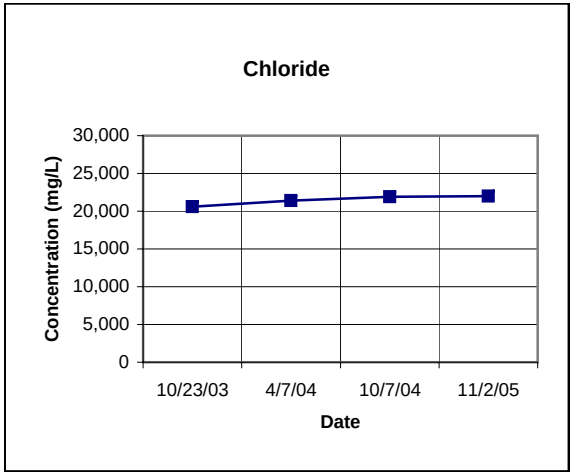
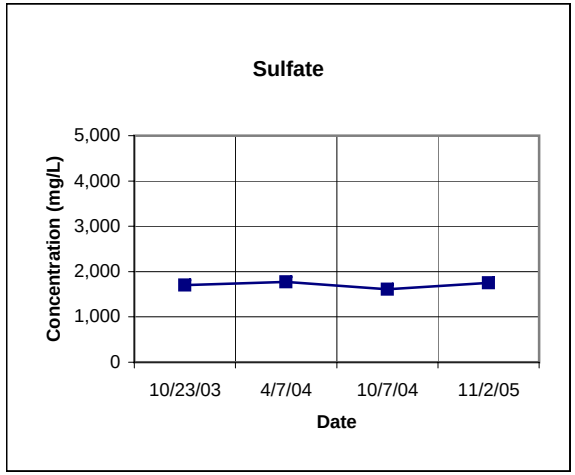
Figure E-4
Time Series Concentration Plots
IR Site 5, Well MW-05-03











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Detected Values

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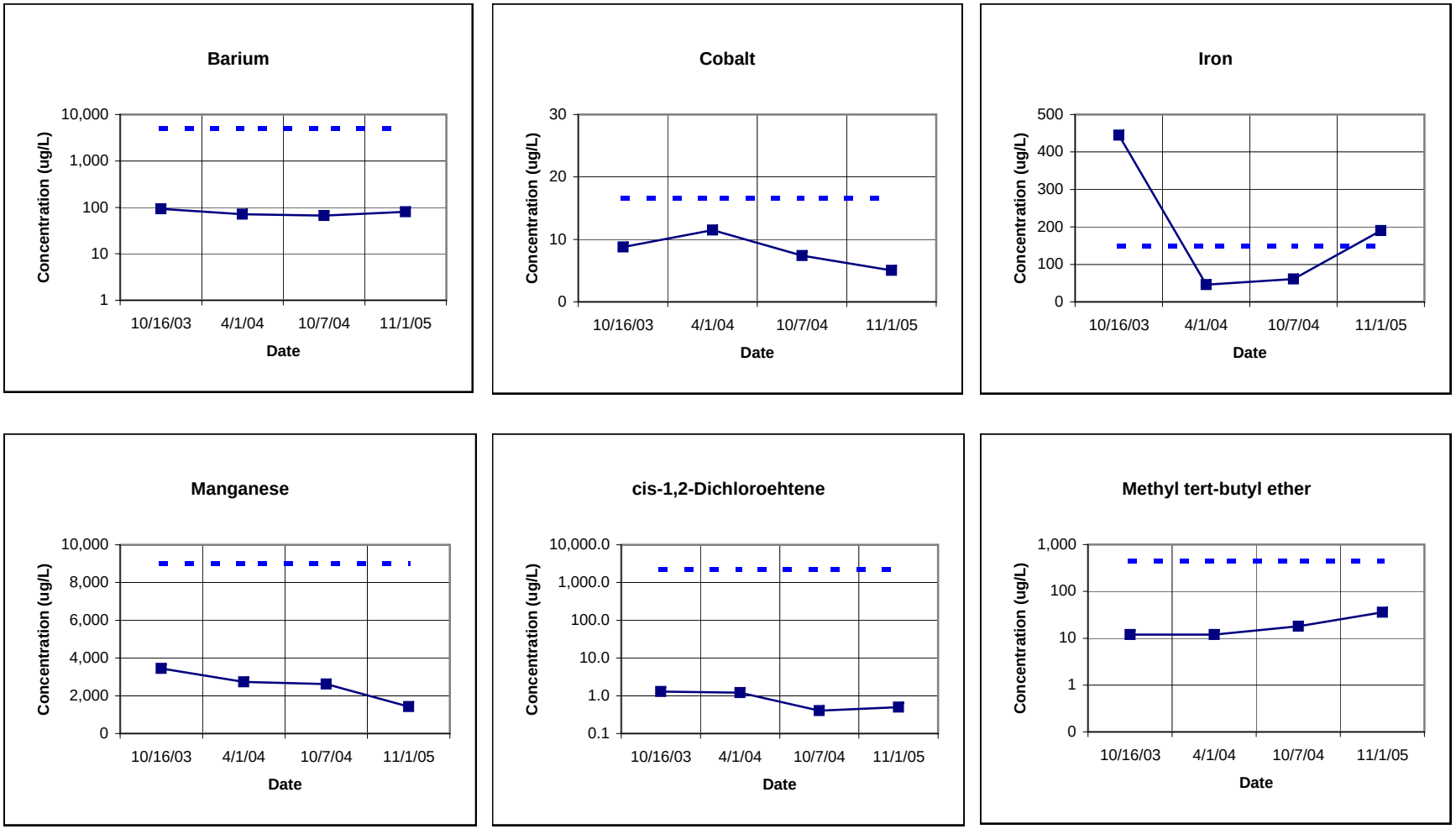
Screening Value

Figure E-5
Time Series Concentration Plots
IR Site 5, Well MW-05-03



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Detected Values

Screening Value

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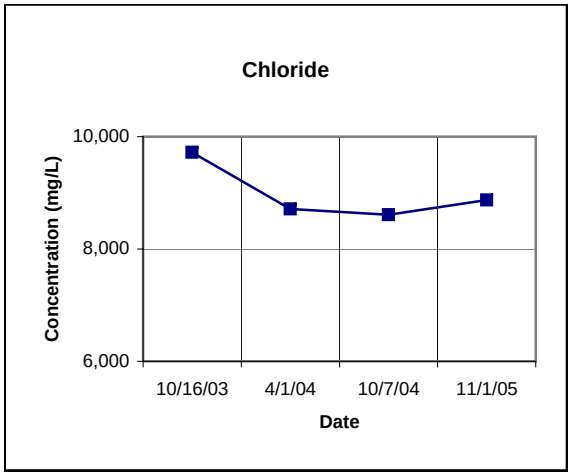
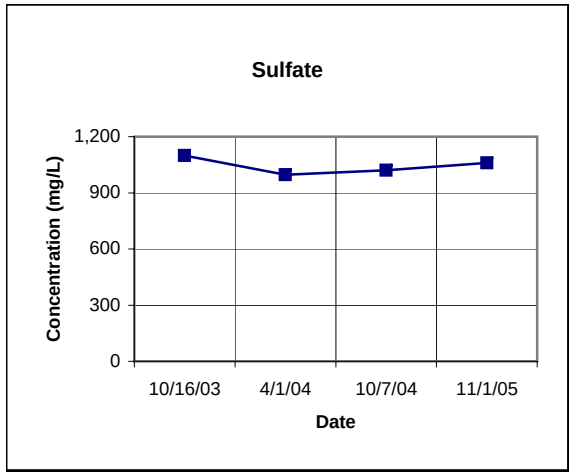
Figure E-6
Time Series Concentration Plots
IR Site 5, Well MW-05-04





Legend

Detected Values

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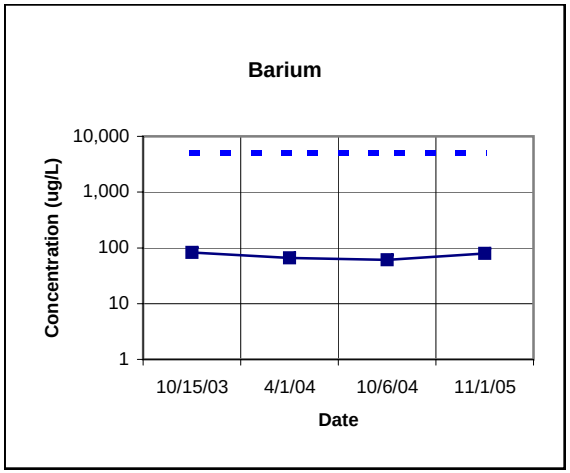
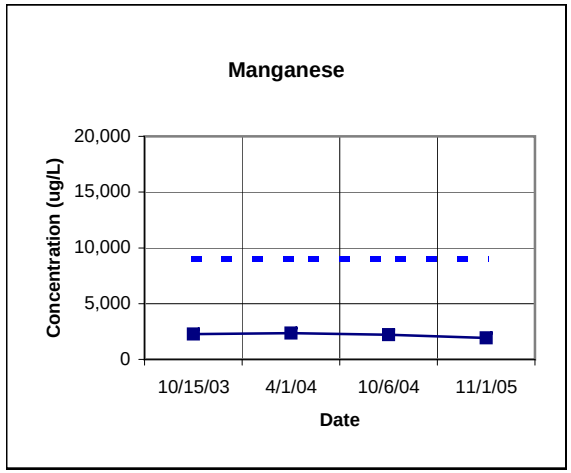
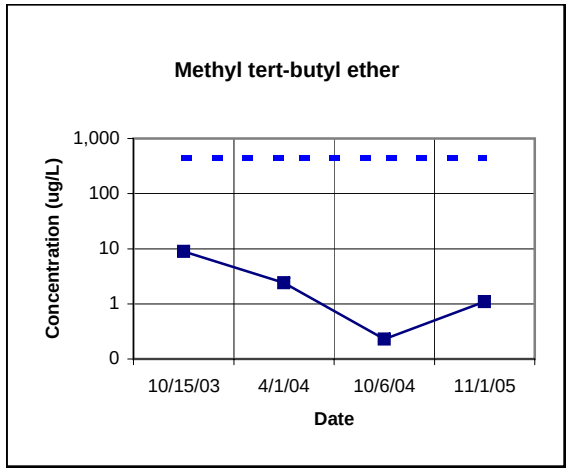
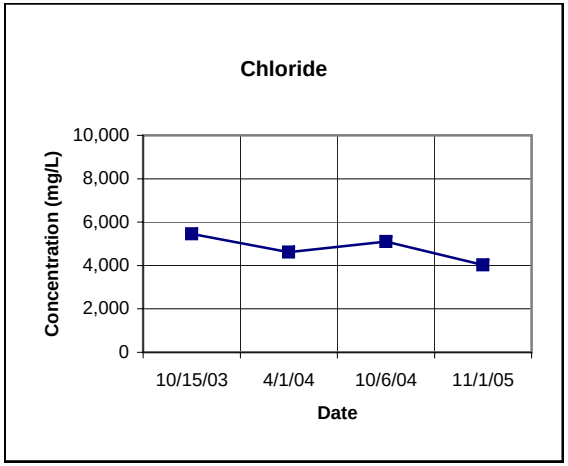
Screening Value

