FINAL
GROUNDWATER MONITORING REPORT

INSTALLATION RESTORATION PROGRAM (IRP)
SITE 14
NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA

June 1, 2007

Contract No.: N68711-99-D-6620
Delivery Order No.: 0021
DCN: CA99.064.021.006

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

Prepared by:
MARRS Services, Inc.
101 State Place, Suite O
Escondido, California 92029
(760) 233-1840 phone
(760) 233-7510 fax

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REVIEW AND APPROVAL

MARRS Project Manager: _____ **Date:** 6/1/2007
Bob Breglio, P.G. 7907

PROFESSIONAL GEOLOGIST
ROBERT BREGLIO
NO. 7907
exp 9/08
STATE OF CALIFORNIA

MARRS Division Manager: _____ **Date:** 6/1/2007
Rod Reeve, P.G. 4941

EXECUTIVE SUMMARY

This Groundwater Monitoring Report presents the findings, conclusions, and recommendations of the groundwater investigation conducted at Installation Restoration Program (IRP) Site 14, Naval Weapons Station (NAVWPNSTA) Seal Beach, Seal Beach, California (Figures 1 and 2). During this investigation, groundwater monitoring was conducted at IRP Site 14 in March 2006, August 2006, and October 2006.

MARRS prepared this report on behalf of the Naval Facilities Engineering Command Southwest (NAVFAC SW), in accordance with Delivery Order 021 under MARRS' Indefinite Quantities Contract for Architectural and Engineering (A-E) Services for Environmental Services for Potable Water, Groundwater, and Wastewater at Navy/Marine Corps Installations at Various locations in California, Nevada, Arizona, and New Mexico, contract number N68711-D-99-6620.

Prior to the start of this investigation, an Ecological Risk Screening (ERS) for Potential Impacts to Seal Beach National Wildlife Refuge (SBNWR) from IRP Site 14 was conducted (MARRS and GeoSyntec Consultants [GeoSyntec] 2005). The ERS evaluated chemicals of ecological concern (COEC) identified during previous investigations at the site. The COECs were evaluated for their ability to significantly impact ecological receptors in the surface water body associated with the SBNWR adjacent to IRP Site 14. These COECs are:

- Benzene, toluene, and total xylenes
- Methyl tert-butyl ether (MTBE)
- Total petroleum hydrocarbons (TPH) as gasoline

Results of the ERS indicate that previously detected concentrations of the COECs at IRP Site 14 did not exceed accepted ecological screening values currently recommended by relevant state guidance in the Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater (RWQCB, San Francisco Bay Region 2003) and federal guidance from the United States Environmental Protection Agency (USEPA). In addition, the groundwater flow velocity in the site vicinity is low (1 to 10 feet/year)

suggesting the potential for migration of COEC in groundwater is limited. Based on the results of the ERS, additional delineation of the groundwater plume and additional groundwater monitoring was recommended to monitor natural attenuation. The groundwater investigation work plan (MARRS 2006) prepared for this investigation was based on the findings of the ESA.

Prior to this investigation, groundwater monitoring at the site was conducted from 1999 through 2002 by Foster Wheeler Environmental Corporation (FWENC). Groundwater sampling was first initiated at the site in 1984 (Unites States Geological Survey [USGS] 1991).

The purpose and objectives of this groundwater investigation were based on the findings and conclusions of the ERS. The primary objectives of the groundwater investigation at IRP Site 14 are as follows (MARRS 2006):

- Determine the lateral extent of the dissolved-phase petroleum hydrocarbon plume at IRP Site 14.
- Determine if the dissolved-phase petroleum hydrocarbon plume at the site is stable and if natural attenuation is occurring.
- Determine if concentrations of COECs along the boundary of IRP Site 14 and the SBNWR are below the selected ecological risk-based screening values.

The objectives are reflected in the DQOs for IRP Site 14 which are presented in the Final Work Plan (MARRS 2006) and included in Appendix A of this report. The following presents the findings of this groundwater monitoring investigation based on the objectives presented above.

Determine the Extent of the Dissolved-Phase Petroleum Hydrocarbon Plume

The lateral extent of the dissolved-phase petroleum hydrocarbon plume at IRP Site 14 has been defined. The core of the petroleum hydrocarbon plume is situated around monitoring wells BSW-14-2, BSW-14-3, and BSW-14-4. The plume is bounded on all sided by monitoring wells and groundwater sampling points (temporary monitoring wells) which have continuously yielded groundwater samples with relatively low

concentrations of COECs or samples with non-detectable concentrations of COECs. Most importantly, all detected concentrations of COECs in monitoring wells bounding the core of the petroleum hydrocarbon plume have been below the established ecological risk-based screening values for the site (MARRS and GeoSyntec 2005).

The highest concentrations of MTBE have been detected in monitoring well BSW-14-11. This is the new monitoring well installed along the boundary between IRP Site 14 and the SBNWR. MTBE has been reported in this well at concentrations of 650 µg/l and 580 µg/l during the August 2006 and October 2006 monitoring events, respectively. However, these concentrations are well below the established ecological risk-based screening value for MTBE of 8,000 µg/l.

Furthermore, detected concentrations of MTBE in monitoring well MW-05-04, sampled as part of IRP Site 5, are most likely attributed to IRP Site 14. Although concentrations have increased during each sampling event at IRP Site 5, the highest reported concentration in this monitoring well is 50 µg/l, significantly less than the established ecological risk-based screening value for MTBE of 8,000 µg/l.

Determine if the Dissolved-Phase Petroleum Hydrocarbon Plume at the Site Stable and if Natural Attenuation Occurring

Natural attenuation is occurring at IRP Site 14. This is supported by both direct evidence and indirect evidence.

Direct evidence is provided by the results of statistical trend analysis using the Mann-Kendall (S) statistical test. In summary, results indicate that there are no increasing concentration trends for any COECs in any monitoring well at the site. Time series concentration graphs are presented in Appendix G and statistical calculations are presented in Appendix H.

Concentrations of TPH as gasoline, MTBE, and BTEX are decreasing in monitoring wells BSW-14-2 and BSW-14-3, situated within the core of the petroleum hydrocarbon plume. Concentrations of MTBE, ethyl benzene and total xylenes are decreasing in

monitoring well BSW-14-4 with no trends exhibited for TPH as gasoline, benzene, and toluene.

Concentrations of MTBE have also been decreasing in boundary well BSW-14-8. MTBE has decreased from a reported high of 200 µg/l in 2002 to 8.8 µg/l in October 2006. COECs have not been detected in boundary well BSW-14-9 since November 1999.

Indirect evidence for natural attenuation occurring at IRP site 14 is provided by an evaluation of geochemical data. Geochemical data such as dissolved oxygen concentrations, oxidation-reduction potential, ferrous iron and sulfate concentrations, as well as hydrogen sulfide and methane concentrations all indicate that natural attenuation is occurring at the site. The primary mechanisms in which natural attenuation is occurring are oxidation-reduction, iron and sulfate reduction, and methanogenesis. Data also indicates that natural attenuation is occurring under anaerobic conditions. In summary, the data indicates that natural is occurring within the core of the petroleum hydrocarbon around monitoring wells BSW-14-2, BSW-14-3, and BSW-14-4. Graphs of the concentrations and measurements of the geochemical parameters plotted against concentrations of TPH as gasoline, MTBE and benzene are provided in Appendix I. A discussion of indirect evidence for natural attenuation is presented in Section 5.3.3 of the report.

Determine if Concentrations of COECs along the boundary of IRP Site 14 and the SBNWR below the selected ecological risk-based screening values

All concentrations of COPS in monitoring wells BSW-14-1, BSW-14-8, BSW-14-9, and BSW-14-11, situated near or on the boundary between IRP Site 14 and the SBNWR are below the established ecological risk-based screening values. In fact, MTBE has never exceeded the established ecological risk-based screening value of 8,000 µg/l in any of the monitoring wells at IRP Site 14. TPH as gasoline and BTEX have only exceeded their established ecological risk-based screening values of 0.5 µg/l, 46 µg/l, 130 µg/l, 290 µg/l, and 13 µg/l, respectively, in monitoring wells BSW-14-2, BSW-14-3, and BSW-14-4 situated within the core of the petroleum hydrocarbon plume.

RECOMMENDATIONS FOR IRP SITE 14

Based on the conclusions presented above, and the DQO Decision Rules (Step 5) (MARRS 2006), a recommendation of no further action is made for IRP Site 14.

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ABBREVIATIONS AND ACRONYMS

AST	aboveground storage tank
bgs	below ground level
BNI	Bechtel National, Incorporated
BTEX	benzene, toluene, ethylbenzene, and xylenes
CDWR	California Department of Water Resources
COEC	chemical of ecological concern
COPC	chemical of potential concern
DPT	direct push technology
ºF	degree Fahrenheit
DO	dissolved oxygen
DoN	Department of the Navy
DTSC	Department of Toxic Substances Control
ESTCP	Environmental Surveillance Technical Certification Program
ER	equipment rinse
FD	field duplicate
ft/ft	foot per foot
FWENC	Foster Wheeler Environmental Corporation
GeoSyntec	GeoSyntec Consultants
IC	ion chromatography

ABBREVIATIONS AND ACRONYMS (continued)

IRP	Installation Restoration Program
J	estimated
MARRS	MARRS Services, Inc.
MCL	Maximum Contaminant Level
mg/kg	milligrams per kilogram
mg/l	milligrams per liter
MNA	monitored natural attenuation
msl	mean sea level
MS/MSD	matrix spike/matrix spike duplicate
MTBE	methyl tertiary butyl ether
N/A	not applicable
NAVWPNSTA	Naval Weapons Station
NFEC SW	Naval Facilities Engineering Command Southwest
ORP	oxidation-reduction potential
PCE	tetrachlorethene
ppb	parts per billion
ppm	parts per million
QC	quality control
RWQCB	Regional Water Quality Control Board

ABBREVIATIONS AND ACRONYMS (continued)

SAP	Sampling and Analysis Plan
SBNWR	Seal Beach National Wildlife Refuge
SI	Site Inspection
TB	trip blank
TCE	trichloroethene
TDS	total dissolved solids
TKN	total kjeldahl nitrogen
TPH	total petroleum hydrocarbons
U	not detected equal to or above reporting limits
µg/l	micrograms per liter
USEPA	U.S. Environmental Protection Agency
USGS	United States Geological Survey
UST	underground storage tank
VOC	volatile organic compound
1,2-DCA	1,2-dichloroethene

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1.0 INTRODUCTION

This Groundwater Monitoring Report presents the findings, conclusions, and recommendations of the groundwater investigation conducted at Installation Restoration Program (IRP) Site 14, Naval Weapons Station (NAVWPNSTA) Seal Beach, Seal Beach, California (Figures 1 and 2). During this investigation, groundwater monitoring was conducted at IRP Site 14 in March 2006, August 2006, and October 2006. Prior to the start of this investigation, an Ecological Risk Screening (ERS) for Potential Impacts to Seal Beach National Wildlife Refuge (SBNWR) from IRP site 14 was conducted (MARRS Services, Inc. [MARRS] and GeoSyntec Consultants [GeoSyntec] 2005). The purpose and objectives of this groundwater investigation were based on the findings and conclusions of the ERS. Prior to the ERS and this investigation, groundwater monitoring at the site was conducted from 1999 through 2002 by Foster Wheeler Environmental Corporation (FWENC). Groundwater sampling was first initiated at the site in 1984 (Unites States Geological Survey [USGS] 1991). MARRS prepared this report on behalf of the Naval Facilities Engineering Command Southwest (NAVFAC SW), in accordance with Delivery Order 021 under MARRS' Indefinite Quantities Contract for Architectural and Engineering (A-E) Services for Environmental Services for Potable Water, Groundwater, and Wastewater at Navy/Marine Corps Installations at Various locations in California, Nevada, Arizona, and New Mexico, contract number N68711-99-D-6620.

1.1 PURPOSE

The purpose of this additional groundwater investigation at IRP Site 14 was to fill data gaps and to further delineate the extent of the petroleum hydrocarbon plume at the site. The groundwater data collected from this investigation has been used to assess contaminant concentration trends, and to assess if natural attenuation is occurring at the site or if site conditions are favorable for natural attenuation to occur.

In summary, the ERS conducted prior to the start of this groundwater monitoring evaluated chemicals of ecological concern (COECs) identified during previous investigations at the site. The COECs were evaluated for their ability to significantly

impact ecological receptors in the surface water body associated with the SBNWR adjacent to IRP Site 14. These COECs are:

- Benzene, toluene, and total xylenes
- Methyl tert-butyl ether (MTBE)
- Total petroleum hydrocarbons (TPH) as gasoline

Results of the ERS indicate that previously detected concentrations the COECs at IRP Site 14 did not exceed accepted ecological screening values currently recommended by relevant state guidance in the Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater (RWQCB, San Francisco Bay Region 2003) and federal guidance from the United States Environmental Protection Agency (USEPA). In addition, the groundwater flow velocity in the site vicinity is low (1 to 10 feet/year) suggesting the potential for migration of COECs in groundwater is limited. Based on the results of the ERS, additional delineation of the groundwater plume and additional groundwater monitoring was recommended to monitor natural attenuation and to establish rates of biodegradation. The work plan (MARRS 2006) prepared for this investigation was based on the findings of the ESA

1.2 SCOPE

This report presents data collected during the three groundwater monitoring events conducted in March 2006, August 2006, and October 2006, and also evaluates historical data. Using the decision rules established in the Final Work Plan (MARRS 2006), this report evaluates the data and makes recommendations. The technical approach used for data collection and evaluation is based on the data quality objectives (DQOs) developed in the Final Work Plan (MARRS 2006) in accordance with the United States Environmental Protection Agency (U.S. EPA) seven-step DQO process (U.S. EPA 1994). The DQO table is presented in Appendix A.

The following activities were conducted during this groundwater monitoring investigation:

March 2006: Installation, sampling, and abandonment of six temporary groundwater monitoring wells (IRP-14-TMW-1 through IRP-14-TMW-6), and sampling of existing monitoring wells BSW-14-1 through BSW-14-9.