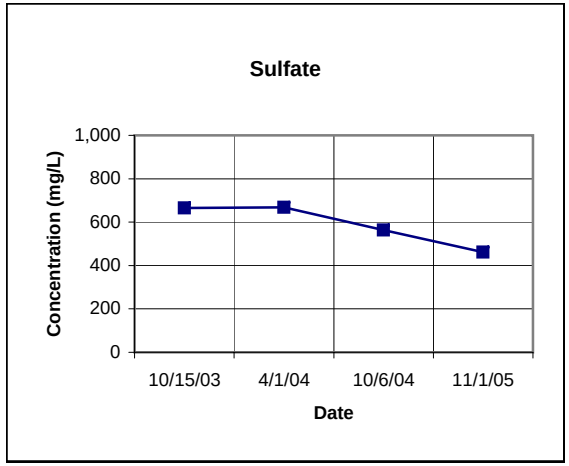
Figure E-7
Time Series Concentration Plots
IR Site 5, Well MW-05-04











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Detected Values

Screening Value

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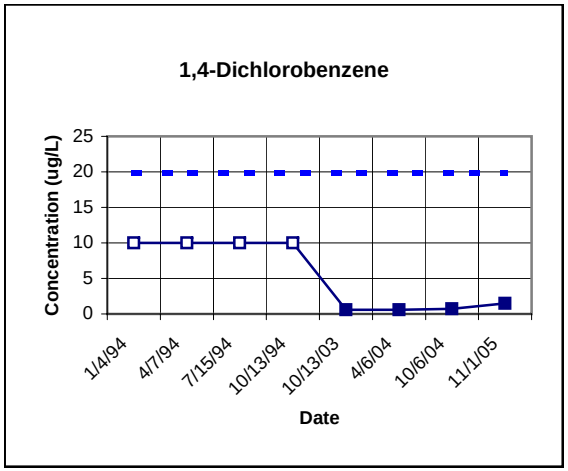
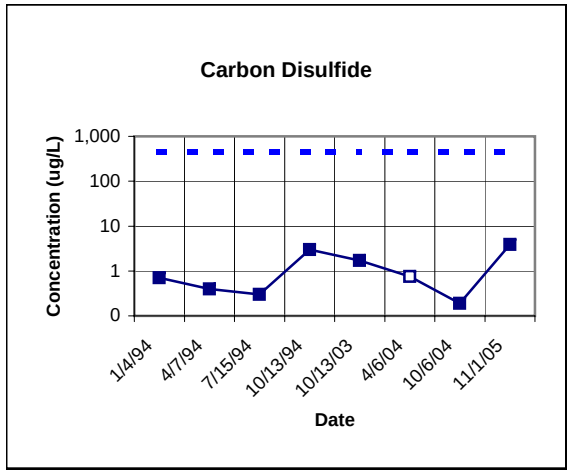
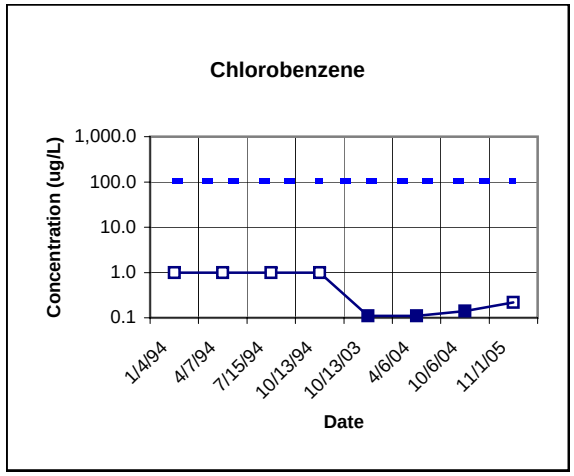
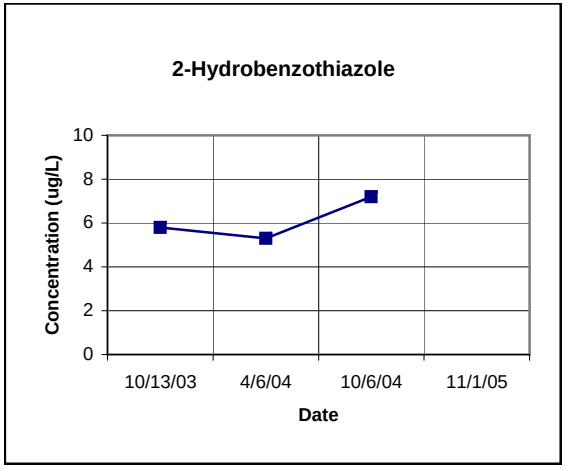
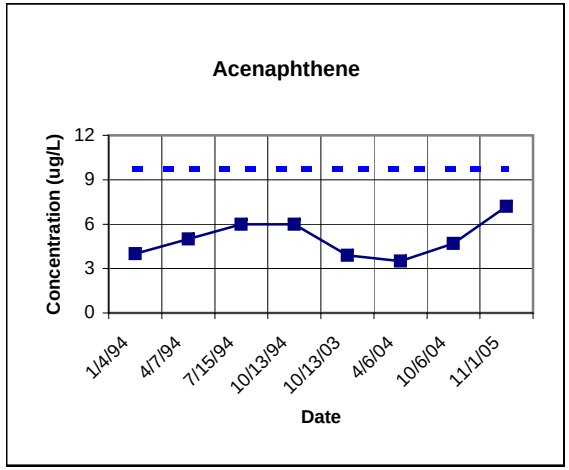
Figure E-8
Time Series Concentration Plots
IR Site 5, Well MW-05-05

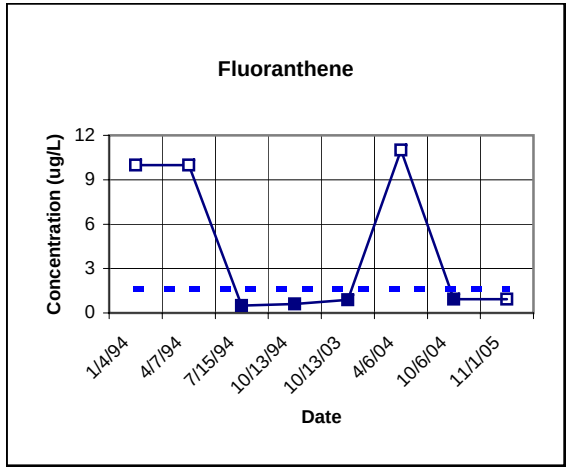












Legend

Detected Values

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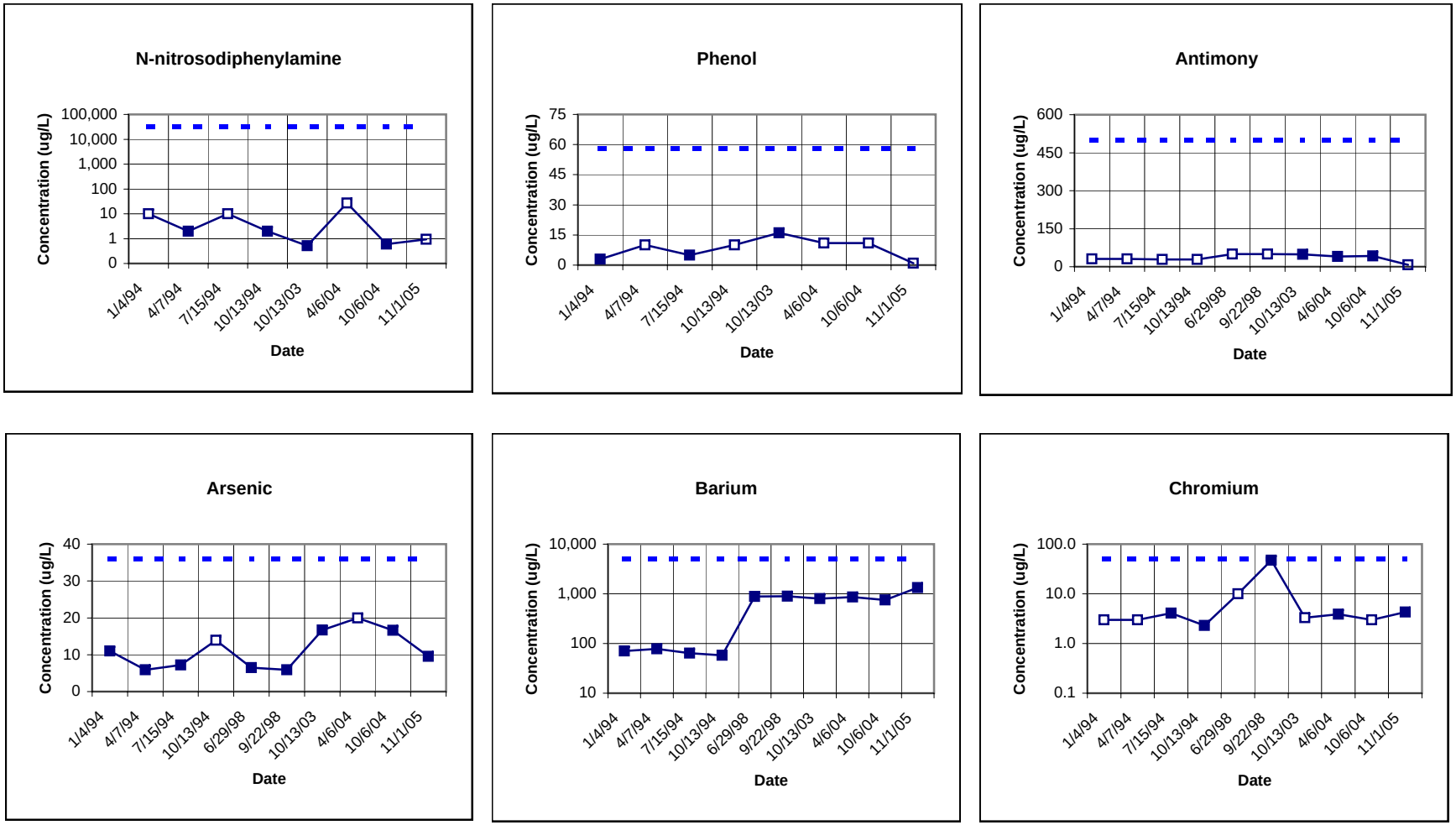
Screening Value

Figure E-9
Time Series Concentration Plots
IR Site 7, Well 07M01



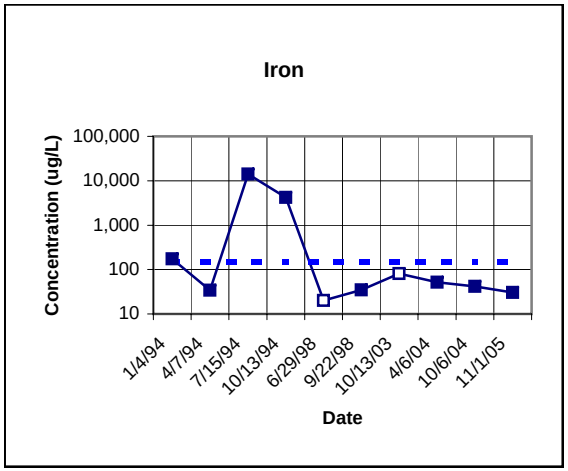
Legend

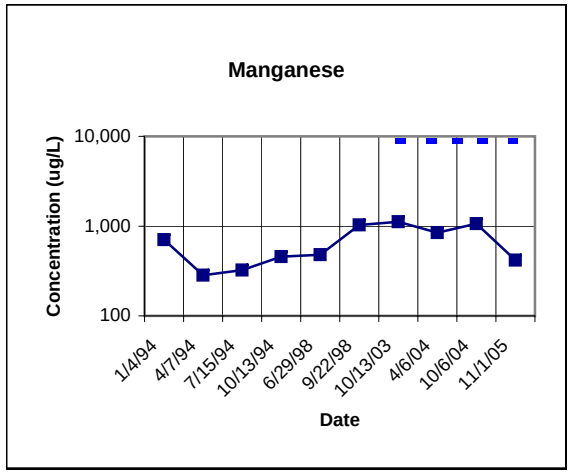
Detected Values

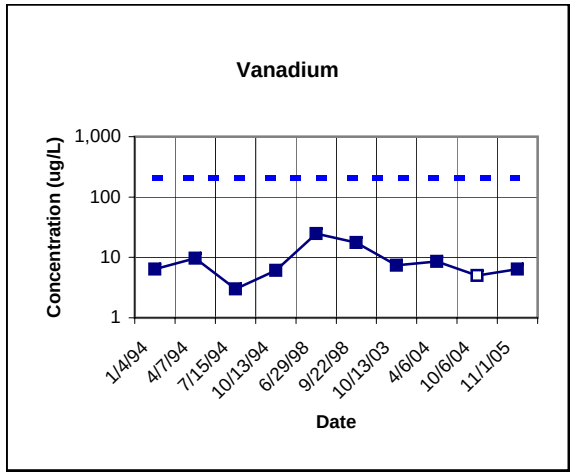
Not Detected (reporting limit shown)

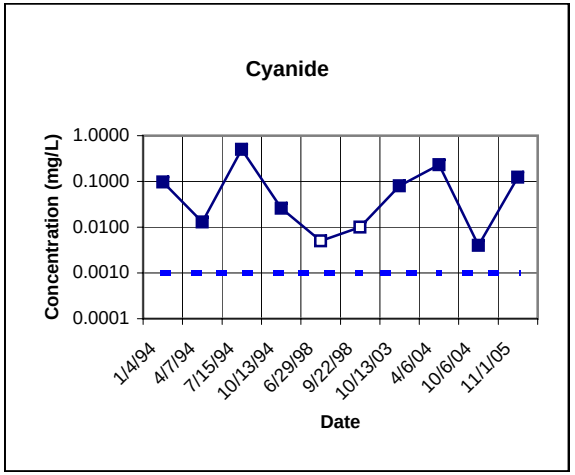
Screening Value

Figure E-10
Time Series Concentration Plots
IR Site 7, Well 07M01









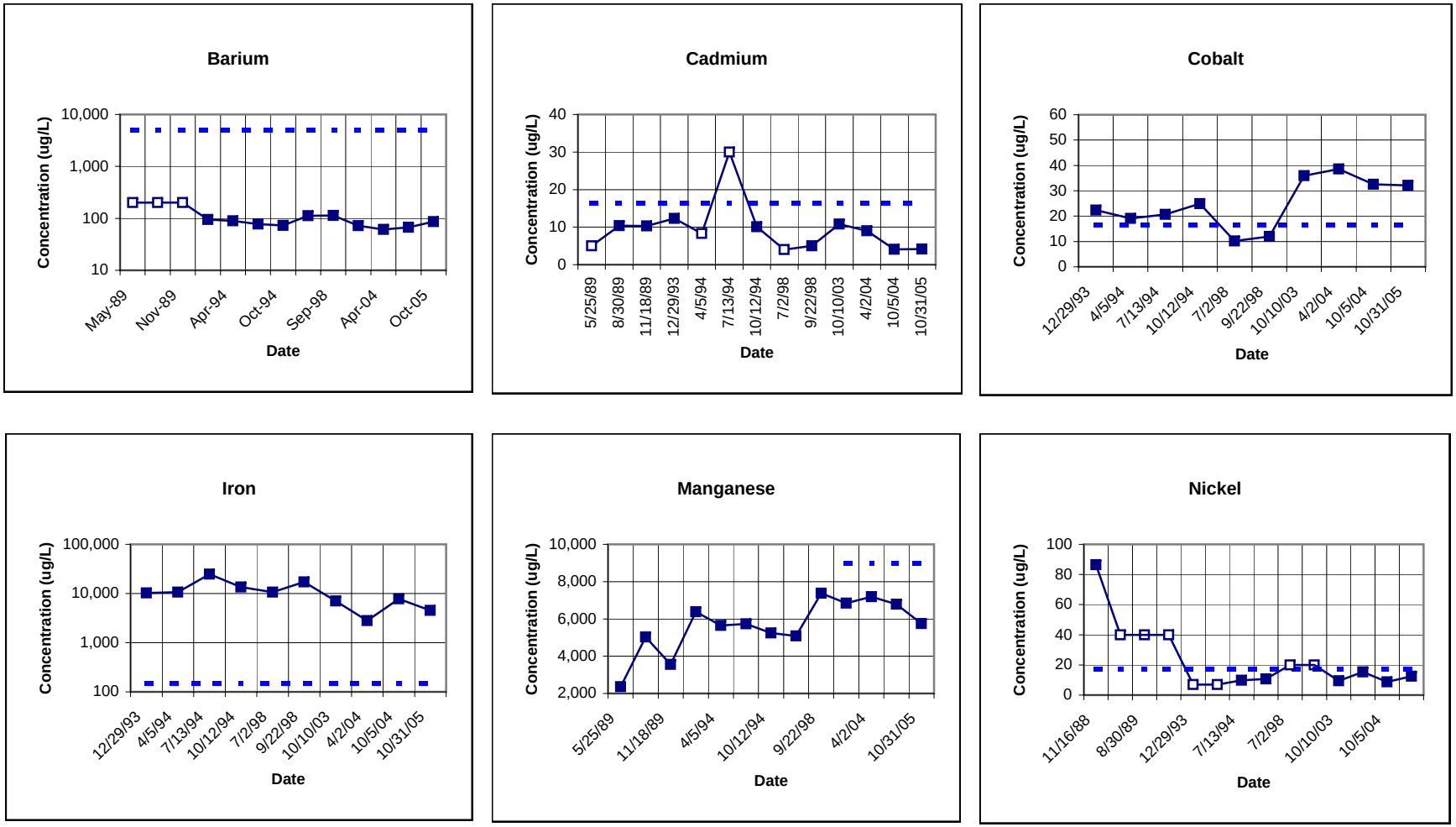
Legend

Detected Values

Not Detected (reporting limit shown)

Screening Value

Figure E-11
Time Series Concentration Plots
IR Site 7, Well 07M01



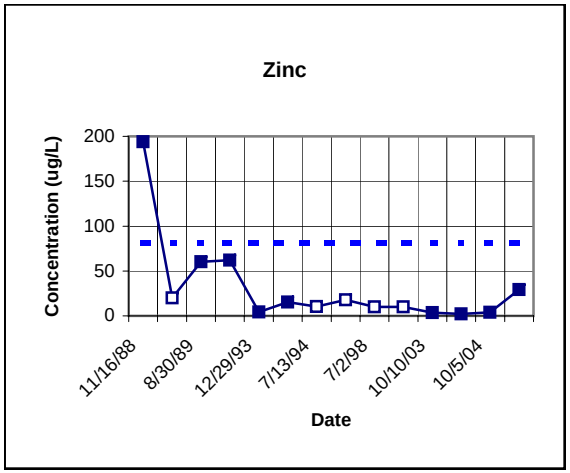
Legend

Detected Values

Not Detected (reporting limit shown)