August 2006: Installation, sampling, and abandonment of four temporary groundwater monitoring wells (IRP-14-TMW-7 through IRP-14-TMW-10), sampling of existing monitoring wells BSW-14-1 through BSW-14-9, and installation and sampling of two new groundwater monitoring wells (BSW-14-10 and BSW-14-11).

October 2006: Sampling of monitoring wells BSW-14-1 through BSW-14-11.

1.3 REPORT ORGANIZATION

This groundwater monitoring report is organized as follows:

- Section 1 summarizes the scope and purpose of the groundwater investigation
- Section 2 provides a site description and background information
- Section 3 provides a description of field activities
- Section 4 is a summary of the field events
- Section 5 provides a data evaluation
- Section 6 presents the conclusions and recommendation
- Section 7 presents the references cited in this report

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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).

2.1.1 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.

2.1.2 IRP Site 14 Description

IRP Site 14 at the NAVWPNSTA Seal Beach is the former location of three steel underground storage tanks (USTs) which were used to store leaded gasoline and diesel fuel for a refueling service station used by base vehicles (Foster Wheeler Environmental Corporation [FWENC], 2000). Use of the USTs was discontinued in 1984 after the gasoline tank was found to have leaked. The leak was discovered during a subsurface soil evaluation performed as a precursor to replacing the tank with two new fiberglass fuel storage tanks. Due to the large volume of gasoline dispensed from the service station over the course of operation and lack of sufficient records, neither the precise timing nor quantity of leakage could be determined (NAVWPNSTA Seal Beach personnel, 1984). The United States Geological Survey (USGS) Report (USGS, 1991) indicates two tanks but only discusses one 12,000-gallon UST. The Baseline Survey Report (FWENC, 2000) identified areas of reinforced concrete in the geophysical survey, but does not indicate the former USTs. The Groundwater Investigation Report (FWENC, 2002d) indicates three tanks located under the reinforced concrete island. Additional details related to the site history may be obtained in the Baseline Survey Report (FWENC, 2000). The dispensers at IRP Site 14 were connected to the above ground storage tank (AST) directly north of the site; however, the dispensers and connections were removed early 2006.

2.1.3 Geologic Setting

IRP Site 14 is situated on the gently sloping southeast margin of Landing Hill. Landing Hill is a mesa that extends 1.8 miles inland from the beach and reaches a maximum elevation of 70 feet above sea level. As reported in California Department of Water

Resources (CDWR) Bulletin No. 63-2 entitled Sea-Water Intrusion: Bolsa-Sunset Area, Orange County, Landing Hill is formed by anticlinal uplift along the Newport-Inglewood Fault [CDWR, 1968]. Site 14 is located approximately 250 feet seaward of the Newport-Inglewood Fault. The SBNWR, located southeast of Site 14, is situated in the Sunset Gap, which is an erosional plain that is partially backfilled by recent lagoonal, tidal marsh, and alluvial floodplain deposits. The tidal marsh, lagoonal, and alluvial deposits of Sunset Gap are predominantly silty sands, clayey silts, and silty sands with lenses of peat and irregular stringers of medium to coarse silty sand [CDWR, 1968]. The sediments grade landward from sands, to silts and clays [CDWR, 1968]. It is reported that in the Sunset Gap area, the lagoonal-alluvial sediments overlie Pleistocene sediments and reach a maximum thickness of 35 to 40 feet. The underlying Pleistocene sediments of the Lakewood and San Pedro Formations comprise thick water-bearing formations in the area. The Lakewood Formation is interpreted to reach a thickness of 400 feet in the inland portion of the Sunset Gap. The underlying San Pedro Formation has a reported thickness of 550 to 650 feet in the Landing Hill area [CDWR, 1968].

2.1.4 Hydrogeologic Setting

NAVWPNSTA Seal Beach overlies the Santa Ana Pressure Subbasin of the Lower Santa Ana Watershed (RWQCB, Santa Ana Region 1995). The Orange County Basin contains the Artesian, Gage, Hollydale, Jefferson, Lynwood, and Silverado aquifers. The Lynwood and Silverado aquifers are merged across most of the station.

In the IRP Site 14 area, the upper 25 feet of soil deposits consist predominantly of silty sand and sandy silt with a small percentage of silty clay (FWENC, 2002d). The silty sand has an estimated transmissivity of 0.33 to 3.3 feet/day, while the sandy silt has an estimated transmissivity exceeding 3.3 feet/day. Approximately 10 percent of the area of Site 14 contains silty clay with a transmissivity less than 0.33 feet/day (USGS, 1991). The typical hydraulic gradient across Site 14 is west to east towards the SBNWR at approximately 1 foot per 1,500 feet (USGS, 1991). Tidal influence, associated with the nearby coastal wetlands, causes the groundwater elevation across Site 14 to fluctuate [generally between 6 and 8 feet below ground surface (bgs)].

The depth to groundwater at IRP Site 14 area ranges from 7 to 10 feet below ground surface, with groundwater elevations ranging from 3 to 4 feet above mean sea level. Existing groundwater monitoring wells at the site are completed at approximately 25 feet below ground surface with 20 feet of screen section (5 to 25 feet).

2.2 PREVIOUS INVESTIGATIONS

This sections provides a summary of previous investigations.

2.2.1 United States Geological Survey Investigation

In 1984, the DoN commissioned the United States Geological Survey (USGS) to perform a study of the extent of the gasoline contamination. The study included drilling 33 shallow test holes and installation of groundwater monitoring wells in several of the test holes. Both soil and groundwater samples were collected and analyzed as part of the study.

Results of the USGS study (USGS, 1991) concluded that approximately 5,800 gallons (with an uncertainty of 2,000 gallons) of gasoline were present in the subsurface soil at concentrations below residual saturation. The USGS report stressed that the estimated quantity of gasoline was a minimum estimate of the total quantity of gasoline contained in the subsurface, since it did not include the gasoline-saturated soil in the vicinity of the former leaking tank. The quantity of gasoline contained in the gasoline-saturated soil near the leaky tank was expected to be less than 5,800 gallons (USGS, 1991). According to the USGS study, the concentration of petroleum hydrocarbons in the soil samples ranged from 4.2 milligrams per kilogram (mg/kg) [or parts per million (ppm)] to 32,000 mg/kg. No other volatile organic compound (VOC) results for soil were presented in the report. The USGS study concluded that gasoline had spread almost radially through the subsurface soil to a distance of 150 to 300 feet from the source (USGS, 1991). The gasoline-contaminated soil was estimated to encompass an area of 160,000 square feet, with an approximate thickness of 1 to 2 feet near the water table.

The USGS study did not delineate the extent of the groundwater plume. According to the groundwater data collected by the USGS the only gasoline compound detected in the groundwater was 1,2-dichloroethane (1,2-DCA) at concentrations ranging from 3.3 micrograms per liter (µg/l) [or parts per billion (ppb)] to 69 µg/l. All other gasoline compounds in groundwater were below the detection limits in wells within the boundaries of the subsurface soil plume. The USGS study concluded that gasoline does not pose a threat to drinking water wells because none existed in the study area (USGS, 1991). Due to the proximity of the USGS delineated soil plume boundary to the nearby SBNWR, the USGS study determined that gasoline in the subsurface environment at this site was of ecological concern to the marine life.

2.2.2 Stanford University Study

In 1998, Stanford University completed a 2.5-year study of the plume, sponsored by the Department of Defense Environmental Security Technology Certification Program (ESTCP). The purpose of the ESTCP study at IRP Site 14 was to demonstrate a technology for enhancing in-situ anaerobic bioremediation of fuel-contaminated groundwater. As part of the study, a series of groundwater injection, extraction, and observation wells and soil borings were constructed. The primary treatment technology was biological oxidation using alternate electron acceptors and fermentation. The supplemental technology involved the use of pretreatment feedwater introduced into the subsurface via the injection wells. The wells were monitored and sampled over the course of the study. The ESTCP study delineated both the extent of the benzene in groundwater associated with the gasoline contamination [i.e. benzene concentrations equal to or exceeding the Maximum Contaminant Level (MCL)] and the approximate center of the benzene plume (Lebron, 2000). The approximate center of the benzene groundwater plume as of January 1996 was shown in close proximity to Well 2, immediately to the east of the dispenser islands (ESTCP, 1998). In February 1999, all of the monitoring wells constructed at Site 14 for the prior investigations were abandoned by Battelle Memorial Institute on request by NAVWPNSTA Seal Beach environmental personnel (Lebron, 2000).

2.2.3 Foster Wheeler Environmental Corporation Baseline Survey

In 1999, the DoN, through the SWDIV, initiated a limited-scope subsurface soil and groundwater investigation (baseline survey) to formally establish baseline conditions and delineate the extent of the hydrocarbon plume beneath IRP Site 14. The baseline survey was conducted by FWENC between October and November 1999. During the baseline survey, five soil borings were drilled across the site and sampled at various depths. Also, five additional groundwater monitoring well borings were drilled and sampled at various depths and converted to monitoring wells (Wells BSW-14-1 through BSW-14-5) at locations shown on Figure 2. Wells BSW-14 through BSW-14-5 were installed and groundwater samples were collected to assess the presence of the hydrocarbon constituents in the groundwater.

The baseline survey soil sample results indicated that the sub surface soil at the site was essentially clean and suitable for future residential land use. Only one of the ten borings sampled (located near Well BSW-14-4) showed petroleum hydrocarbon constituents at concentrations in excess of the Preliminary Remediation Goals for residential soil.

No free-floating product was encountered in any of the five groundwater monitoring wells installed during the baseline survey. The results of the baseline survey at IRP Site 14 were presented to the RWQCB, Santa Ana Region, in a Final Baseline Survey Report (FWENC, 2000). Based on groundwater samples collected from the five monitoring wells installed during the baseline survey, the report concluded that gasoline-related constituents were present in groundwater. These included benzene, toluene, ethylbenzene, and total xylenes (BTEX), as well as MTBE, 1,2-DCA, and TPH. Non-gasoline-related constituents, including trichloroethene (TCE) and tetrachloroethene (PCE), were also detected in two of the monitoring wells installed at IRP Site 14 during the baseline survey. The Final Baseline Survey Report (FWENC, 2000) describes the findings from the baseline survey, which showed the distribution of the benzene and MTBE concentrations within the area defined by the five monitoring wells.

Based on the results of the baseline survey, TPH and VOCs consisting of BTEX, MTBE, 1,2-DCA, PCE, and TCE were identified as the chemicals of potential concern (COPCs) for groundwater at IRP Site 14. Based on the information in the Final Baseline Survey Report (FWENC, 2000), the RWQCB requested the submittal and implementation of an Addendum Baseline Survey Work Plan for an additional groundwater investigation to define the extent of the groundwater contamination. The RWQCB also requested the submittal and implementation of a Groundwater Monitoring Plan to track changes in the plumes over time.

2.2.4 Foster Wheeler Environmental Corporation Phase I and Phase II Groundwater Investigation

A Final Addendum Baseline Survey Work Plan (FWENC, 2001a), describing the groundwater investigation and monitoring to be performed, was completed and submitted to the DoN, Department of Toxic Substances Control (DTSC), and RWQCB on March 16, 2001. A Groundwater Monitoring Plan was prepared as part of the Final Addendum Baseline Survey Work Plan. After receiving approval of the Final Addendum Baseline Survey Work Plan (FWENC, 2001a) from the RWQCB and DTSC, groundwater investigation activities were initiated.

The activities for the groundwater investigation were performed in two separate phases (Phase I and Phase II). A detailed description of the groundwater investigation activities and findings can be found in a technical memorandum, Results of the Additional Groundwater Investigation (Phase I) and Rationale for Proposed Groundwater Monitoring Well Locations for IR Site 14, dated May 24, 2001 (FWENC, 2001b), and Final Groundwater Investigation Report, Site 14, Naval Weapons Station Seal Beach, California, (FWENC, 2002d), and is summarized in the following paragraphs.

Phase I activities included the collection and analysis of HydroPunch groundwater samples from ten different locations at IRP Site 14 (Figure 2). The analytical results from the Phase I HydroPunch sampling were used to estimate the benzene and MTBE plume boundaries. The estimated benzene and MTBE plume boundaries were then used

to determine the location of four additional monitoring wells. To further characterize the subsurface conditions at IRP Site 14, two 10-foot continuous cores were collected near two HydroPunch sample locations, 14-HP-6 and 14-HP-10. The soil cores were used for visual classification of the subsurface lithology.

The locations of the four new wells BSW-14-6, BSW-14-7, BSW-14-8, and BSW-14-9 were finalized during a teleconference meeting that took place on August 27, 2001. The purpose of the meeting was to discuss the proposed wells based on the Phase I results. The meeting involved representatives from SWDIV, NAVWPNSTA Seal Beach, DTSC, RWQCB, and FWENC.

Phase II activities included the installation and development of the four new groundwater monitoring wells, BSW-14-6 through BSW-14-9, at IRP Site 14 at locations shown on Figure 2. After the wells were installed and developed, groundwater samples were collected from all nine wells and analyzed for VOCs, and TPH as gasoline and diesel.

The results for the Phase II groundwater samples indicated that the overall concentrations of BTEX, MTBE, and related compounds had decreased in the five original baseline survey wells at IRP Site 14 (BSW-14-1 through BSW-14-5). In some cases, such as Well BSW-14-4, concentrations decreased by a full order of magnitude or more in the time between the baseline survey (October 1999) and Phase II of the groundwater investigation (October 2001).

It was proposed in the Final Groundwater Investigation Report, Site 14, Naval Weapons Station Seal Beach, California, dated January 14, 2002 (FWENC, 2002d) that all nine groundwater monitoring wells at IRP Site 14 will be sampled four times (once each quarter) in 2002 to assess potential trends in the data and to provide future recommendations for the groundwater at IRP Site 14.

2.2.5 Foster Wheeler Environmental Corporation 2002 Annual Groundwater Monitoring Report

A Final 2002 Annual Groundwater Monitoring Report (FWENC, 2002d), presenting the results of four quarters of groundwater monitoring at IRP Site 14 2002, was completed on December 6, 2002. The monitoring events included measuring water levels and collecting and analyzing groundwater samples from wells BSW-14-1 through BSW-14-9. Groundwater samples were analyzed for VOCs, TPH as gasoline and diesel. Conclusions presented in the 2002 Annual Groundwater Monitoring Report indicated that the petroleum hydrocarbon plume appeared to be stable and not migrating off-site. Concentrations of BTEX, MTBE, and TPH as gasoline and diesel appeared to have decreased or remained stable since 2001 (FWENC 2001b, 2002a, 2002b, 2002c and 2002d).

2.2.6 Ecological Risk Screening Results for Potential Impacts to Seal Beach National Wildlife Refuge from Site 14

GeoSyntec prepared a technical memorandum for ecological risk screening (ERS) results for potential impacts to SBNWR from COPC at IRP Site 14 (GeoSyntec and MARRS 2005). The ERS was conducted to evaluate the potential for petroleum hydrocarbon related chemicals, i.e. BTEX and MTBE, in groundwater to impact ecological receptors in the surface water body associated with the SBNWR adjacent to IRP site 14. The results of the ERS indicate that observed concentrations of BTEX and MTBE (chemical of ecological concern) at IRP Site 14 monitoring wells do not exceed accepted ecological risk screening values. The technical memorandum recommended that additional monitoring be conducted to further delineate the extent of the petroleum hydrocarbon plume and to assess if natural attenuation is occurring at the site and, if so, calculate the rate of biodegradation.

2.3 REGULATORY OVERSIGHT

Regulatory agency personnel, in conjunction with the DoN, approve decisions and recommendations presented in the investigation reports. The agency project managers are responsible for overseeing and monitoring the progress of the work at the site.

Regulatory project managers providing oversight are the DTSC Project Manager and the RWQCB Project Manager.

3.0 FIELD ACTIVITIES

Groundwater monitoring for this investigation was conducted during three monitoring events:

- March 27 and 28, 2006
- August 2 through 7, 2006
- October 16 and 17, 2006

The groundwater investigation included underground utility clearing prior to the installation of temporary and permanent monitoring wells; installation, sampling, and abandonment of temporary monitory wells; installation of permanent monitoring wells; lands surveying; measurement of groundwater elevations; low-flow purging and sampling of permanent groundwater monitoring wells; and the collection of groundwater quality measurements.

3.1 UNDERGROUND UTILITIES CLEARING AND DIG PERMITS

A geophysical survey was conducted prior to the March 2006 and August 2006 monitoring events to screen for underground utilities prior to drilling and installing temporary and permanent monitoring wells. The Geophysical surveys were conducted by Subsurface Surveys of Solana Beach, California. Copies of the geophysical survey reports are included as Appendix B.

In addition, a dig permit was obtained from the Resident Officer in Charge of Construction (ROICC) office prior to conducting intrusive activities. Copies of the approved Dig Permits are also included in Appendix B.

3.2 INSTALLATION, SAMPLING, AND ABANDONMENT OF TEMPORARY MONITORING WELLS

A total of ten temporary monitoring wells were installed and sampled during this groundwater investigation. Six temporary wells were installed, sampled, and abandoned during the March 2006 monitoring event and four temporary wells were installed,

samples, and abandoned during the August 2006 monitoring event. The temporary monitoring wells were installed for the collection of groundwater grab samples to fill data gaps and determine the potential need and location of additional permanent monitoring wells.

The temporary monitoring wells were installed in borings drilled using a direct-push technology (DPT) drill rig. The temporary wells consisted of one-inch diameter polyvinyl chloride (PVC) casing with 0.010-inch slotted PCV screen section. Each temporary wells was completed approximately 2 to 3 feet below the depth groundwater was first encountered. Boring logs for the temporary well locations are included as Appendix C.

The groundwater grab samples were collected using a ¾-inch diameter, 10-inch long bladder pump. New polyethylene bladders and polyethylene tubing was used for sampling each temporary well. The temporary wells were sampled within 24 hours (as required by the County of Orange Environmental Health Department) and were abandoned immediately after sampling. The temporary wells were abandoned by removing the well casing and grouting the borehole following County of Orange Environmental Heath Department requirements.

3.3 INSTALLATION OF PERMANENT MONITORING WELLS

Two additional permanent monitoring wells were installed at IRP site 14 as part of this groundwater investigation. One monitoring well (BSW-14-10) was installed along the east side of the form AST located north of the intersection of Kitts Highway and Industrial Road. The second monitoring well (BSW-14-11) was installed along the railroad tracks on the east side of Kitts Highway and is situated between existing monitoring wells BSW-14-8 and BSW-14-9.

Both monitoring wells were constructed similar to the existing monitoring wells at the site. They were installed to a depth of approximately 25 feet and constructed with 4-inch diameter Schedule 40 PVC with 20 feet of 0.020-inch slotted screen section. Monitoring well details are summarized in Table 1. Boring logs and well completion diagrams are included in Appendix C.

Within each well a filter pack consisting of clean, graded silica sand (RMC #3) was place into the annular space to a depth of 1.5 feet above the top of the screen interval (3.5 feet below ground surface). Prior to placing the transitional seal the well was surged using a vented surge block to facilitate maximum settling of the filter pack. Following surging, the monitoring well was developed. Development consisted of bailing the wells until the purge water was clear of suspended solids. Approximately 100 gallons of water were purged from each well.

Upon completion of well development a one foot transitional was placed above the filter pack to a depth of 2.5 feet below ground surface. The transitional seal consisted of bentonite pellets. The remaining 2.5 feet was filled with concrete. The completions consist of a flush-mount, traffic-rated vault.

Development water was placed in 55-gallon drums and then transported to the IDW storage area along with drums of soil cuttings. Drums were properly disposed off; copies of the waste profiles and non-hazardous waste manifest are on file at NAVWPNSTA Seal Beach.

3.4 LAND SURVEYING

Monitoring wells BSW-14-10 and BSW-14-11 and the temporary well locations were survey by Coast Surveying, Inc. on August 4, 2006. The survey report is included at Appendix D.

3.5 WATER LEVEL MONITORING

Water levels were measured in each monitoring well at IRP Site 14 prior to the start of groundwater sampling. Water levels were also measured in temporary monitoring wells during the March 2006 and August 2005 monitoring events. Temporary wells were not installed during the October 2006 monitoring event. Water levels were measured using a electronic water level indicator. The location of the monitoring wells and temporary monitoring wells and groundwater contour for the three monitoring events are shown on Figures 2 through 5. Groundwater depths and elevations are presented in Table 2.

3.6 GROUNDWATER SAMPLING

Each monitoring well was purged using low-flow methodology prior to collection of groundwater samples. Low-flow purging was accomplished by using a decontaminated bladder pump with dedicated tubing. Purging flow rates from 100 to 500 ml per minute were measured with a plastic graduated cup. Water level drawdown was measured using an electronic water level meter. Field monitoring parameters [water temperature, pH, oxidation-reduction potential (ORP), electrical conductivity (EC), turbidity, and dissolved oxygen (DO)] were measured using a QED MP20D water quality meter. Measurements were collected at approximately 3 minute intervals. Purge flow rate, water level drawdown, and field monitoring parameters were recorded on a well sampling form (Appendix E). Table 3 summarizes the groundwater parameters.

Purging continued until three consecutive readings were within the following range:

- Consecutive readings within ± 0.1 standard units for pH;
- Consecutive readings within ± 1 degree Celsius (C) for temperature;
- Consecutive readings within ± 3 percent microhms per centimeter (µohms/cm) for specific conductance;
- Consecutive readings within ± 10 millivolts for oxidation reduction potential (ORP); and
- Consecutive readings within ± 10 percent for DO (milligrams per liter [mg/l])

Groundwater samples were collected from each well after indicator parameters stabilized. All samples were collected from the discharge end of the dedicated tubing and into appropriate laboratory prepared sample containers. Immediately following sample collection, each container was labeled and placed into resealable plastic bags. The samples were then placed into a sample cooler containing bagged ice. The chain-of-custody (COC) form was completed during the collection of samples for each well. The samples were handled under standard COC procedures (either in possession of the person who sampled or locked in the field support vehicle). The sample coolers were transferred to a laboratory courier at the site for delivery to the analytical laboratory.

3.7 LABORATORY ANALYSIS

Groundwater samples and field quality control [QC] samples (field duplicate [FD] samples, source blanks [SB], equipment rinsates [ER], and trip blanks [TB]), and laboratory QC samples (matrix spike [MS] and matrix spike duplicatse [MSD]) were collected during the each sampling event. Samples were submitted to EMAX Laboratories, Inc. located in Torrance, CA for analysis. EMAX is a State of California-certified and Naval Facilities Engineering Service Center-evaluated laboratory. Groundwater samples were analyzed for the following:

- VOCs (benzene, toluene, ethylbenzene, and total xylenes, MTBE) using U.S. Environmental Protection Agency (USEPA) Method 8260B;
- TPH as gasoline using EPA Method 8015B;
- TDS using EPA Method 160.1;
- Alkalinity using EPA Method 310.1;
- Anions (chloride and sulfate) by ion chromatography (IC) using EPA Method 300.0;
- pH using EPA Method 9040;
- Methane, ethane, ethene, and carbon dioxide according to Kampbell and Wilson 1989 (RSK 175);
- Ammonia using EPA Method 350.2;
- Total Kjeldahl Nitrogen (TKN) suing EPA Method 351.3;
- Orthophosphate using EPA Method 365.2 (field filtered);
- Ferrous iron (Fe2+) using HACH Field Kit No. IR-18C;
- Hydrogen Sulfide using HACH Field Kit No. HS-C; and
- Dissolved oxygen using CHEMets Field Kits No. K7501 and K7512.

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4.0 SUMMARY OF MONITORING RESULTS

This section discusses monitoring results for the three groundwater monitoring events conducted at IRP Site 14 during this groundwater investigation. The three groundwater monitoring events were conducted on:

- March 27 and 28, 2006
- August 2 through 7, 2006
- October 16 and 17, 2006

4.1 WATER LEVEL MONITORING

The groundwater levels during each monitoring event were measured and recorded prior to purging and sampling. Table 2 summarizes the groundwater elevations for each monitoring well and temporary monitoring well. Groundwater elevation contour maps are provided as Figures 3, 4, and 5. Groundwater flow direction at IRP Site 14 during the three monitoring events was to the southwest with gradients of 0.0022 foot per foot (ft/ft), 0.0013 ft/ft, and 0.0022 ft/ft, respectively.

4.2 ANALYTICAL RESULTS

Groundwater samples from permanent and temporary monitoring wells at IRP Site 14 were analyzed for identified COECs (MARRS and GeoSyntec 2005) including TPH as gasoline and VOCs, including MTBE and BTEX. Groundwater samples from permanent monitoring wells were also analyzed for general chemistry in order to assess if natural attenuation is occurring at the site or if site conditions are favorable for natural attenuation to occur.

This section will summarize the analytical results for TPH as gasoline and VOCs. A discussion of the general chemistry analytical results is present in Section 5.0 when evaluating natural attenuation. However, all analytical results are summarized in Tables 4, 5, and 6. TPH as gasoline and VOC results are shown on Figures 6 and 7, respectively, for permanent wells and temporary wells. Laboratory analytical results and data validation reports are included in Appendix F.

4.2.1 Volatile Organic Compounds

During the three groundwater monitoring events conducted as part of this groundwater investigation, VOCs were detected in all permanent monitoring wells at IRP Site 14 with the exception of BSW-14-6 and BSW-14-9. VOCs were also detected in temporary monitoring wells IRP-14-TMW-3 and IRP-14-TMW-6 during the March 2006 monitoring event. Monitoring wells BSW-14-11 and BSW-14-10 were subsequently installed adjacent to these two temporary well locations during the second mentoring event in August 2006. VOCs were also detected at concentrations near or below the reporting limits in temporary monitoring wells IRP-14-TMW-7, IRP-14-TMW-9, and IRP-14-TMW-10 during the August 2006 monitoring event (Figure 7).

4.2.1.1 MTBE

MTBE was detected in all monitoring wells at IRP Site 14 with the exception of BSW-14-6 and BSW-14-9. Detected concentrations of MTBE did not exceed the established ecological risk-base screening value of 8,000 µg/l during this groundwater investigation. MTBE concentration contours are shown on Figures 8, 9, and 10. A time series concentration graph for MTBE is included in Appendix G.

MTBE was only detected at estimated concentrations (J flag) in monitoring wells BSW-14-1 (March 2006, August 2006, and October 2006), and BSW-14-5 and BSW-14-7 (March 2006 only). The “J” flag indicates a concentration reported between the reporting limit (RL) and the method detection limit (MDL). The highest concentrations of MTBE were detected in monitoring wells BSW-14-2, BSW-14-3, and BSW-14-4, located within the core of the petroleum hydrocarbon plume, and in BSW-14-11, situated along the boundary between IRP Site 14 and the SBNWR. The highest concentration of MTBE was detected in BSW-14-11 during the August 2006 monitoring event at a concentration of 650 µg/l.

During the March 2006 and August 2006 monitoring events, ten temporary wells were installed and sampled in order to further delineate the extent of the petroleum hydrocarbon plume at IRP Site 14 and assess the need for additional permanent

monitoring wells. During the March 2006 monitoring event MTBE was detected in temporary monitoring well IRP-14-TMW-3 and IRP-14-TMW-6 at concentrations of 5.6 µg/l and 510 µg/l. Temporary monitoring well IRP-14-TMW-3 was installed along the boundary between IRP Site 14 and the SBNWR; temporary monitoring well IRP-14-TMW-6 was installed on the east side of the AST located north of the intersection of Kitts Highway and Industrial Road (Figure 7). During the August 2006 monitoring event permanent monitoring wells BSW-14-11 and BSW-14-10 were installed at the previous locations of IRP-14-TMW-3 and IRP-14-TMW-6, respectively.

During the August 2006 monitoring event temporary monitoring wells IRP-14-TMW-7, IRP-14-TMW-8, and IRP-14-TMW-9 were installed to assess MTBE concentrations near monitoring well MW-05-01. Temporary monitoring well IRP-14-TMW-10 was installed to assess MTBE concentrations near the AST. MTBE was not detected in any of the four temporary monitoring wells.