Screening Value

Figure E-12
Time Series Concentration Plots
IR Site 7, Well W-41



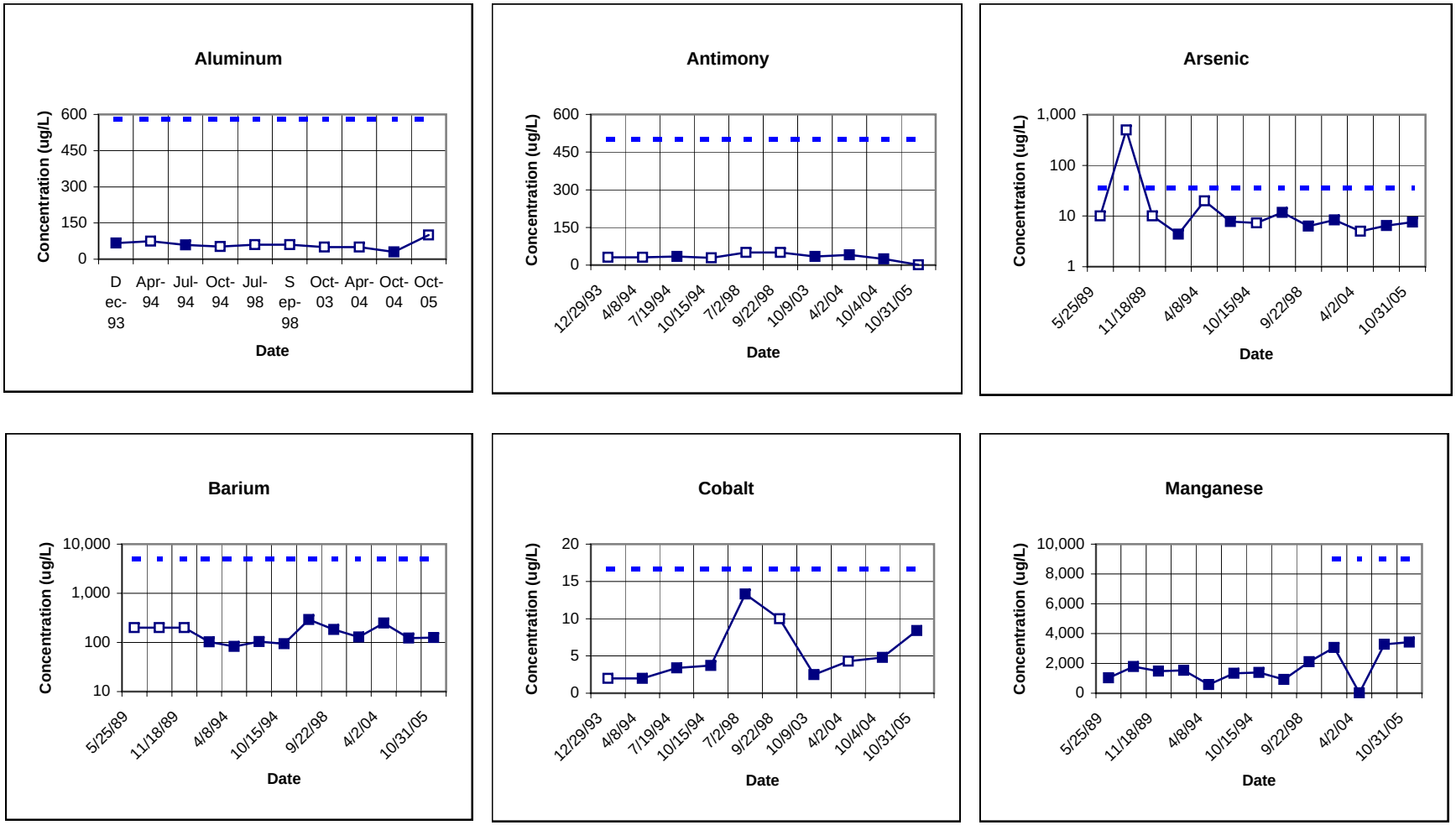
Legend

Detected Values

Not Detected (reporting limit shown)

Screening Value

Figure E-13
Time Series Concentration Plots
IR Site 7, Well W-41



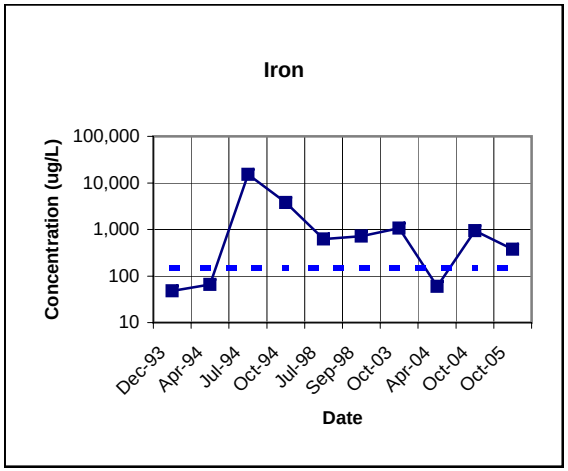
Legend

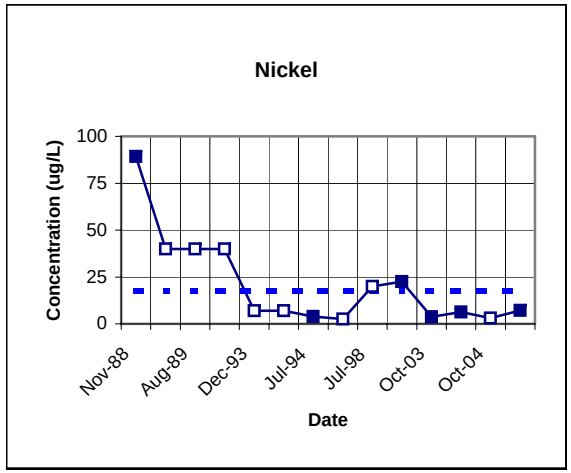
Detected Values

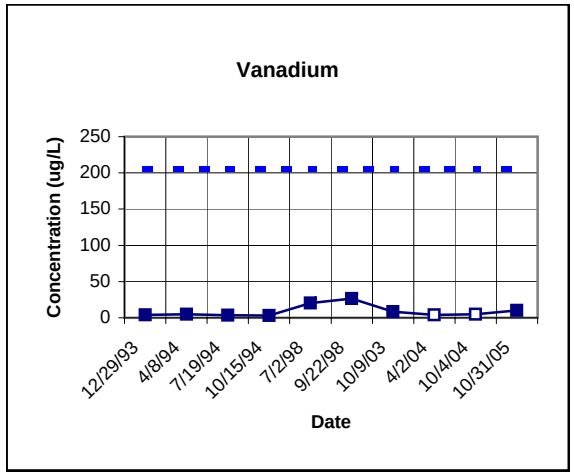
Not Detected (reporting limit shown)