4.2.1.2 Benzene

Benzene was detected in five monitoring wells at IRP Site 14 including BSW-14-1, BSW-14-2, BSW-14-3, BSW-14-4, and BSW-14-10 (Figure 6). Benzene was detected at concentrations ranging from 0.25J µg/l in BSW-14-1 to 3,000 µg/l in BSW-14-4. Detected concentrations of benzene only exceeded the established ecological risk-based screening value of 46 µg/l in monitoring wells BSW-14-2 and BSW-14-4. Both of these monitoring wells are located within the core of the petroleum hydrocarbon plume. Benzene concentration contours are shown on Figures 11, 12, and 13. A time series concentration graph for benzene is included in Appendix G.

During the March 2006 monitoring event benzene only was detected in temporary monitoring well IRP-14-TMW-6 at a concentration of 340 µg/l (Figure 7). During the August 2006 monitoring event benzene was detected in temporary monitoring wells IRP-14-TMW-7, IRP-14-TMW-9, and IRP-14-TMW-10. Concentrations ranged from 0.33J µg/l in temporary monitoring well IRP-14-TMW-10 to 0.5 µg/l in IRP-14-TMW-9.

4.2.1.3 Toluene

Toluene was detected in five monitoring wells at IRP Site 14 including BSW-14-2, BSW-14-3, BSW-14-4, BSW-14-10, and BSW-14-11 (Figure 6). Toluene was detected at concentrations ranging from 0.20J µg/l in BSW-14-10 to 3200 µg/l in BSW-14-4. Detected concentrations of toluene only exceeded the established ecological risk-based screening value of 130 µg/l in monitoring wells BSW-14-4 during the March 2006 monitoring event. This monitoring well is located within the core of the petroleum hydrocarbon plume. A time series concentration graph for toluene is included in Appendix G.

During the March 2006 monitoring event toluene only was detected in temporary monitoring well IRP-14-TMW-6 at a concentration of 25 µg/l (Figure 7). During the August 2006 monitoring event toluene was not detected in any of the four temporary monitoring wells.

4.2.1.4 Ethylbenzene

Ethylbenzene was detected in four monitoring wells at IRP Site 14 including BSW-14-2, BSW-14-3, BSW-14-4, and BSW-14-10 (Figure 6). Ethylbenzene was detected at concentrations ranging from 0.65J µg/l in BSW-14-3 to 91J µg/l in BSW-14-4. Detected concentrations of ethylbenzene did not exceed the established ecological risk-based screening value of 290 µg/l during this groundwater investigation. A time series concentration graph for ethylbenzene is included in Appendix G.

During the March 2006 monitoring event ethylbenzene was detected in temporary monitoring wells IRP-14-TMW-3 and IRP-14-TMW-6 at concentrations of 1.3 µg/l and 18 µg/l (Figure 7). respectively. During the August 2006 monitoring event ethylbenzene was not detected in any of the four temporary monitoring wells.

4.2.1.5 Total Xylenes

Total xylenes were detected in four monitoring wells at IRP Site 14 including BSW-14-2, BSW-14-3, BSW-14-4, and BSW-14-10 (Figure 6). Total xylenes were detected at concentrations ranging from 0.80J µg/l in BSW-14-3 to 108 µg/l in BSW-14-4. Detected

concentrations of total xylenes only exceeded the established ecological risk-based screening value of 13 µg/l in monitoring wells BSW-14-2 and BSW-14-4. These monitoring wells are located within the core of the petroleum hydrocarbon plume. A time series concentration graph for total xylenes is included in Appendix G.

During the March 2006 monitoring event total xylens were detected in temporary monitoring well IRP-14-TMW-3 and IRP-14-TMW-6 at a concentration of 0.89 µg/l and 75 µg/l, respectively (Figure 7). During the August 2006 monitoring event total xylens were detected in temporary monitoring wells IRP-14-TMW-7 at a concentration of 0.72 µg/l.

4.2.2 Total Petroleum Hydrocarbons as Gasoline

During the three groundwater monitoring events, TPH as gasoline was detected in monitoring wells BSW-14-2, BSW-14-3, BSW-14-4, BSW-14-10, and BSW-14-11 (Figure 6). Concentrations of TPH as gasoline ranged from 0.033J mg/l in monitoring well BSW-14-3 to 2.0 mg/l in BSW-14-4. TPH as gasoline was only detected above the established ecological risk-based screening values for TPH as gasoline of 0.5 mg/l in BSW-14-2 and BSW-14-4. Monitoring wells BSW-14-2 and BSW-14-4 are located within the core of the petroleum hydrocarbon plume at the site. TPH concentration contours are shown on Figures 14, 15, and 16. A time series concentration graph for TPH as gasoline is included in Appendix G.

During the March 2006 monitoring event TPH as gasoline was detected in temporary monitoring wells IRP-14-TMW-3 and IRP-14-TMW-6 at a concentration of 0.76 mg/l and 0.79 mg/l, respectively(Figure 7). During the August 2006 monitoring event TPH as gasoline was not detected in any of the four temporary monitoring wells.

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5.0 DATA EVALUATION

This section presents an evaluation of the data collected from this groundwater monitoring investigation and historical data. The data evaluation was performed to address the decision rules developed in the Work Plan (MARRS 2006) in accordance with the U.S. EPA seven-step DQO process (U.S. EPA 1994). The Seven Step DQO process for IRP Site 14 is included in Appendix A.

Groundwater data from this investigation at IRP Site 14 was collected during three monitoring events in 2006:

- March 2006
- August 2006
- October 2006

Historical groundwater data from IRP Site 14 extends back to November 1999 (FWENC 2000, 2002). Historical as well as current data are summarized in Tables 4 and 5.

As part of the data evaluation, analytical data were compared to established ecological risk-based screening values. In addition, data was evaluated to assess if natural attenuation is occurring at the site or if site conditions are favorable for natural attenuation to occur. This evaluation assessed contaminant concentration trends using statistical analysis and time series concentration graphs, as well as assessing geochemical parameters at IRP Site 14.

5.1 COMPARISON OF GROUNDWATER DATA TO ECOLOGICAL RISK-BASED SCREENING VALUES

Screening values for the identified COECs were established in the Technical Memorandum presenting the results of and Ecological Risk Screening for Impacts to the SBNWR from IRP Site 14, (MARRS and GeoSyntec 2005). The screening values are summarized on Tables 4 and 5.

In summary, during this and previous groundwater monitoring investigations, the only monitoring wells at IRP Site 14 that have had concentrations of COECs above the established ecological risk-based screening values are BSW-14-2, BSW-14-3, and BSW-14-4. These three monitoring wells are located within the core of the petroleum hydrocarbon plume. COECs have not been detected above their respective ecological risk-based screening values in monitoring wells located along the boundary between IRP Site 14 and the SBNWR. The following summarizes COECs that have exceeded the ecological risk-based screening values during this groundwater investigation and during previous investigations.

5.1.1 TPH as Gasoline

The ecological risk-based screening value for TPH as gasoline is 0.5 mg/l. Concentrations of TPH as gasoline exceeded the screening value during this groundwater investigation in the following monitoring wells:

- BSW-14-2 (March 2006, August 2006, and October 2006)
- BSW-14-4 (March 2006, August 2006, and October 2006)

Concentrations of TPH as gasoline have historically exceeded the screening value in these monitoring wells.

5.1.2 MTBE

The ecological risk-based screening value for MTBE is 8,000 µg/l. Concentrations of MTBE have never exceeded the screening value for MTBE during this or previous groundwater investigations.

5.1.3 Benzene

The ecological risk-based screening value for benzene is 46 µg/l. Concentrations of benzene exceeded the screening value during this groundwater investigation in the following monitoring wells:

- BSW-14-2 (August 2006 and October 2006)
- BSW-14-4 (March 2006, August 2006, and October 2006)

Concentrations of benzene have historically exceeded the screening value in these monitoring wells. Although not during the last three monitoring events, benzene has historically exceeded the screening value in BSW-14-3.

5.1.4 Toluene

The ecological risk-based screening value for toluene is 130 µg/l. Concentrations of toluene exceeded the screening value during this groundwater investigation in the following monitoring well:

- BSW-14-4 (March 2006)

Concentrations of toluene have historically exceeded the screening value in this monitoring well. Toluene has also exceeded the screening value during one or more historical monitoring events in monitoring wells BSW-14-2, BSW-14-3, and BSW-14-4.

5.1.5 Ethylbenzene

The ecological risk-based screening value for ethylbenzene is 290 µg/l. Concentrations of ethylbenzene have never exceeded the screening value for ethylbenzene during this or previous groundwater investigations.

5.1.6 Total Xylenes

The ecological risk-based screening value for total xylenes is 13 µg/l. Concentrations of total xylenes exceeded the screening value during this groundwater investigation in the following monitoring well:

- BSW-14-2 (March 2006)
- BSW-14-4 (March 2006, August 2006, and October 2006)

Concentrations of total xylenes have historically exceeded the screening value in these monitoring wells. Total xylenes have also exceeded the screening value during one or more historical monitoring events in monitoring well BSW-14-3.

5.2 MIGRATION OF COECS TOWARD THE SBNWR

Based on contaminant concentrations the core of the petroleum hydrocarbon plume at IRP Site 14 is situated around monitoring wells BSW-14-2, BSW-14-3, and BSW-14-4. This is shown on the contaminant concentrations contour figures, Figure 8 through Figure 16. However, groundwater data from monitoring well BSW-14-4, BSW-14-11 and MW-05-04 indicate that MTBE may have been migrating into the SBNRW. MTBE in well BSW-14-4 has declined through the monitoring program. Data from monitoring well MW-05-04, which has been sampled since October 2003 as part of the groundwater monitoring program for IRP Site 5, indicates that concentrations of MTBE have been increasing in this monitoring well. MTBE concentrations from this well are shown in Figures 8, 9, and 10. The center of the plume for MTBE has apparently been shifted from near BSW-14-4 to BWS-14-11. However, the concentrations of MTBE in all these monitoring wells have always been below the established risk-based screening value for MTBE of 8,000 µg/l.

5.3 NATURAL ATTENUATION

This section provide an overview of natural attenuation, and a discussion of direct and indirect indicators of natural attenuation with respect to petroleum hydrocarbon sites and IRP site 14.

Natural attenuation refers to a process that relies on naturally occurring in situ processes (such as biodegradation, chemical transformation, volatilization, dilution, dispersion, and adsorption) to achieve remedial goals. Under favorable conditions, these natural processes will act without human intervention to reduce the mass, toxicity, mobility, or volume of TPH-contaminated soil and groundwater. Natural attenuation through biodegradation is considered a destructive mechanism since a net reduction of contaminant mass is achieved. Volatilization, mixing, diffusion and sorption are considered non-destructive since no net loss of contaminant mass occurs.

Petroleum hydrocarbons and their constituents are generally biodegradable as long as indigenous microorganisms have an adequate supply of nutrients and electon acceptors, and biological activity is not inhibited by substances toxic to the organisms. A comprehensive guidance compiled by the Naval Facilities Engineering Command Alternative Restoration Technology Team indicates that "hydrocarbon-degrading microorganisms are ubiquitous in the subsurface environments and that these microorganisms can degrade a variety of organic compounds, including components of gasoline, kerosene, diesel, jet fuel, and many other petroleum hydrocarbons" (Wiedemeier et al. 1997).

In general, aerobic biodegradation tends to occur at the fringe of the dissolved plume and consumes oxygen which, if not replaced, can limit the effectiveness of further aerobic biodegradation. Anaerobic biodegradation is predominant at the core of the plume and occurs much slower than aerobic biodegradation. The rate of oxygen depletion due to microbial metabolism usually exceeds the rate oxygen is replenished to the system. This will typically occur within the core of the plume, forcing anaerobic biodegradation to dominate. Once oxygen is depleted, an alternative electron acceptor and a microorganism capable of utilizing the alternative electron acceptor must be available for biodegradation to proceed.

5.3.1 Indicators of Natural Attenuation

Indications that natural attenuation is occurring at a site is provided by direct evidence (or primary lines of evidence), and indirect evidence (or secondary lines of evidence).

Direct evidence (or primary lines of evidence) that natural attenuation is occurring at a site is provided by monitoring contaminant concentrations over a period of time and statistically evaluating data to assess contaminant concentration trends. Statistically evaluating contaminant concentration trends will indicate whether the dissolved phase plume is expanding, stable, or shrinking.

Indirect evidence (or secondary lines of evidence) that natural attenuation is occurring or site conditions are favorable for natural attenuation to occur is provided by assessing geochemical parameters. Geochemical parameters typically include:

- electron acceptors;
- metabolic byproducts, alkalinity; and,
- oxidation-reduction potential.

5.3.1.1 Electron Acceptors

An electron acceptor is a compound that receives or accepts an electron from an electron donor during cellular respiration. The electron acceptor is reduced and the electron donor is oxidized. Examples of acceptors include oxygen, nitrate, iron (III), manganese (IV), sulfate, and carbon dioxide. These reactions are of interest not only because they allow organisms to obtain energy, but also because they are involved in the natural biodegradation of organic contaminants.

Measuring the loss of electron acceptors can provide indirect evidence that natural attenuation is occurring. Electron acceptors are used by microbial populations for the biodegradation of organic carbon. Electron acceptors which are more thermodynamically favored by microbes are used first. Dissolved oxygen is the electron acceptor used first during aerobic biodegradation of a substrate. After dissolved oxygen is depleted, nitrate may be used as an electron acceptor. Next, manganese (IV) and iron (III) are reduced to

manganese (III) and iron (II), respectively, and sulfate is reduced to sulfide. Production of carbon dioxide via methanogenesis is the terminal electron acceptor in the sequential progression.

5.3.1.2 Metabolic Byproducts

Metabolic byproducts such as iron (II), and methane are indicators of natural attenuation. Ferrous iron, iron (II), is the result of the reduction of iron (III). Ferrous iron is an indication of reducing (anaerobic) conditions and microbial activity.

The presence of dissolved gases, such as methane, ethane, ethene, and carbon dioxide may indicate biodegradation under anaerobic conditions. Methane and carbon dioxide in an aquifer suggests that biodegradation of organic matter is occurring via methanogenesis. Methanogenesis represents the last in a series of reactions where anaerobic microbes sequentially use DO, nitrate, manganese, iron, sulfate and carbon dioxide to oxidize matter, producing methane a byproduct. Therefore, a presence of methane in groundwater is indicative of strongly reducing conditions.