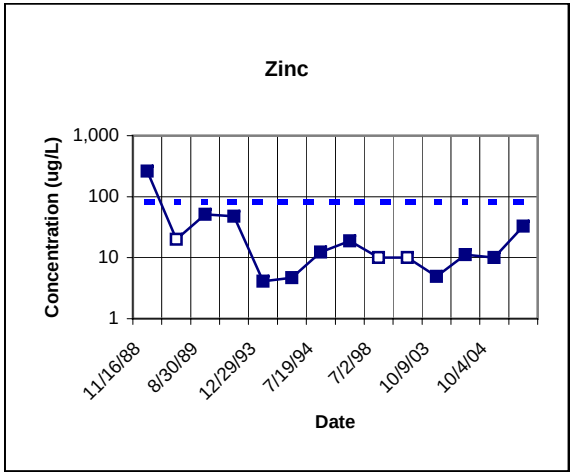
Screening Value

Figure E-14
Time Series Concentration Plots
IR Site 7, Well W-42









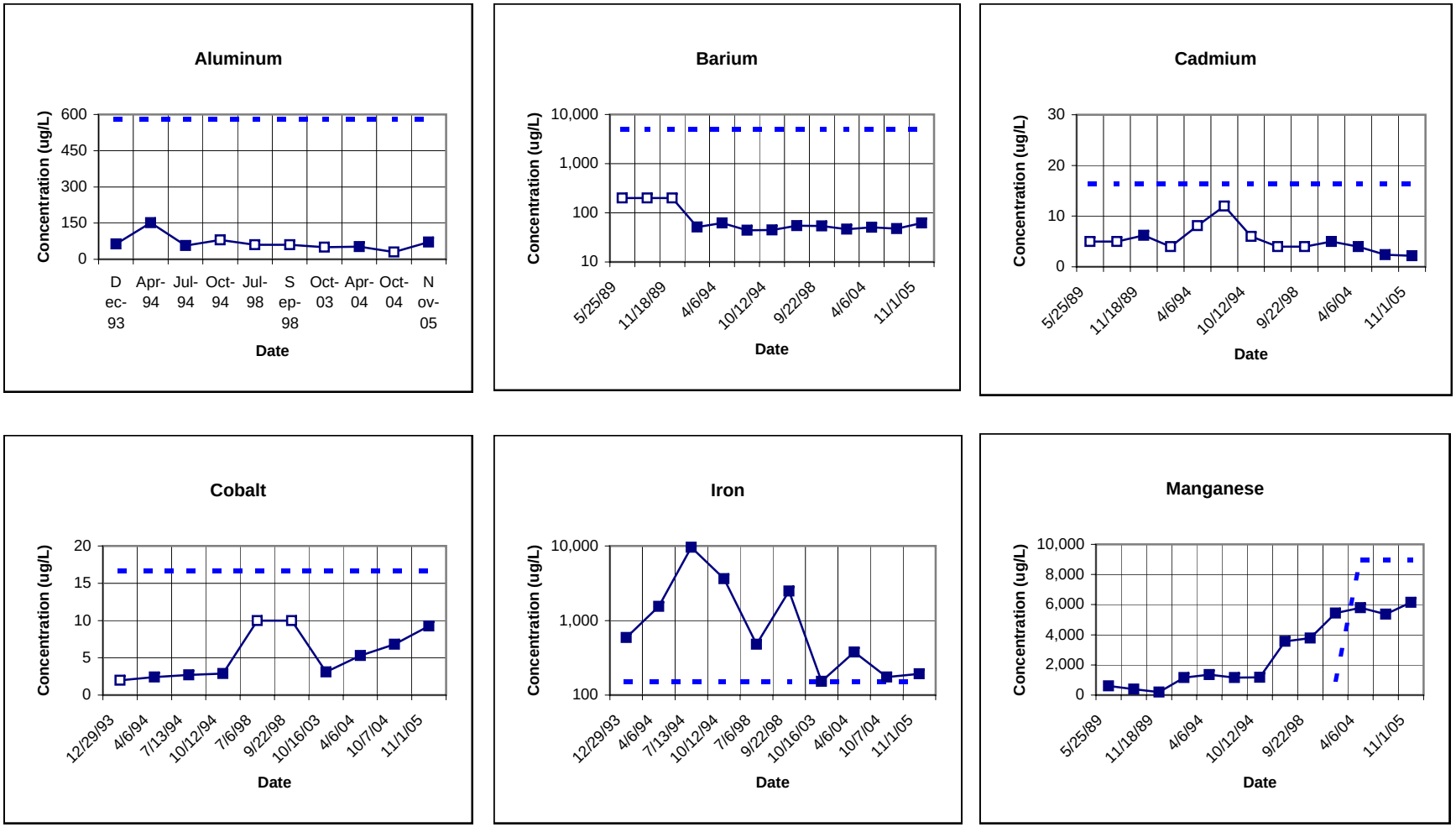
Legend

Detected Values

Not Detected (reporting limit shown)

Screening Value

Figure E-15
Time Series Concentration Plots
IR Site 7, Well W-42



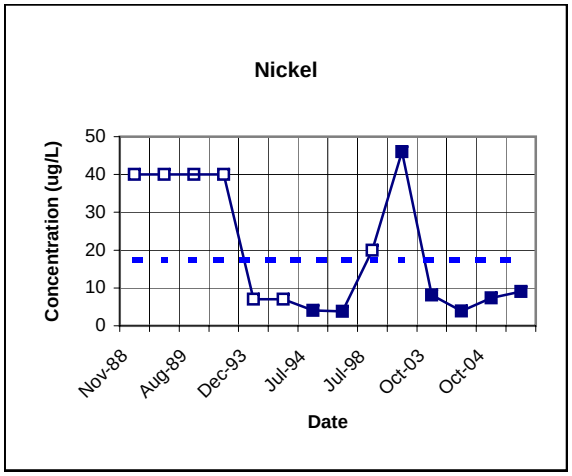
Legend

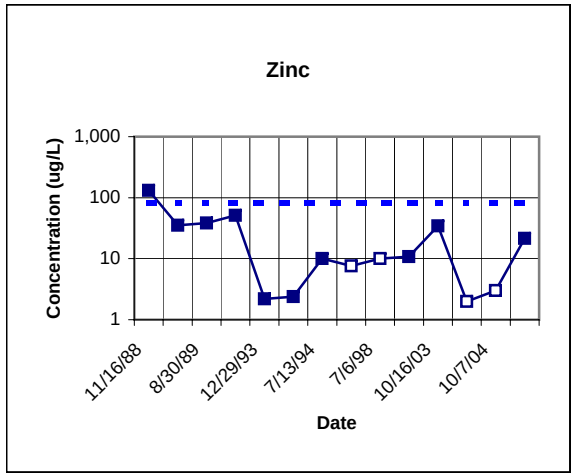
Detected Values

Not Detected (reporting limit shown)

Screening Value

Figure E-16
Time Series Concentration Plots
IR Site 7, Well W-43





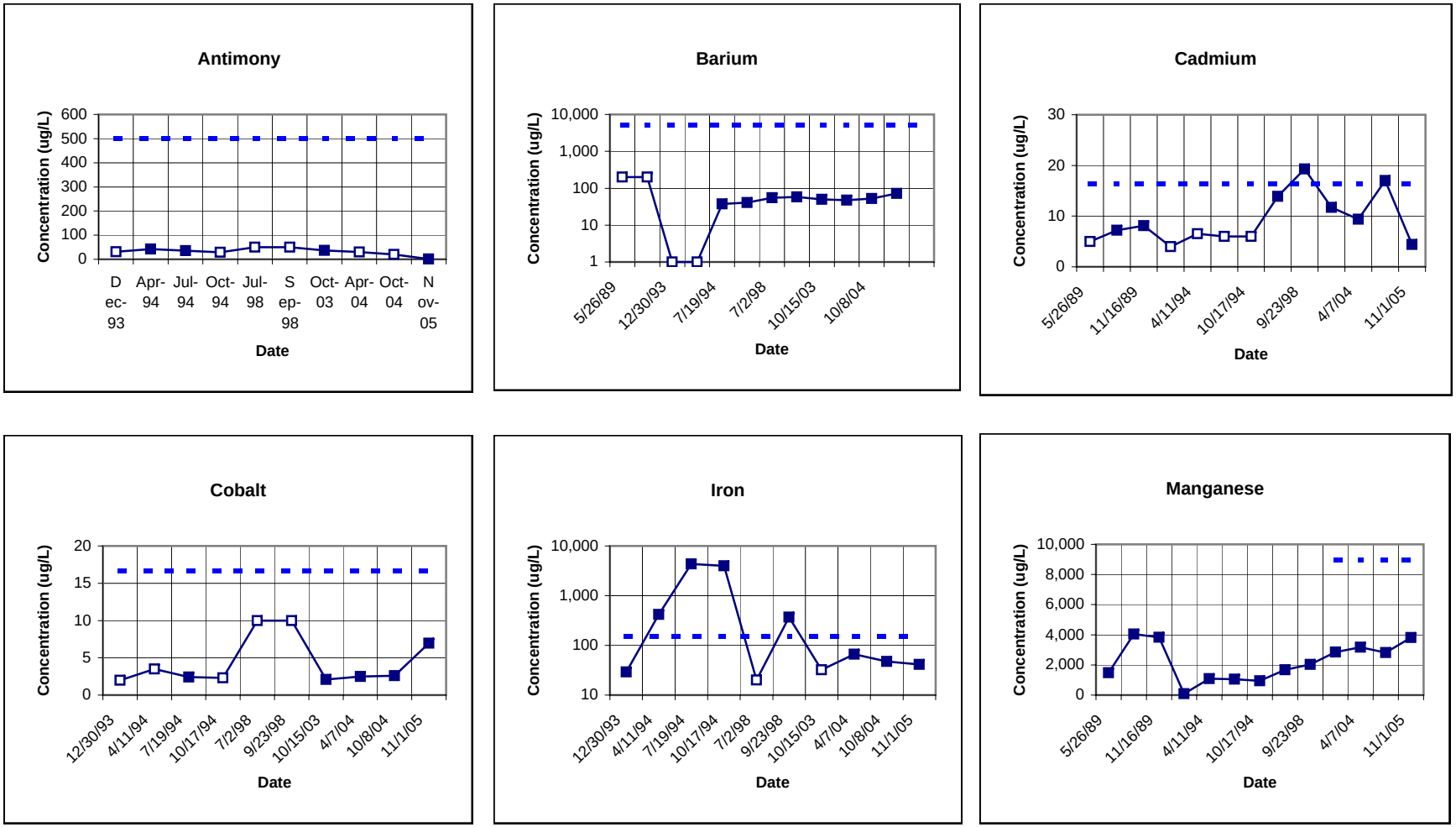
Legend

Detected Values

Screening Value

Not Detected (reporting limit shown)

Figure E-17
Time Series Concentration Plots
IR Site 7, Well W-43



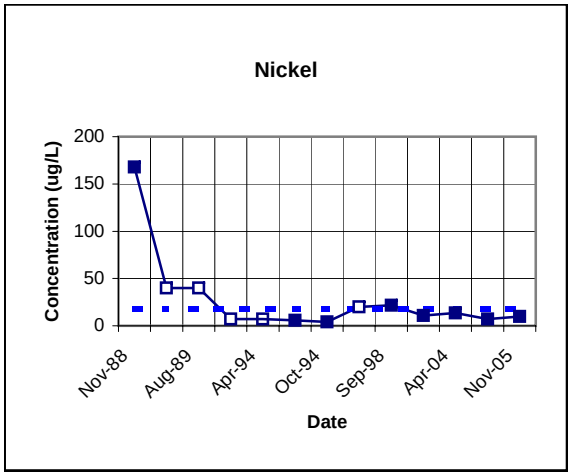
Legend

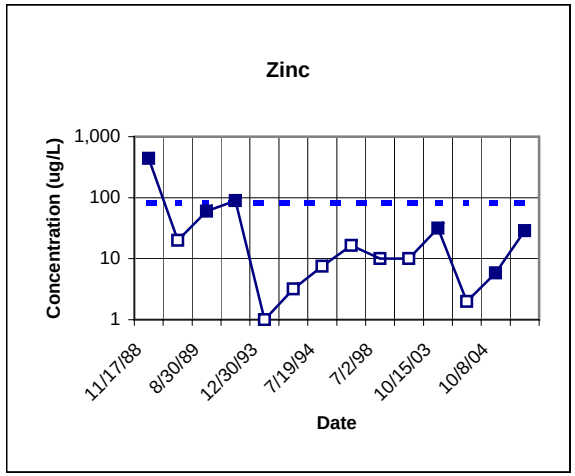
Detected Values

Screening Value

Not Detected (reporting limit shown)

Figure E-18
Time Series Concentration Plots
IR Site 7, Well W-45





Legend

Detected Values

Not Detected (reporting limit shown)

Screening Value

Figure E-19
Time Series Concentration Plots
IR Site 7, Well W-45

APPENDIX F

MANN-KENDALL (S) AND MANN-WHITNEY (U) STATISTICAL CALCULATIONS

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, **provide at least four rounds** and **not more than ten rounds of data** that is **not seasonally affected**. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "**DATA ERR**" or "**DATE ERR**" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation from the governing regulatory agencies for the site and applicable guidance for recommendations on data entry for non-detect values (**See protocol at bottom of worksheet**).