5.3.1.3 Alkalinity

Changes in alkalinity are an indication of microbial activity as well and can be expected to increase across a site where biological activity is occurring. Alkalinity reflects the buffering capacity of groundwater and is most influenced by carbon dioxide content. Carbon dioxide originates from the dissolution of carbonates in the aquifer, atmospheric carbon dioxide, and the respiration of microbes.

5.3.1.4 Reduction/Oxidation (Redox) Potential

Oxidation-reduction potential (ORP) is a measurement of the oxidizing and reducing nature of water. ORP changes in groundwater are usually mediated by biological activity. Biodegradation rates influence and depend on redox potential (Eh). The lower the redox potential, the more reducing and anaerobic the environment. Knowing the redox potential within the plume can also assist in estimating the extent of the plume. Redox potential values taken from within the plume with biological activity will be lower than values up-gradient and outside the plume.

5.3.2 Direct Evidence for Natural Attenuation at IRP Site 14

The following discusses the direct evidence (primary lines of evidence) that natural attenuation is occurring at IRP Site 14.

The Mann-Kendall (S) statistical test has been used to assess if contaminant concentration trends at the site are decreasing, remaining stable, or increasing. 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. However, the test is not able to determine the rate in which the concentrations are changing over time. 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.

Data from monitoring wells exhibiting the highest concentrations of petroleum hydrocarbons at the site, and data from monitoring wells along the boundary of Site 14 and the SBNWR were used to assess contaminant concentration trends. Monitoring wells within the core of the petroleum hydrocarbon plume exhibiting the highest concentrations of contaminants included monitoring wells BSW-14-2, BSW-14-3, and BSW-14-4. Monitoring wells along the boundary of Site 14 and the SBNWR include BSW-14-1 and BSW-14-8. Monitoring wells in which contaminant concentrations have not been detected or detected at relatively low concentrations and infrequently were not used in the statistical evaluation of contaminant concentrations. Data from the newly installed boundary well BSW-14-11 was not used since only two quarters of data exist for this well. MTBE data from monitoring well MW-05-04 (which is associated with IRP Site 5 and discussed in Section 5.2) has also been assessed.

Results of the Mann-Kendall (S) statistical test on data from the core of the petroleum hydrocarbon plume indicate that concentrations of TPH as gasoline, MTBE, and BTEX are decreasing in monitoring wells BSW-14-2 and BSW-14-3. Concentrations of MTBE, ethyl benzene, and total xylenes are decreasing in monitoring well BSW-14-3 with concentrations of TPH as gasoline, benzene, and total xylenes exhibiting no trend.

Results of the Mann-Kendall (S) statistical test on data from the fringe of the petroleum hydrocarbon plume (along the boundary between IRP Site 14 and the SBNWR) indicate that concentrations of TPH as gasoline, MTBE, and benzene are also decreasing. Concentrations of TPH as gasoline, MTBE, and benzene are decreasing in monitoring wells BSW-14-1. Toluene, ethyl benzene, and total xylenes have not been detected in this well with the exception of estimated concentrations during the November 1999 monitoring event. Concentrations of TPH as gasoline and MTBE are decreasing in BSW-14-8. Benzene, toluene, ethyl benzene, and total xylenes have not been detected in this well. In addition, results of the Mann-Kendall (S) statistical test on MTBE data from monitoring well MW-05-04, located within the SBNWR, indicated that MTBE concentrations in this well are increasing. However, concentrations remain below the established risk-based screening value for MTBE of 8,000 µg/l, as shown on Figures 6, 8, 9, and 10.

Time series concentration graphs are presented in Appendix G. Table 7 summarizes the results of the Mann-Kendall (S) statistical tests. The results of the Mann-Kendall (S) statistical calculations are included in Appendix H.

5.3.3 Indirect Evidence for Natural Attenuation at IRP Site 14

The following discusses the indirect evidence (secondary lines of evidence) that natural attenuation is occurring at IRP Site 14.

An evaluation of geochemical data from IRP Site 14 indicates that natural attenuation is occurring at the site. The primary mechanism in which natural attenuation is occurring are oxidation-reduction, iron and sulfate reduction, and methanogenesis. Data also indicates that natural attenuation is occurring under anaerobic conditions at the site. The evidence for natural attenuation is summarized in the following discussions. Graphs of geochemical parameters verses TPH as gasoline, MTBE and benzene are included in Appendix I.

Dissolved oxygen concentrations within the core of the petroleum hydrocarbon plume (as measured in monitoring wells BSW-14-2, BSW-14-3, and BSW-14-4) are lower then

measured dissolved oxygen concentrations along the fringe of the plume and along the boundary of the site and the SBNWR. The dissolve oxygen graph in Appendix I show dissolved oxygen concentrations plotted against TPH as gasoline, benzene, and MTBE concentrations for the March 2006, August 2006, and October 2006 monitoring events. The graphs illustrate the inverse relationship between dissolved oxygen concentrations and TPH as gasoline benzene, and MTBE concentrations. This data suggests that oxygen levels in the groundwater within the core of the plume have been depleted due to biodegradation of the petroleum hydrocarbons. In general, dissolved oxygen concentrations less than 2 mg/l generally indicate anaerobic conditions in an aquifer (MARRS and GeoSyntec 2005). Based on dissolved oxygen concentrations in groundwater across the site an anaerobic aquifer condition is present. However, groundwater conditions are more anaerobic within the core of the plume. Note, the elevated dissolved oxygen concentration in monitoring well BSW-14-2 during the March 2006 monitoring event is believed to be attributed to a rain event prior to and during the monitoring event.

ORP, or redox, within the core of the petroleum hydrocarbon plume is lower then ORP along the fringe of the plume and along the boundary of the site and the SBNWR. The ORP graph in Appendix I show ORP plotted against TPH as gasoline, benzene, and MTBE concentrations for the March 2006, August 2006, and October 2006 monitoring events. The graphs illustrate the inverse relationship between ORP and TPH as gasoline benzene, and MTBE concentrations. This is further indication that natural attenuation is occurring at the site.

As indicated in Section 5.2.1 and 5.2.2, as dissolved oxygen is depleted, natural attenuation through iron reduction and sulfate reduction may occur. The increase of ferrous iron, as a metabolic byproduct of the reduction of ferric iron, and the decrease in sulfate, as sulfate is reduced to sulfide, are further indications that natural attenuation is occurring. The ferrous iron graph in Appendix I shows the proportional relationship between ferrous iron in the presence of TPH as gasoline, benzene, and MTBE indicating that natural attenuation through iron reduction is occurring. The sulfate graph in

Appendix I shows the inverse relationship between sulfate in the presence of TPH as gasoline, benzene, and MTBE indicating that natural attenuation through sulfate reduction is occurring. Also, during sulfate reduction, hydrogen sulfide is produced when petroleum hydrocarbons are oxidized. The hydrogen sulfide graph in Appendix I shows increase hydrogen sulfide concentrations in the core of the plume further indicating biodegradation through sulfate reduction.

The presence of dissolved gases such as methane and carbon dioxide is another indication that biodegradation is occurring under anaerobic conditions. The methane and carbon dioxide graphs in Appendix I show increase methane and carbon dioxide concentrations in the presence of TPH as gasoline, benzene, and MTBE within the core of the plume. This indicates that biodegradation is occurring through methanogenesis.

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6.0 CONCLUSIONS AND RECOMMENDATIONS

This section presents the conclusions and recommendations for IRP Site 14 based on the data evaluation presented in Section 5.0, and the DQOs for the groundwater investigation.

6.1 CONCLUSIONS FOR IRP SITE 14

The primary objectives of the groundwater investigation at IRP Site 14 are as follows (MARRS 2006):

- Determine the lateral extent of the dissolved-phase petroleum hydrocarbon plume at IRP Site 14.
- Determine if the dissolved-phase petroleum hydrocarbon plume at the site is stable and is natural attenuation occurring.
- Determine if concentrations of COECs along the boundary if IRP Site 14 and the SBNWR are below the selected ecological risk-based screening values.

The objectives are reflected in the DQOs for IRP Site 14 which are presented in the Final Work Plan (MARRS 2006) 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. *What is the lateral extent of the dissolved-phase petroleum hydrocarbon plume at IRP Site 14?*

The lateral extent of the dissolved-phase petroleum hydrocarbon plume at IRP Site 14 has been defined. The core of the petroleum hydrocarbon plume is situated around monitoring wells BSW-14-2, BSW-14-3, and BSW-14-4.

The plume is bounded on all sides by monitoring wells and groundwater sampling points (temporary monitoring wells) which have continuously yielded groundwater samples with relatively low concentrations of COECs or samples with non-detectable concentrations of COECs. Most importantly, all detected concentrations of COECs in monitoring wells bounding the core of the petroleum hydrocarbon plume have been

below the established ecological risk-based screening values for the site (MARRS and GeoSyntec 2005).

The highest concentrations of MTBE have been detected in monitoring well BSW-14-11. This is the new monitoring well installed along the boundary between IRP Site 14 and the SBNWR. MTBE has been reported in this well at concentrations of 650 µg/l and 580 µg/l during the August 2006 and October 2006 monitoring events, respectively. However, these concentrations are well below the established ecological risk-based screening value for MTBE of 8,000 µg/l.

Furthermore, detected concentrations of MTBE in monitoring well MW-05-04, sampled as part of IRP Site 5, may have been attributed to IRP Site 14. Although concentrations have increased during each sampling event at IRP Site 5, the highest reported concentration in this monitoring well is 50 µg/l, significantly less than the established ecological risk-based screening value for MTBE of 8,000 µg/l.

2. Is natural attenuation occurring at IRP Site 14?

Natural attenuation is occurring at IRP Site 14. This is supported by both direct evidence and indirect evidence.

Direct evidence is provided by the results of statistical trend analysis using the Mann-Kendall (S) statistical test. In summary, results indicate that there are no increasing concentration trends for any COECs in any monitoring well at the site. Time series concentration graphs are presented in Appendix G and statistical calculations are presented in Appendix H.

Concentrations of TPH as gasoline, MTBE, and BTEX are decreasing in monitoring wells BSW-14-2 and BSW-14-3, situated within the core of the petroleum hydrocarbon plume. Concentrations of MTBE, ethyl benzene and total xylenes are decreasing in monitoring well BSW-14-4 with no trends exhibited for TPH as gasoline, benzene, and toluene.

Concentrations of MTBE have also decreasing in boundary well BSW-14-8. MTBE has decreased from a reported high of 200 µg/l in 2002 to 8.8 µg/l in October 2006. COECs have not been detected in boundary well BSW-14-9 since November 1999.

3. *Are COECs concentrations along the boundary of IRP Site 14 and the SBNWR below the established ecological risk-based screening values?*

All concentrations of COECs in monitoring wells BSW-14-1, BSW-14-8, BSW-14-9, and BSW-14-11, situated near or on the boundary between IRP Site 14 and the SBNWR are below the established ecological risk-based screening values. In fact, MTBE has never exceeded the established ecological risk-based screening value of 8,000 µg/l in any of the monitoring wells at IRP Site 14. TPH as gasoline and BTEX have only exceeded their established ecological risk-based screening values of 0.5 µg/l, 46 µg/l, 130 µg/l, 290 µg/l, and 13 µg/l, respectively, in monitoring wells BSW-14-2, BSW-14-3, and BSW-14-4 situated within the core of the petroleum hydrocarbon plume.

6.2 RECOMMENDATIONS

Based on the conclusions presented above, and the DQO Decision Rules (Step 5) (MARRS 2006), a recommendation of no further action is made for IRP Site 14.

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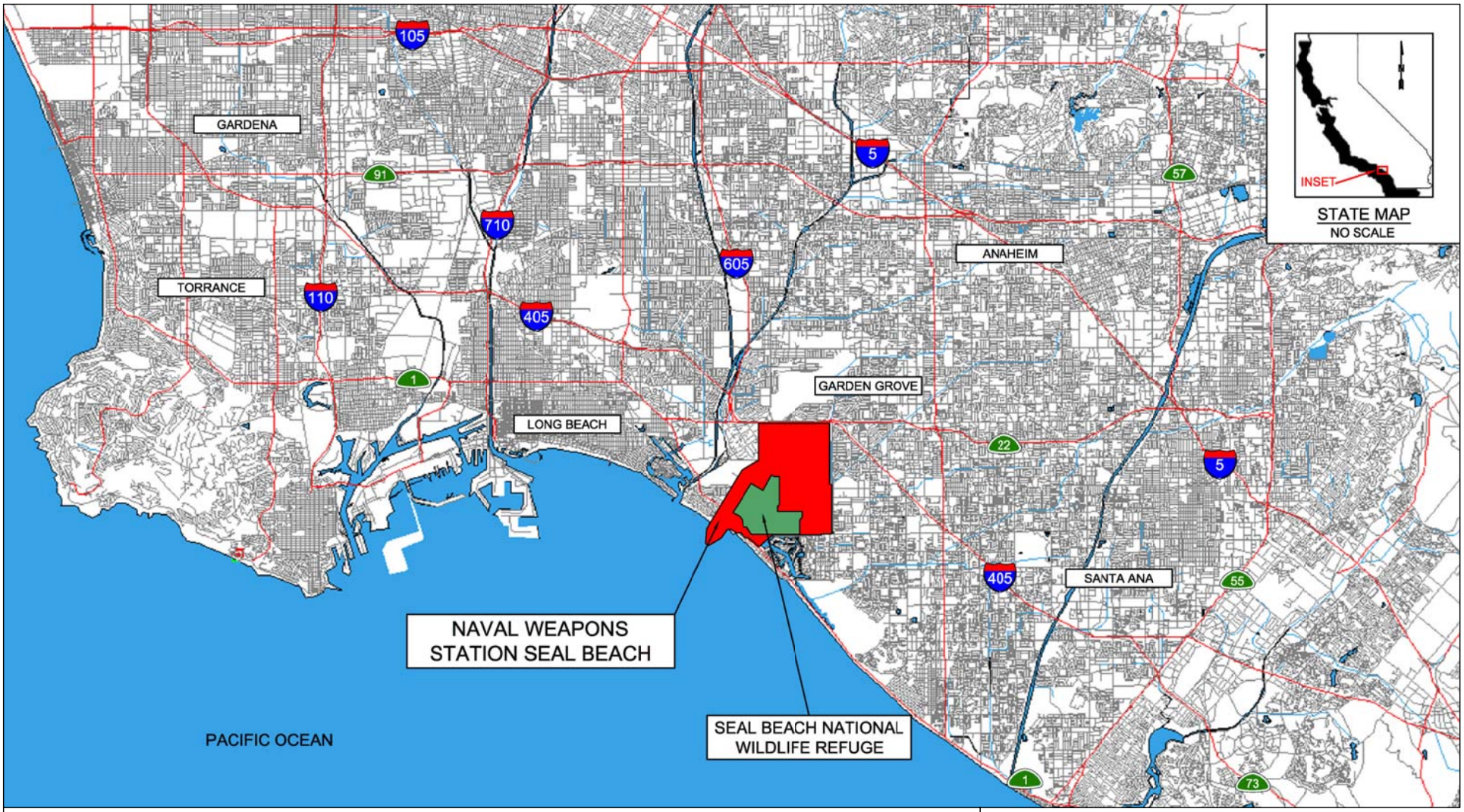
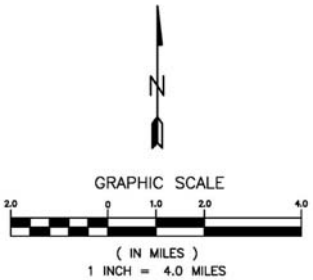




NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

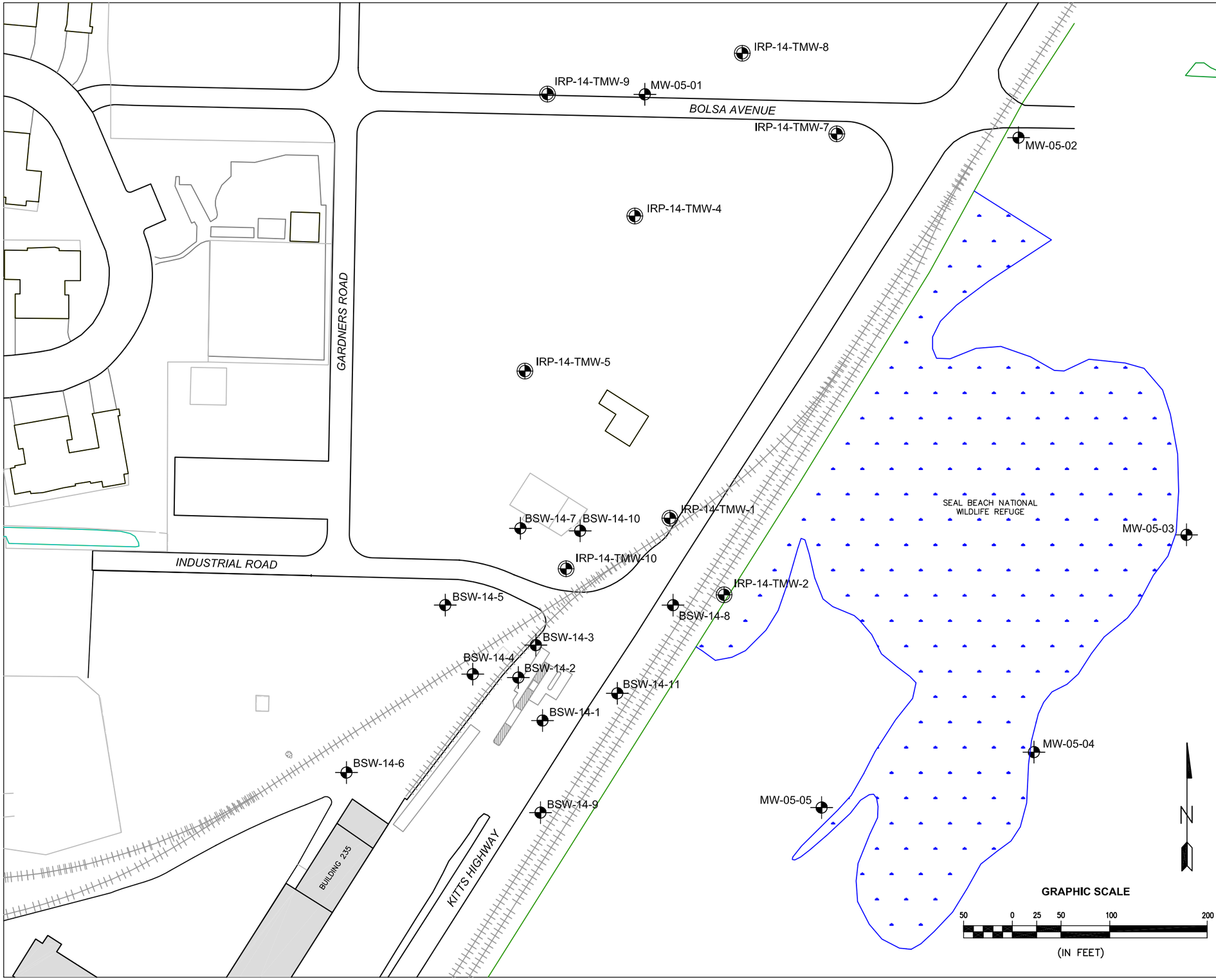
IRP SITE 14 - FIGURE 1

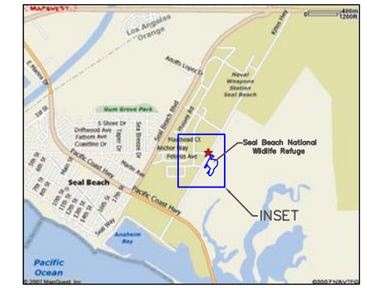
REGIONAL MAP

DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

DATE: JUNE 2007
PROJECT NO.: CA99 064 W021
CONTRACT NO.: N68711-99-D-6620
DELIVERY ORDER: D021





SITE 14 VICINITY

LEGEND:

BSW-14-1	EXISTING MONITORING WELL LOCATION AND IDENTIFICATION
MW-05-01	MW-05-01 THROUGH MW-05-05 ARE PART OF IRP SITE 5. MW-05-01 HAS BEEN SAMPLED AS PART OF IRP SITE 14.
IRP-14-TMW-5	TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION
	WILDLIFE REFUGE
	RAILROAD TRACKS
	FORMER TANK LOCATION
	STRUCTURE

NOTES:

1. TEMPORARY MONITORING WELLS IRP-14-TMW-3 & IRP-14-TMW-6 CONVERTED TO PERMANENT MONITORING WELLS BSW-14-11 & BSW-14-10, RESPECTFULLY.

NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

IRP SITE 14 - FIGURE 2

SITE MAP

DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

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CONTRACT NO.: N68711-99-D-6620
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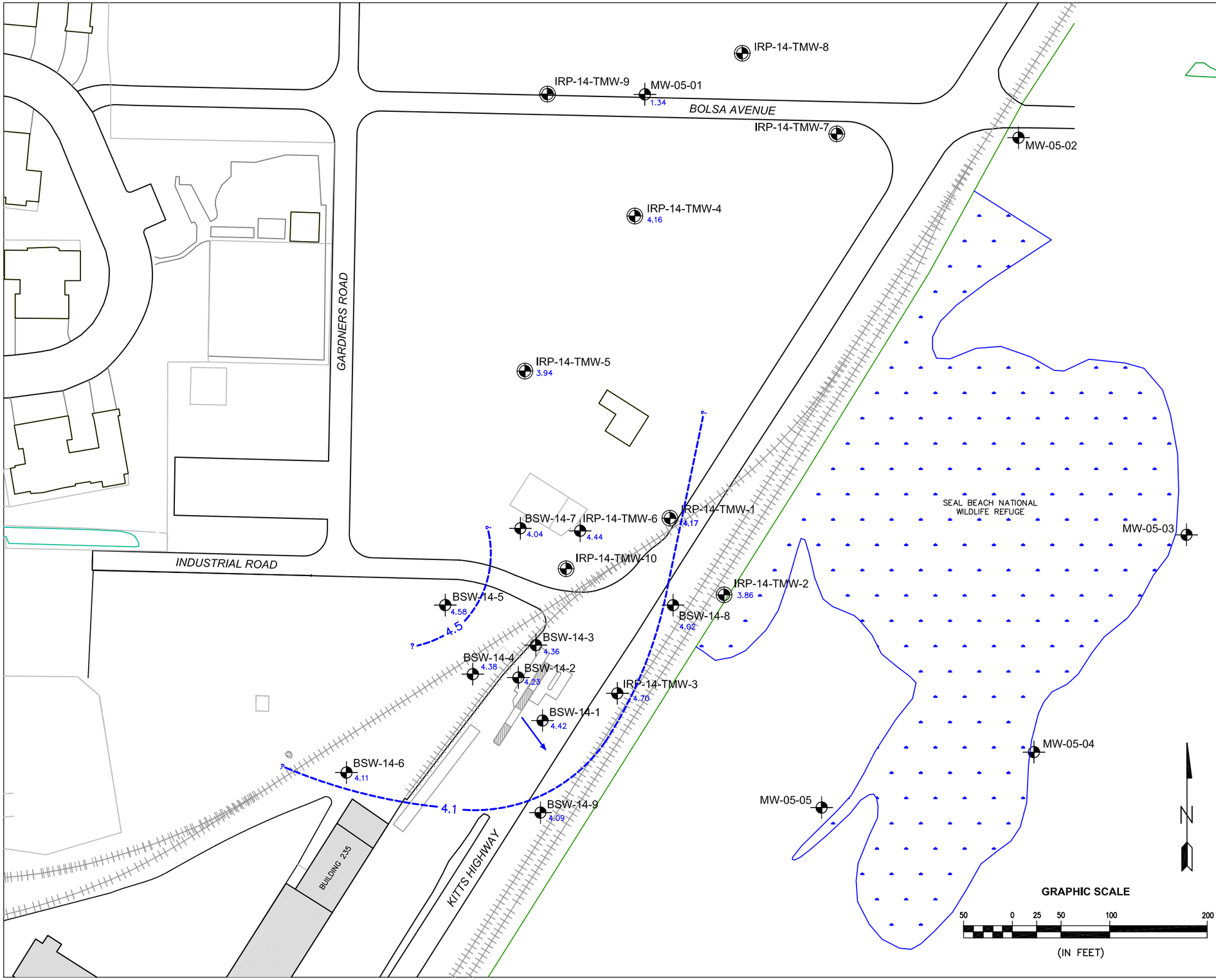


SITE 14 VICINITY

LEGEND:

BSW-14-1 4.42	EXISTING MONITORING WELL LOCATION, IDENTIFICATION, AND GROUNDWATER ELEVATION.
MW-05-01 1.34	MW–05–01 THROUGH MW–05–05 ARE PART OF IRP SITE 5. MW–05–01 HAS BEEN SAMPLED AS PART OF IRP SITE 14.
IRP-14-TMW-5 3.94	TEMPORARY MONITORING WELL LOCATION, IDENTIFICATION, AND GROUNDWATER ELEVATION.
4.5	GROUNDWATER EQUIPOTENTIAL LINE IN FEET MEAN SEA LEVEL
	GENERALIZED DIRECTION OF REGIONAL GROUNDWATER FLOW
	WILDLIFE REFUGE
	RAILROAD TRACKS
	FORMER TANK LOCATION
	STRUCTURE

NOTES:

1. GROUNDWATER ELEVATIONS COLLECTED ON MARCH 27, 2006.

NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

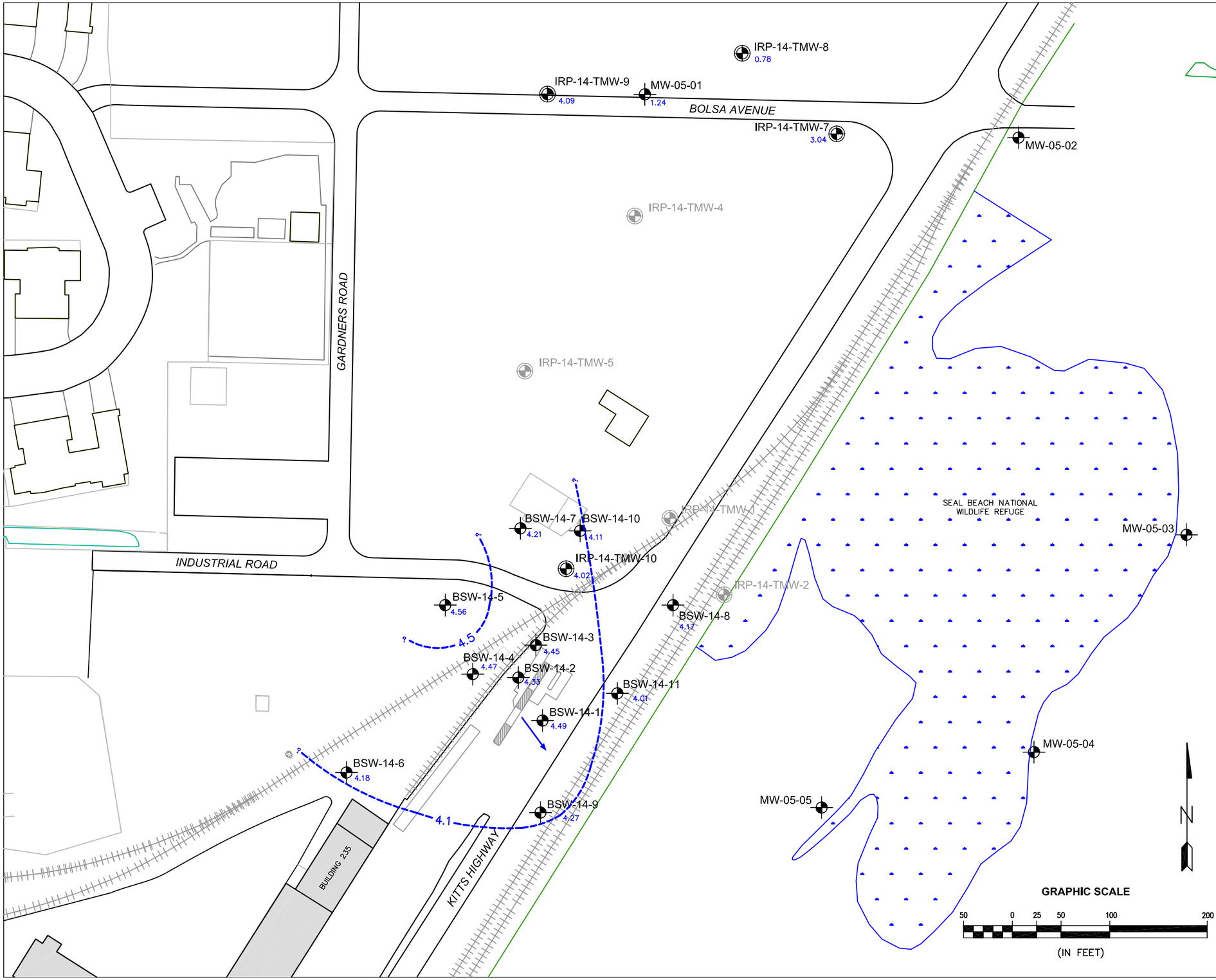
IRP SITE 14 - FIGURE 3

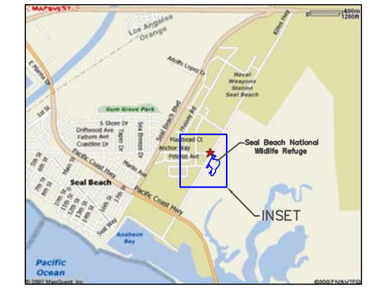
GROUNDWATER ELEVATIONS
(March 2006)

DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

DATE: JUNE 2007
PROJECT NO.: CA99 064 W021
CONTRACT NO.: N68711-99-D-6620
DELIVERY ORDER: D021





SITE 14 VICINITY

LEGEND:

BSW-14-1 4.49	EXISTING MONITORING WELL LOCATION, IDENTIFICATION, AND GROUNDWATER ELEVATION.
MW-05-01 1.24	MW–05–01 THROUGH MW–05–05 ARE PART OF IRP SITE 5. MW–05–01 HAS BEEN SAMPLED AS PART OF IRP SITE 14.
IRP-14-TMW-10 4.02	TEMPORARY MONITORING WELL LOCATION, IDENTIFICATION, AND GROUNDWATER ELEVATION
IRP-14-TMW-4	TEMPORARY MONITORING WELLS INSTALLED, SAMPLED, AND ABANDONED DURING THE PREVIOUS MONITORING EVENT.
4.5	GROUNDWATER EQUIPOTENTIAL LINE IN FEET MEAN SEA LEVEL
	GENERALIZED DIRECTION OF REGIONAL GROUNDWATER FLOW
	WILDLIFE REFUGE
	RAILROAD TRACKS
	FORMER TANK LOCATION
	STRUCTURE

NOTES:

1. GROUNDWATER SAMPLES COLLECTED ON AUGUST 2, 2006.
2. TEMPORARY MONITORING WELLS IRP–14–TMW–3 & IRP–14–TMW–6 CONVERTED TO PERMANENT MONITORING WELLS BSW–14–11 & BSW–14–10, RESPECTFULLY.

NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

IRP SITE 14 - FIGURE 4

GROUNDWATER ELEVATIONS
(August 2006)

DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

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PROJECT NO.: CA99 064 W021
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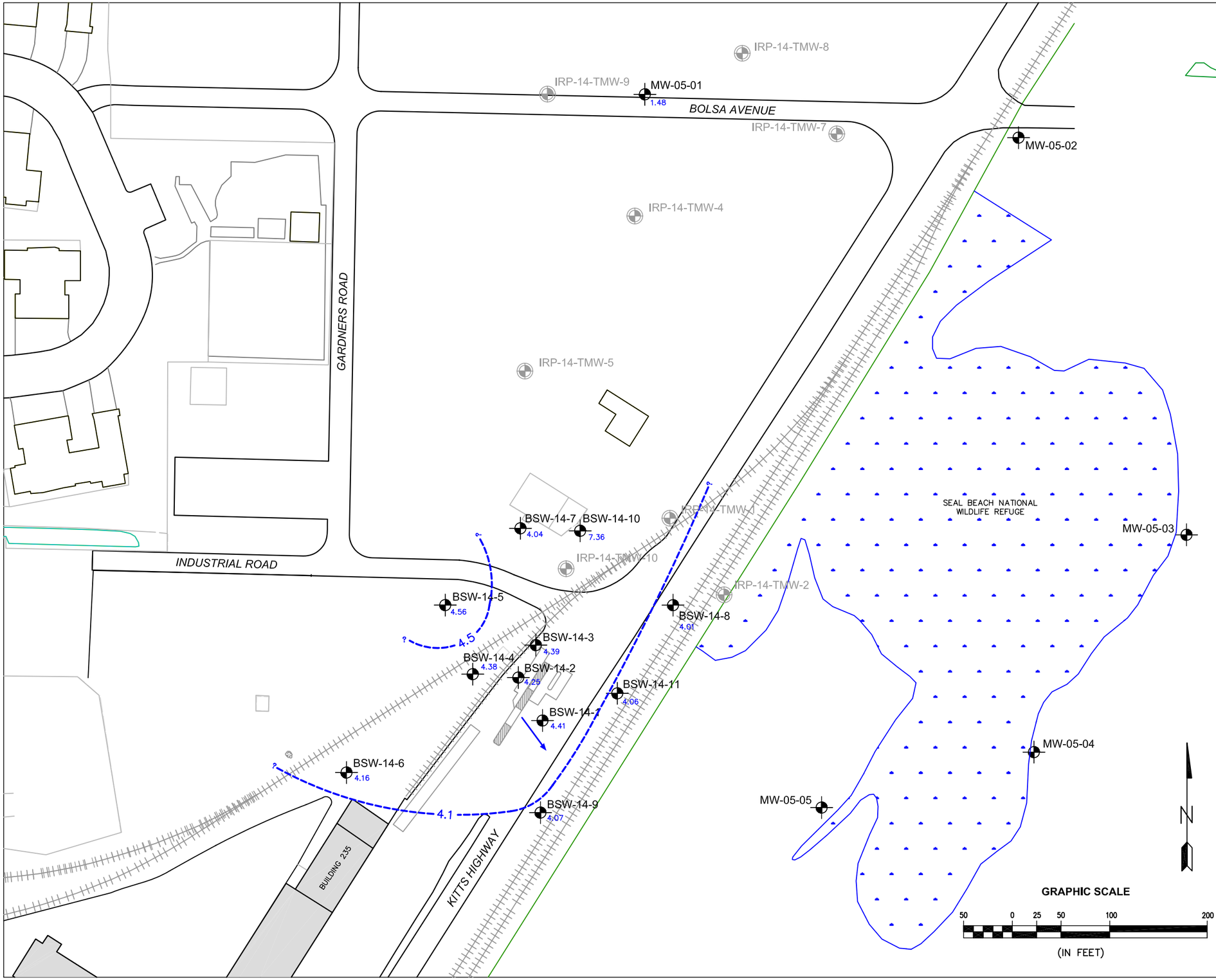


SITE 14 VICINITY

LEGEND:

BSW-14-1 4.41	EXISTING MONITORING WELL LOCATION, IDENTIFICATION, AND GROUNDWATER ELEVATION.
MW-05-01 1.48	MW–05–01 THROUGH MW–05–05 ARE PART OF IRP SITE 5. MW–05–01 HAS BEEN SAMPLED AS PART OF IRP SITE 14.
IRP-14-TMW-4	TEMPORARY MONITORING WELLS INSTALLED, SAMPLED, AND ABANDONED DURING THE PREVIOUS MONITORING EVENT.
4.5	GROUNDWATER EQUIPOTENTIAL LINE IN FEET MEAN SEA LEVEL
	GENERALIZED DIRECTION OF REGIONAL GROUNDWATER FLOW
	WILDLIFE REFUGE
	RAILROAD TRACKS
	FORMER TANK LOCATION
	STRUCTURE

NOTES:

1. GROUNDWATER SAMPLES COLLECTED ON OCTOBER 16, 2006.
2. TEMPORARY MONITORING WELLS IRP–14–TMW–3 & IRP–14–TMW–6 CONVERTED TO PERMANENT MONITORING WELLS BSW–14–11 & BSW–14–10, RESPECTFULLY.

NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

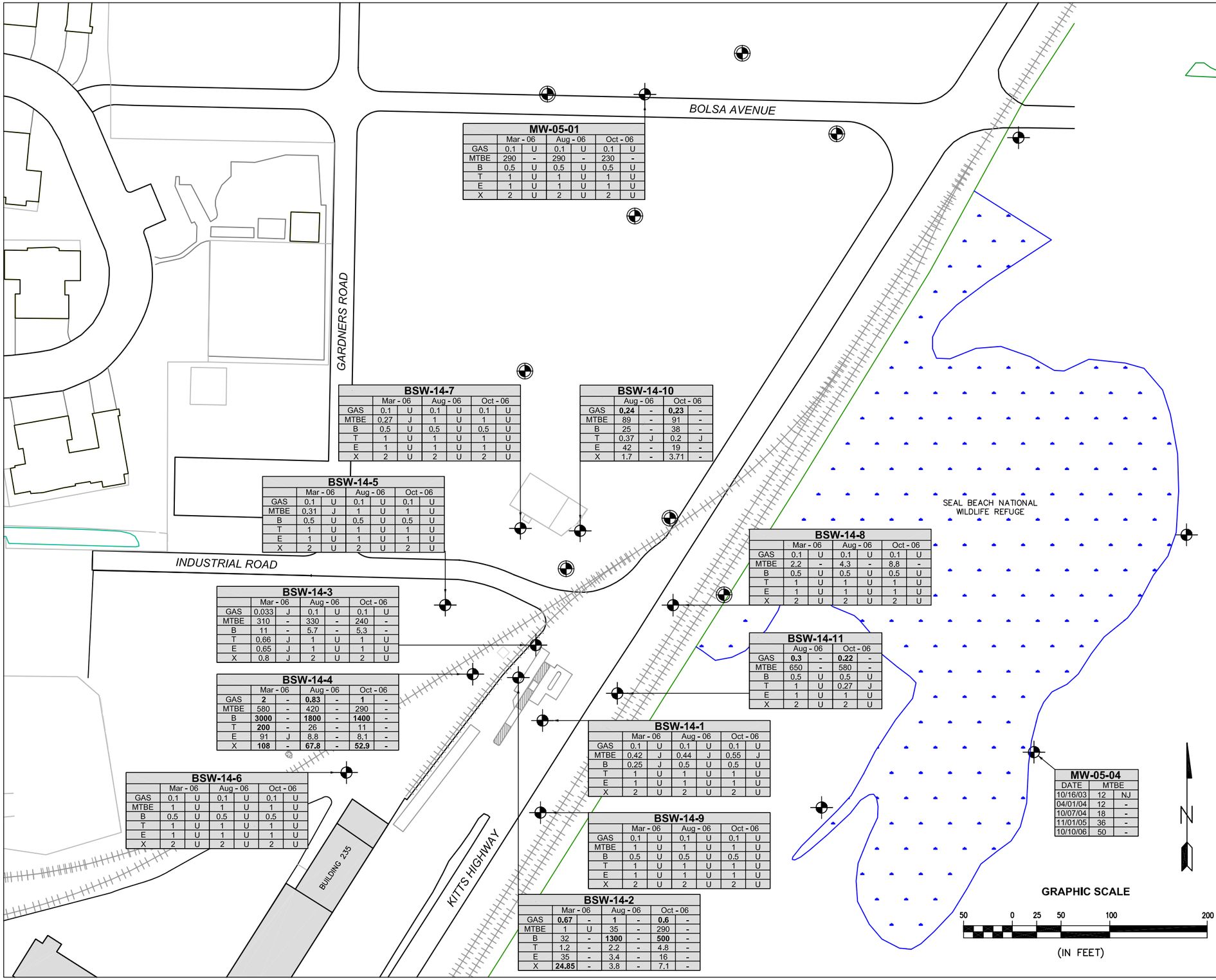
IRP SITE 14 - FIGURE 5

GROUNDWATER ELEVATIONS
(October 2006)

DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

DATE: JUNE 2007
PROJECT NO.: CA99 064 W021
CONTRACT NO.: N68711–99–D–6620
DELIVERY ORDER: D021



MW-05-01

	Mar - 06		Aug - 06		Oct - 06	
GAS	0.1	U	0.1	U	0.1	U
MTBE	290	-	290	-	230	-
B	0.5	U	0.5	U	0.5	U
T	1	U	1	U	1	U
E	1	U	1	U	1	U
X	2	U	2	U	2	U

BSW-14-7

	Mar - 06		Aug - 06		Oct - 06	
GAS	0.1	U	0.1	U	0.1	U
MTBE	0.27	J	1	U	1	U
B	0.5	U	0.5	U	0.5	U
T	1	U	1	U	1	U
E	1	U	1	U	1	U
X	2	U	2	U	2	U

BSW-14-10

	Aug - 06		Oct - 06	
GAS	**0.24**	-	**0.23**	-
MTBE	89	-	91	-
B	25	-	38	-
T	0.37	J	0.2	J
E	42	-	19	-
X	1.7	-	3.71	-

BSW-14-5

	Mar - 06		Aug - 06		Oct - 06	
GAS	0.1	U	0.1	U	0.1	U
MTBE	0.31	J	1	U	1	U
B	0.5	U	0.5	U	0.5	U
T	1	U	1	U	1	U
E	1	U	1	U	1	U
X	2	U	2	U	2	U

BSW-14-8

	Mar - 06		Aug - 06		Oct - 06	
GAS	0.1	U	0.1	U	0.1	U
MTBE	2.2	-	4.3	-	8.8	-
B	0.5	U	0.5	U	0.5	U
T	1	U	1	U	1	U
E	1	U	1	U	1	U
X	2	U	2	U	2	U