Error Messages: There is a section below the data entry screen that describes data entry errors in more detail and which cell has that error. Thus a user can determine what and where their error is very quickly. Note that a space is seen as text in Excel formulae.

Data Entry and Error Messages: When there are less than four rounds of data entered, instead of getting an "**ERROR**" message, only "**n<4**" is displayed. But, if **text**, a **zero** or a **negative number** is inadvertently entered, the "**ERROR**" message is displayed. Thus, during data entry, an "ERROR" message is only displayed when there actually is an error. Note that the **date must be entered before sample results collected on that date are entered** to avoid an error message.

To avoid biasing the Mann-Kendall test, **the same value for all ND results must be entered** in the spreadsheet for a given compound. This is to make sure that any identified trends are data trends and not trends of laboratory detection limits. **SEE PROTOCOL AT BOTTOM OF WORKSHEET !**

Site Name =	NAVWPNSTA Seal Beach	Site ID No. =	IRP Site 5	Well Number =	**MW-05-01**

	Compound ->	**MTBE**					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/7/2003	140					
2	3/29/2004	600					
3	9/27/2004	890					
4	11/2/2005	250					
5							
6							
7							
8							
9							
10							

Mann Kendall Statistic (S) =	2	0	0	0	0	0
Number of Rounds (n) =	4	0	0	0	0	0
Average =	470.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =	341.858	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=	0.727	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected		N<4	N<4	N<4	N<4	N<4
Trend = 80% Confidence Level	No Trend	N<4	N<4	N<4	N<4	N<4
Trend = 90% Confidence Level	No Trend	N<4	N<4	N<4	N<4	N<4
Stability Test, If No Trend Exists at 80% Confidence Level	CV<=1 STABLE	n<4 n<4	n<4 n<4	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By =	B. Breglio	Date =		Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, **provide at least four rounds** and **not more than ten rounds of data** that is **not seasonally affected**. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "**DATA ERR**" or "**DATE ERR**" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation from the governing regulatory agencies for the site and applicable guidance for recommendations on data entry for non-detect values (**See protocol at bottom of worksheet**).

Error Messages: There is a section below the data entry screen that describes data entry errors in more detail and which cell has that error. Thus a user can determine what and where their error is very quickly. Note that a space is seen as text in Excel formulae.

Data Entry and Error Messages: When there are less than four rounds of data entered, instead of getting an "**ERROR**" message, only "**n<4**" is displayed. But, if **text**, a **zero** or a **negative number** is inadvertently entered, the "**ERROR**" message is displayed. Thus, during data entry, an "ERROR" message is only displayed when there actually is an error. Note that the **date must be entered before sample results collected on that date are entered** to avoid an error message.

To avoid biasing the Mann-Kendall test, **the same value for all ND results must be entered** in the spreadsheet for a given compound. This is to make sure that any identified trends are data trends and not trends of laboratory detection limits. **SEE PROTOCOL AT BOTTOM OF WORKSHEET !**

Site Name =	NAVWPNSTA Seal Beach	Site ID No. =	IRP Site 5	Well Number =	**MW-05-02**

	Compound ->	**IRON**	**MANGANESE**	**NICKEL**	**ZINC**	**HEX CHROM**	
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/7/2003	29	7000	20.9	115	0.0025	
2	3/29/2004	914	19200	5.6	4.6	0.0025	
3	9/27/2004	7250	18100	0.05	1.5	55.5	
4	11/2/2005	9980	12200	4.08	8.38	0.0025	
5							
6							
7							
8							
9							
10							

Mann Kendall Statistic (S) =	6	0	-4	-2	1	0
Number of Rounds (n) =	4	4	4	4	4	0
Average =	4543.25	14125.00	7.66	32.37	13.88	#DIV/0!
Standard Deviation =	4845.433	5657.664	9.134	55.158	27.749	#DIV/0!
Coefficient of Variation(CV)=	1.067	0.401	1.193	1.704	2.000	#DIV/0!

Error Check, Blank if No Errors Detected						**N<4**
Trend = 80% Confidence Level	**INCREASING**	**No Trend**	**DECREASING**	**No Trend**	**No Trend**	**N<4**
Trend = 90% Confidence Level	**INCREASING**	**No Trend**	**No Trend**	**No Trend**	**No Trend**	**N<4**
Stability Test, If No Trend Exists at 80% Confidence Level	**NA**	**CV<=1 STABLE**	**NA**	**CV>1 NON-STABLE**	**CV>1 NON-STABLE**	**n<4 n<4**

Data Entry By =	B. Breglio	Date =		Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, **provide at least four rounds** and **not more than ten rounds of data** that is **not seasonally affected**. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "**DATA ERR**" or "**DATE ERR**" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation from the governing regulatory agencies for the site and applicable guidance for recommendations on data entry for non-detect values (**See protocol at bottom of worksheet**).

Error Messages: There is a section below the data entry screen that describes data entry errors in more detail and which cell has that error. Thus a user can determine what and where their error is very quickly. Note that a space is seen as text in Excel formulae.

Data Entry and Error Messages: When there are less than four rounds of data entered, instead of getting an "**ERROR**" message, only "**n<4**" is displayed. But, if **text**, a **zero** or a **negative number** is inadvertently entered, the "**ERROR**" message is displayed. Thus, during data entry, an "ERROR" message is only displayed when there actually is an error. Note that the **date must be entered before sample results collected on that date are entered** to avoid an error message.

To avoid biasing the Mann-Kendall test, **the same value for all ND results must be entered** in the spreadsheet for a given compound. This is to make sure that any identified trends are data trends and not trends of laboratory detection limits. **SEE PROTOCOL AT BOTTOM OF WORKSHEET !**

Site Name =	NAVWPNSTA Seal Beach	Site ID No. =	IRP Site 5	Well Number =	**MW-05-03**

	Compound ->	**2-METHYNAPHTHALENE**	**FLUORANTHENE**	**FLUORINE**	**NAPHTHALENE**	**PHENANTHRENE**	**IRON**
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/7/2003	5.4	1.8	9.9	100	16	51.8
2	3/29/2004	0.76	1.7	2.3	31	4.5	2980
3	9/27/2004	0.0099	1.2	0.3	0.047	0.09	3500
4	11/2/2005	0.047	0.17	0.047	0.047	0.047	3430
5							
6							
7							
8							
9							
10							

Mann Kendall Statistic (S) =	-4	-6	-6	-5	-6	4
Number of Rounds (n) =	4	4	4	4	4	4
Average =	1.55	1.22	3.14	32.77	5.16	2490.45
Standard Deviation =	2.587	0.746	4.620	47.133	7.523	1642.013
Coefficient of Variation(CV)=	1.664	0.613	1.473	1.438	1.458	0.659

Error Check, Blank if No Errors Detected

Trend = 80% Confidence Level	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	**INCREASING**
Trend = 90% Confidence Level	**No Trend**	**DECREASING**	**DECREASING**	**No Trend**	**DECREASING**	**No Trend**
Stability Test, If No Trend Exists at 80% Confidence Level	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Data Entry By =	B. Breglio	Date =		Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, **provide at least four rounds** and **not more than ten rounds of data** that is **not seasonally affected**. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "**DATA ERR**" or "**DATE ERR**" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation from the governing regulatory agencies for the site and applicable guidance for recommendations on data entry for non-detect values (**See protocol at bottom of worksheet**).

Error Messages: There is a section below the data entry screen that describes data entry errors in more detail and which cell has that error. Thus a user can determine what and where their error is very quickly. Note that a space is seen as text in Excel formulae.

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Site Name =	NAVWPNSTA Seal Beach	Site ID No. =	IRP Site 5	Well Number =	**MW-05-04**

	Compound ->	**IRON**					
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	10/7/2003	445					
2	3/29/2004	45.8					
3	9/27/2004	61.1					
4	11/2/2005	190					
5							
6							
7							
8							
9							
10							

Mann Kendall Statistic (S) =	0	0	0	0	0	0
Number of Rounds (n) =	4	0	0	0	0	0
Average =	185.48	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =	184.709	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=	0.996	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected		**N<4**	**N<4**	**N<4**	**N<4**	**N<4**
Trend = 80% Confidence Level	**No Trend**	**N<4**	**N<4**	**N<4**	**N<4**	**N<4**
Trend = 90% Confidence Level	**No Trend**	**N<4**	**N<4**	**N<4**	**N<4**	**N<4**
Stability Test, If No Trend Exists at 80% Confidence Level	**CV<=1 STABLE**	**n<4 n<4**	**n<4 n<4**	**n<4 n<4**	**n<4 n<4**	**n<4 n<4**

Data Entry By =	B. Breglio	Date =		Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, **provide at least four rounds** and **not more than ten rounds of data** that is **not seasonally affected**. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "**DATA ERR**" or "**DATE ERR**" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation from the governing regulatory agencies for the site and applicable guidance for recommendations on data entry for non-detect values (**See protocol at bottom of worksheet**).

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Site Name =	NAVWPNSTA Seal Beach	Site ID No. =	IRP Site 7	Well Number =	**07M01**

	Compound ->	**4,4'-DDD**	**GAMMA-CHLORDANE**	**HEPTACHLOR**	**Cyanide**		
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	December-93						
2	April-94						
3	July-94						
4	October-94						
5	7/1/1998						
6	9/1/1998						
7	October-03	0.01	0.005	0.005	0.08		
8	March-04	0.01	0.005	0.005	0.23		
9	September-04	0.0032	0.0049	0.0065	0.004		
10	October-05	0.01	0.005	0.005	0.123		

Mann Kendall Statistic (S) =	-1	-1	1	0	0	0
Number of Rounds (n) =	4	4	4	4	0	0
Average =	0.01	0.00	0.01	0.11	#DIV/0!	#DIV/0!
Standard Deviation =	0.003	0.000	0.001	0.094	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=	0.410	0.010	0.140	0.864	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					**N<4**	**N<4**
Trend = 80% Confidence Level	**No Trend**	**No Trend**	**No Trend**	**No Trend**	**N<4**	**N<4**
Trend = 90% Confidence Level	**No Trend**	**No Trend**	**No Trend**	**No Trend**	**N<4**	**N<4**
Stability Test, If No Trend Exists at 80% Confidence Level	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**n<4 n<4**	**n<4 n<4**

Data Entry By =	B. Breglio	Date =		Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, **provide at least four rounds** and **not more than ten rounds of data** that is **not seasonally affected**. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "**DATA ERR**" or "**DATE ERR**" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation from the governing regulatory agencies for the site and applicable guidance for recommendations on data entry for non-detect values (**See protocol at bottom of worksheet**).

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Site Name =	NAVWPNSTA Seal Beach	Site ID No. =	IRP Site 7	Well Number =	**MW-04-02**

	Compound ->	**IRON**	**BETA-BHC**				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	December-93						
2	April-94						
3	July-94						
4	October-94						
5	July-98						
6	September-98						
7	October-03	362	0.005				
8	March-04	282	0.005				
9	September-04	444	0.005				
10	October-05	610	0.019				

Mann Kendall Statistic (S) =	4	3	0	0	0	0
Number of Rounds (n) =	4	4	0	0	0	0
Average =	424.50	0.01	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =	140.241	0.007	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=	0.330	0.824	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			**N<4**	**N<4**	**N<4**	**N<4**
Trend = 80% Confidence Level	**INCREASING**	**No Trend**	**N<4**	**N<4**	**N<4**	**N<4**
Trend = 90% Confidence Level	**No Trend**	**No Trend**	**N<4**	**N<4**	**N<4**	**N<4**
Stability Test, If No Trend Exists at 80% Confidence Level	**NA**	**CV<=1 STABLE**	**n<4 n<4**	**n<4 n<4**	**n<4 n<4**	**n<4 n<4**

Data Entry By =	B. Breglio	Date =		Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

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Data Entry and Error Messages: When there are less than four rounds of data entered, instead of getting an "**ERROR**" message, only "**n<4**" is displayed. But, if **text**, a **zero** or a **negative number** is inadvertently entered, the "**ERROR**" message is displayed. Thus, during data entry, an "ERROR" message is only displayed when there actually is an error. Note that the **date must be entered before sample results collected on that date are entered** to avoid an error message.

To avoid biasing the Mann-Kendall test, **the same value for all ND results must be entered** in the spreadsheet for a given compound. This is to make sure that any identified trends are data trends and not trends of laboratory detection limits. **SEE PROTOCOL AT BOTTOM OF WORKSHEET !**

Site Name =	NAVWPNSTA Seal Beach	Site ID No. = IRP Site 7	Well Number =	**W-41**

	Compound ->	**COBALT**	**IRON**				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	December-93	22.4	10200				
2	April-94	19.1	10700				
3	July-94	20.7	24700				
4	October-94	24.9	13600				
5	July-98	10.2	10600				
6	September-98	12	17200				
7	October-03	35.9	7030				
8	March-04	38.6	2790				
9	September-04	32.5	7730				
10	October-05	32.1	4530				

Mann Kendall Statistic (S) =	15	-19	0	0	0	0
Number of Rounds (n) =	10	10	0	0	0	0
Average =	24.84	10908.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =	9.765	6406.717	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=	0.393	0.587	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			**N<4**	**N<4**	**N<4**	**N<4**
Trend = 80% Confidence Level	**INCREASING**	**DECREASING**	**N<4**	**N<4**	**N<4**	**N<4**
Trend = 90% Confidence Level	**No Trend**	**DECREASING**	**N<4**	**N<4**	**N<4**	**N<4**
Stability Test, If No Trend Exists at 80% Confidence Level	**NA**	**NA**	**n<4** **n<4**	**n<4** **n<4**	**n<4** **n<4**	**n<4** **n<4**

Data Entry By =	B. Breglio	Date =		Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

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Site Name =	NAVWPNSTA Seal Beach	Site ID No. =	IRP Site 7	Well Number =	**MW-04-04**

	Compound ->	**IRON**	**MANGANESE**	**CYANIDE**	**BETA-BHC**		
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	December-93						
2	April-94						
3	July-94						
4	October-94						
5	July-98						
6	September-98						
7	October-03	142	10100	0.0015	0.005		
8	March-04	211	9830	0.0015	0.005		
9	September-04	755	10900	0.003	0.005		
10	October-05	740	7830	0.0015	0.043		

Mann Kendall Statistic (S) =	4	-2	1	3	0	0
Number of Rounds (n) =	4	4	4	4	0	0
Average =	462.00	9665.00	0.00	0.01	#DIV/0!	#DIV/0!
Standard Deviation =	330.925	1304.978	0.001	0.019	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=	0.716	0.135	0.400	1.310	#DIV/0!	#DIV/0!

Error Check, Blank if No Errors Detected					**N<4**	**N<4**
Trend = 80% Confidence Level	**INCREASING**	**No Trend**	**No Trend**	**No Trend**	**N<4**	**N<4**
Trend = 90% Confidence Level	**No Trend**	**No Trend**	**No Trend**	**No Trend**	**N<4**	**N<4**
Stability Test, If No Trend Exists at 80% Confidence Level	**NA**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV>1 NON-STABLE**	**n<4 n<4**	**n<4 n<4**

Data Entry By =	B. Breglio	Date =		Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

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Site Name =	NAVWPNSTA Seal Beach	Site ID No. =	IRP Site 7	Well Number =	**MW-04-03**

	Compound ->	**ALPHA-BHC**	**HEPTACHLOR EPOXIDE**	**IRON**			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	December-93						
2	April-94						
3	July-94						
4	October-94						
5	July-98						
6	September-98						
7	October-03	0.005	0.005	1470			
8	March-04	0.0022	0.005	1830			
9	September-04	0.005	0.00091	2700			
10	October-05	0.005	0.005	3840			

Mann Kendall Statistic (S) =	1	-1	6	0	0	0
Number of Rounds (n) =	4	4	4	0	0	0
Average =	0.00	0.00	2460.00	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =	0.001	0.002	1054.988	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=	0.326	0.514	0.429	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				**N<4**	**N<4**	**N<4**
Trend = 80% Confidence Level	**No Trend**	**No Trend**	**INCREASING**	**N<4**	**N<4**	**N<4**
Trend = 90% Confidence Level	**No Trend**	**No Trend**	**INCREASING**	**N<4**	**N<4**	**N<4**
Stability Test, If No Trend Exists at 80% Confidence Level	**CV<=1 STABLE**	**CV<=1 STABLE**	**NA**	**n<4 n<4**	**n<4 n<4**	**n<4 n<4**

Data Entry By =	B. Breglio	Date =		Checked By =	

Mann-Kendall Statistical Test

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Site Name =	NAVWPNSTA Seal Beach	Site ID No. = IRP Site 7	Well Number =	**W-41**

	Compound ->	**4,4'-DDD**	**ALPHA-BHC**	**ENDOSULFAN II**			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	October-03	0.01	0.005	0.005			
2	March-04	0.01	0.005	0.005			
3	September-04	0.0032	0.0049	0.0065			
4	October-05	0.01	0.005	0.005			
5							
6							
7							
8							
9							
10							

Mann Kendall Statistic (S) =	-1	-1	1	0	0	0
Number of Rounds (n) =	4	4	4	0	0	0
Average =	0.01	0.00	0.01	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =	0.003	0.000	0.001	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=	0.410	0.010	0.140	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				**N<4**	**N<4**	**N<4**
Trend = 80% Confidence Level	**No Trend**	**No Trend**	**No Trend**	**N<4**	**N<4**	**N<4**
Trend = 90% Confidence Level	**No Trend**	**No Trend**	**No Trend**	**N<4**	**N<4**	**N<4**
Stability Test, If No Trend Exists at 80% Confidence Level	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**n<4 n<4**	**n<4 n<4**	**n<4 n<4**

Data Entry By =	B. Breglio	Date =		Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

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Site Name =	NAVWPNSTA Seal Beach	Site ID No. =	IRP Site 7	Well Number =	**W-43**

	Compound ->	**ENDRIN KETONE**	**GAMMA-BHC**	**METHOXYCHLOR**			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	December-93						
2	April-94						
3	July-94						
4	October-94						
5	July-98						
6	September-98						
7	October-03	0.01	0.01	0.005			
8	March-04	0.0023	0.0015	0.0061			
9	September-04	0.01	0.01	0.005			
10	October-05	0.01	0.01	0.005			

Mann Kendall Statistic (S) =	1	1	-1	0	0	0
Number of Rounds (n) =	4	4	4	0	0	0
Average =	0.01	0.01	0.01	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =	0.004	0.004	0.001	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=	0.477	0.540	0.104	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				**N<4**	**N<4**	**N<4**
Trend = 80% Confidence Level	**No Trend**	**No Trend**	**No Trend**	**N<4**	**N<4**	**N<4**
Trend = 90% Confidence Level	**No Trend**	**No Trend**	**No Trend**	**N<4**	**N<4**	**N<4**
Stability Test, If No Trend Exists at 80% Confidence Level	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**n<4 n<4**	**n<4 n<4**	**n<4 n<4**

Data Entry By =	B. Breglio	Date =	Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

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Site Name =	NAVWPNSTA Seal Beach	Site ID No. =	IRP Site 7	Well Number =	**W-43**

	Compound ->	**4,4'-DDE**	**4,4'-DDT**	**ALDRIN**	**ALPHA-BHC**	**DIELDRIN**	**ENDOSULFAN I**
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	December-93						
2	April-94						
3	July-94						
4	October-94						
5	July-98						
6	September-98						
7	October-03	0.01	0.01	0.005	0.005	0.01	0.005
8	March-04	0.0023	0.0044	0.0023	0.0021	0.0026	0.0023
9	September-04	0.01	0.01	0.005	0.005	0.01	0.005
10	October-05	0.01	0.01	0.005	0.005	0.01	0.005

Mann Kendall Statistic (S) =	1	1	1	1	1	1
Number of Rounds (n) =	4	4	4	4	4	4
Average =	0.01	0.01	0.00	0.00	0.01	0.00
Standard Deviation =	0.004	0.003	0.001	0.001	0.004	0.001
Coefficient of Variation(CV)=	0.477	0.326	0.312	0.339	0.454	0.312

Error Check, Blank if No Errors Detected						
Trend = 80% Confidence Level	**No Trend**	**No Trend**	**No Trend**	**No Trend**	**No Trend**	**No Trend**
Trend = 90% Confidence Level	**No Trend**	**No Trend**	**No Trend**	**No Trend**	**No Trend**	**No Trend**
Stability Test, If No Trend Exists at 80% Confidence Level	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**

Data Entry By =	B. Breglio	Date =		Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, **provide at least four rounds** and **not more than ten rounds of data** that is **not seasonally affected**. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "**DATA ERR**" or "**DATE ERR**" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation from the governing regulatory agencies for the site and applicable guidance for recommendations on data entry for non-detect values (**See protocol at bottom of worksheet**).

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To avoid biasing the Mann-Kendall test, **the same value for all ND results must be entered** in the spreadsheet for a given compound. This is to make sure that any identified trends are data trends and not trends of laboratory detection limits. **SEE PROTOCOL AT BOTTOM OF WORKSHEET !**

Site Name =	NAVWPNSTA Seal Beach	Site ID No. =	IRP Site 7	Well Number =	**W-43**

	Compound ->	**IRON**	**MANGANESE**	**NICKEL**			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	December-93	592	1150	0.05			
2	April-94	1550	1350	0.05			
3	July-94	9610	1150	4.1			
4	October-94	3620	1180	3.8			
5	July-98	479	3570	0.05			
6	September-98	2480	3780	46			
7	October-03	153	5430	8.1			
8	March-04	378	5800	3.9			
9	September-04	175	5370	7.4			
10	October-05	193	6150	9.03			

Mann Kendall Statistic (S) =	-21	36	22	0	0	0
Number of Rounds (n) =	10	10	10	0	0	0
Average =	1923.00	3493.00	8.25	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =	2940.978	2125.690	13.679	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=	1.529	0.609	1.658	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				N<4	N<4	N<4
Trend = 80% Confidence Level	DECREASING	INCREASING	INCREASING	N<4	N<4	N<4
Trend = 90% Confidence Level	DECREASING	INCREASING	INCREASING	N<4	N<4	N<4
Stability Test, If No Trend Exists at 80% Confidence Level	NA	NA	NA	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By =	B. Breglio	Date =		Checked By =	

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Site Name =	NAVWPNSTA Seal Beach	Site ID No. = IRP Site 7	Well Number =	**W-42**

	Compound ->	**ALPHA-BHC**	**IRON**	**NICKEL**			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	December-93		47.6	0.05			
2	April-94		66.1	0.05			
3	July-94		15300	3.9			
4	October-94		3800	0.05			
5	July-98		626	0.05			
6	September-98		722	22.6			
7	October-03	0.005	1060	3.8			
8	March-04	0.0019	59.5	6.3			
9	September-04	0.005	940	0.05			
10	October-05	0.005	376	7.24			

Mann Kendall Statistic (S) =	1	1	15	0	0	0
Number of Rounds (n) =	4	10	10	0	0	0
Average =	0.00	2299.72	4.41	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =	0.002	4698.874	6.977	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=	0.367	2.043	1.583	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				**N<4**	**N<4**	**N<4**
Trend = 80% Confidence Level	**No Trend**	**No Trend**	**INCREASING**	**N<4**	**N<4**	**N<4**
Trend = 90% Confidence Level	**No Trend**	**No Trend**	**No Trend**	**N<4**	**N<4**	**N<4**
Stability Test, If No Trend Exists at 80% Confidence Level	**CV<=1 STABLE**	**CV>1 NON-STABLE**	**NA**	**n<4 n<4**	**n<4 n<4**	**n<4 n<4**

Data Entry By =	B. Breglio	Date =		Checked By =	

Mann-Kendall Statistical Test

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Site Name =	NAVWPNSTA Seal Beach	Site ID No. =	IRP Site 7	Well Number =	**W-45**

	Compound ->	**4,4'-DDT**	**ENDOSULFAN II**	**CADMIUM**	**IRON**	**NICKEL**	
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	December-93			2.5	29.1	3.5	
2	April-94			2.5	419	0.05	
3	July-94			2.5	4330	5.6	
4	October-94			2.5	4000	4	
5	July-98			13.9	10	3.5	
6	September-98			19.3	371	21.5	
7	October-03	0.001	0.001	11.7	10	10.8	
8	March-04	0.001	0.001	9.4	66.5	13.4	
9	September-04	0.0019	0.0078	17	47.4	7	
10	October-05	0.001	0.001	4.39	41.1	9.7	

Mann Kendall Statistic (S) =	1	1	17	-12	20	0
Number of Rounds (n) =	4	4	10	10	10	0
Average =	0.00	0.00	8.57	932.41	7.91	#DIV/0!
Standard Deviation =	0.000	0.003	6.582	1711.972	6.223	#DIV/0!
Coefficient of Variation(CV)=	0.367	1.259	0.768	1.836	0.787	#DIV/0!

Error Check, Blank if No Errors Detected						**N<4**
Trend = 80% Confidence Level	**No Trend**	**No Trend**	**INCREASING**	**DECREASING**	**INCREASING**	**N<4**
Trend = 90% Confidence Level	**No Trend**	**No Trend**	**INCREASING**	**No Trend**	**INCREASING**	**N<4**
Stability Test, If No Trend Exists at 80% Confidence Level	**CV<=1 STABLE**	**CV>1 NON-STABLE**	**NA**	**NA**	**NA**	**n<4 n<4**

Data Entry By =	B. Breglio	Date =		Checked By =	

Mann-Whitney U Statistical Test

Instructions: You can not change information in cells with a blue background, **only cells with a yellow background are used for data entry**. Provide **eight (8) consecutive rounds of data** for the spreadsheet to work properly. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "**DATA ERR**" or "**DATE ERR**" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends. At a 90 percent confidence level, a U statistic of three (3) or less indicates a decreasing trend, and a U statistic of thirteen (13) or more indicates an increasing trend. If the data does not pass either the increasing or decreasing trend test, the "**No Trend**" result will be displayed. **Use zeros for non-detect data**.

Error Messages: There is a section below the data entry screen that describes data entry errors in more detail and which cell has that error. Thus a user can determine what and where their error is very quickly. **Note that a space is seen as text in Excel formulae.**

Data Entry and Error Messages: When **less than eight rounds of data are entered**, if there are no text entries and no negative values, instead of getting an "ERROR" message, **the user simply gets a "n<8" message**. But, if text or a negative number is inadvertently entered, the "**DATA ERR**" message is displayed. Thus, during data entry, an "ERROR" message is only displayed when there actually is an error.

Site Name =	NAVWPNSTA Seal Beach	**Site ID No. =**	IRP Site 7	**Well Number =**	**W-42**

		Compound->	**IRON**	**NICKEL**				
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data - 0 if ND)	Concentration (leave blank if no data - 0 if ND)	Concentration (leave blank if no data - 0 if ND)	Concentration (leave blank if no data - 0 if ND)	Concentration (leave blank if no data - 0 if ND)	Concentration (leave blank if no data - 0 if ND)
	- - -	July-94	15300	3.9				
	92	October-94	3800	0.05				
	1369	July-98	626	0.05				
	62	September-98	722	22.6				
	1856	October-03	1060	3.8				
	152	March-04	59.5	6.3				
	184	September-04	940	0.05				
	395	October-05	376	7.24				

Error Check, Blank If No Errors Detected			n<8	n<8	n<8	n<8
DATA IS NEITHER QUARTERLY or SEMI-ANNUAL						

U Statistic =	4	9	n<8	n<8	n<8	n<8
Trend = 90 % Confidence Level	**No Trend**	**No Trend**	n<8	n<8	n<8	n<8

Data Entry By =	B. Breglio	Date =		Checked By =	

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Site Name =	NAVWPNSTA Seal Beach	**Site ID No. =**	IRP Site 7	**Well Number =**	**W-41**

		Compound->	**COBALT**	**IRON**				
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data - 0 if ND)	Concentration (leave blank if no data - 0 if ND)	Concentration (leave blank if no data - 0 if ND)	Concentration (leave blank if no data - 0 if ND)	Concentration (leave blank if no data - 0 if ND)	Concentration (leave blank if no data - 0 if ND)
	- - -	July-94	20.7	24700				
	92	October-94	24.9	13600				
	1369	July-98	10.2	10600				
	62	September-98	12	17200				
	1856	October-03	35.9	7030				
	152	March-04	38.6	2790				
	184	September-04	32.5	7730				
	395	October-05	32.1	4530				

Error Check, Blank If No Errors Detected			n<8	n<8	n<8	n<8
DATA IS NEITHER QUARTERLY or SEMI-ANNUAL						

U Statistic =	16	0	n<8	n<8	n<8	n<8
Trend = 90 % Confidence Level	INCREASING	DECREASING	n<8	n<8	n<8	n<8

Data Entry By =	B. Breglio	Date =		Checked By =	

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Site Name =	NAVWPNSTA Seal Beach	**Site ID No. =**	IRP Site 7	**Well Number =**	**W-43**

		Compound->	**IRON**	**MANGANESE**	**NICKEL**			
Event Number	Days After Previous Round	Sampling Date (most recent last)	Concentration (leave blank if no data - 0 if ND)	Concentration (leave blank if no data - 0 if ND)	Concentration (leave blank if no data - 0 if ND)	Concentration (leave blank if no data - 0 if ND)	Concentration (leave blank if no data - 0 if ND)	Concentration (leave blank if no data - 0 if ND)
	- - -	July-94	9610	1150	4.1			
	92	October-94	3620	1180	3.8			
	1369	July-98	479	3570	0.05			
	62	September-98	2480	3780	46			
	1856	October-03	153	5430	8.1			
	152	March-04	378	5800	3.9			
	184	September-04	175	5370	7.4			
	395	October-05	193	6150	9.03			

Error Check, Blank If No Errors Detected				**n<8**	**n<8**	**n<8**
DATA IS NEITHER QUARTERLY or SEMI-ANNUAL						
U Statistic =	0	16	11	**n<8**	**n<8**	**n<8**
Trend = 90 % Confidence Level	**DECREASING**	**INCREASING**	**No Trend**	**n<8**	**n<8**	**n<8**

Data Entry By =	B. Breglio	Date =		Checked By =	