BSW-14-3

	Mar - 06		Aug - 06		Oct - 06	
GAS	0.033	J	0.1	U	0.1	U
MTBE	310	-	330	-	240	-
B	11	-	5.7	-	5.3	-
T	0.66	J	1	U	1	U
E	0.65	J	1	U	1	U
X	0.8	J	2	U	2	U

BSW-14-11

	Aug - 06		Oct - 06	
GAS	**0.3**	-	**0.22**	-
MTBE	650	-	580	-
B	0.5	U	0.5	U
T	1	U	0.27	J
E	1	U	1	U
X	2	U	2	U

BSW-14-4

	Mar - 06		Aug - 06		Oct - 06	
GAS	**2**	-	**0.83**	-	**1**	-
MTBE	580	-	420	-	290	-
B	**3000**	-	**1800**	-	**1400**	-
T	**200**	-	26	-	11	-
E	91	J	8.8	-	8.1	-
X	**108**	-	**67.8**	-	**52.9**	-

BSW-14-1

	Mar - 06		Aug - 06		Oct - 06	
GAS	0.1	U	0.1	U	0.1	U
MTBE	0.42	J	0.44	J	0.55	J
B	0.25	J	0.5	U	0.5	U
T	1	U	1	U	1	U
E	1	U	1	U	1	U
X	2	U	2	U	2	U

BSW-14-6

	Mar - 06		Aug - 06		Oct - 06	
GAS	0.1	U	0.1	U	0.1	U
MTBE	1	U	1	U	1	U
B	0.5	U	0.5	U	0.5	U
T	1	U	1	U	1	U
E	1	U	1	U	1	U
X	2	U	2	U	2	U

BSW-14-9

	Mar - 06		Aug - 06		Oct - 06	
GAS	0.1	U	0.1	U	0.1	U
MTBE	1	U	1	U	1	U
B	0.5	U	0.5	U	0.5	U
T	1	U	1	U	1	U
E	1	U	1	U	1	U
X	2	U	2	U	2	U

BSW-14-2

	Mar - 06		Aug - 06		Oct - 06	
GAS	**0.67**	-	**1**	-	**0.6**	-
MTBE	1	U	35	-	290	-
B	32	-	**1300**	-	**500**	-
T	1.2	-	2.2	-	4.8	-
E	35	-	3.4	-	16	-
X	**24.85**	-	3.8	-	7.1	-

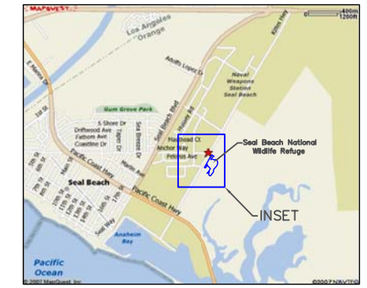
MW-05-04

DATE	MTBE	
10/16/03	12	NJ
04/01/04	12	-
10/07/04	18	-
11/01/05	36	-
10/10/06	50	-

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)



SITE 14 VICINITY

LEGEND:

- EXISTING MONITORING WELL LOCATION
- TEMPORARY MONITORING WELL LOCATION
- WILDLIFE REFUGE
- RAILROAD TRACKS
- FORMER TANK LOCATION
- STRUCTURE

ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS REPORTED IN GROUNDWATER:

MONITORING WELL IDENTIFICATION — ANALYTICAL RESULT

BSW-14-5

BENZENE	0.5	U

ANALYTE — LABORATORY QUALIFIER

NOTES:

1. MONITORING WELLS SAMPLED IN MARCH, AUGUST, AND OCTOBER 2006.
2. VOC CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER. GASOLINE REPORTED IN MILLIGRAMS PER LITER.
3. MW-05-04 SAMPLED AS PART OF IRP SITE 5. MTBE CONCENTRATIONS SHOWN BECAUSE SOURCE IS CONSIDERED TO BE FROM IRP SITE 14.
4. BOLDED CONCENTRATIONS EXCEED SCREENING CRITERIA.

LABORATORY QUALIFIERS:
J = ESTIMATED CONCENTRATION
U = ANALYTE NOT REPORTED ABOVE PRACTICABLE QUANTITATION LIMIT (PQL). NUMERIC VALUE IS THE PQL.
MTBE = METHYL TERTIARY-BUTYL ETHER
B = BENZENE
T = TOLUENE
E = ETHYLBENZENE
X = TOTAL XYLENES

NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

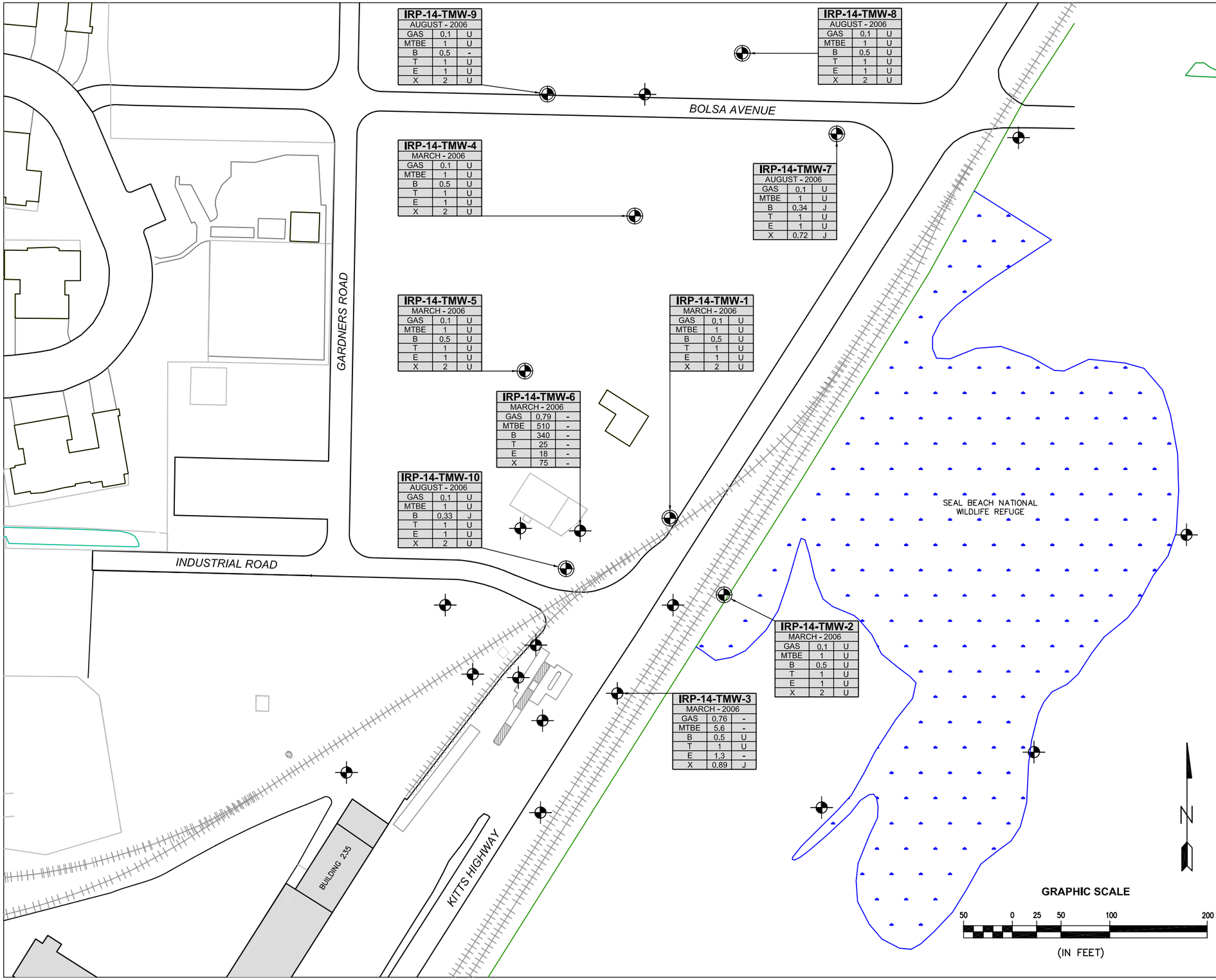
IRP SITE 14 - FIGURE 6

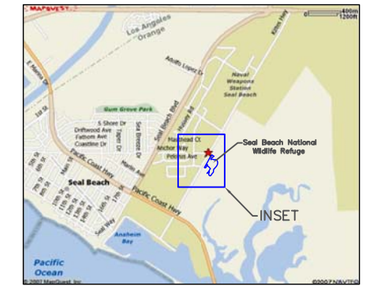
VOLATILE ORGANIC COMPOUNDS, and TPHg in GROUNDWATER - PERMANENT MONITORING WELLS

DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

DATE: JUNE 2007
PROJECT NO.: CA99 064 W021
CONTRACT NO.: N68711-99-D-6620
DELIVERY ORDER: D021





SITE 14 VICINITY

LEGEND:

- EXISTING MONITORING WELL LOCATION
- TEMPORARY MONITORING WELL LOCATION
- WILDLIFE REFUGE
- RAILROAD TRACKS
- FORMER TANK LOCATION
- STRUCTURE

ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS REPORTED IN GROUNDWATER:

MONITORING WELL IDENTIFICATION — ANALYTICAL RESULT

IRP-14-TMW-1

BENZENE	0.5	U

ANALYTE — LABORATORY QUALIFIER

NOTES:

1. TEMPORARY WELLS SAMPLED IN MARCH AND AUGUST 2006.

2. VOC CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER. GASOLINE REPORTED IN MILLIGRAMS PER LITER.

LABORATORY QUALIFIERS:
J = ESTIMATED CONCENTRATION
U = ANALYTE NOT REPORTED ABOVE PRACTICAL QUANTITATION LIMIT (PQL). NUMERIC VALUE IS THE PQL.
MTBE = METHYL TERTIARY-BUTYL ETHER
B = BENZENE
T = TOLUENE
E = ETHYLBENZENE
X = TOTAL XYLENES

NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

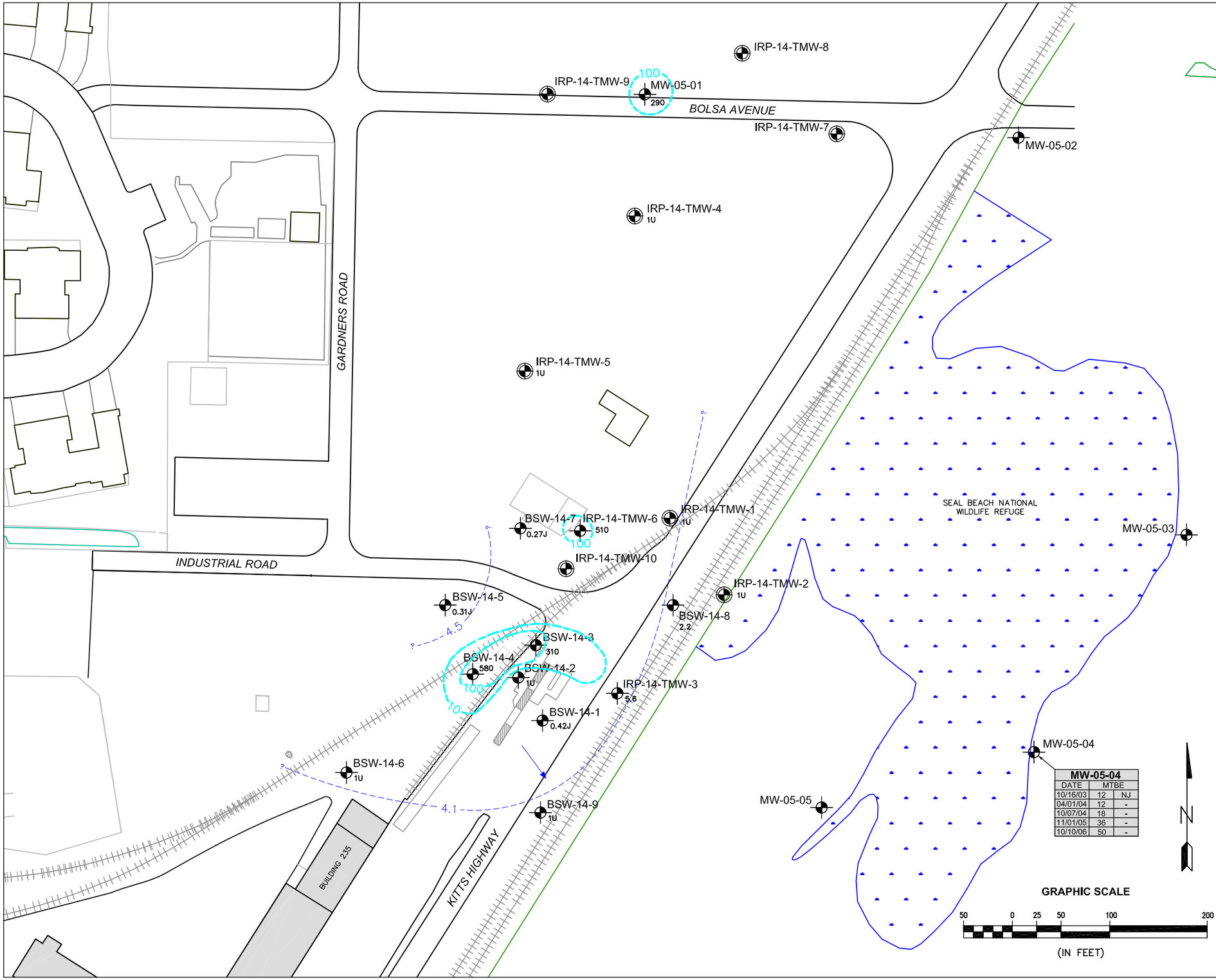
IRP SITE 14 - FIGURE 7

VOLATILE ORGANIC COMPOUNDS, and TPHg in GROUNDWATER - TEMPORARY MONITORING WELLS

DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

DATE: JUNE 2007
PROJECT NO.: CA99 064 W021
CONTRACT NO.: N68711-99-D-6620
DELIVERY ORDER: D021



MW-05-04		
DATE	MTBE	
10/16/03	12	NJ
04/01/04	12	-
10/07/04	18	-
11/01/05	36	-
10/10/06	50	-

SITE 14 VICINITY

LEGEND:

BSW-14-1 0.42J	EXISTING MONITORING WELL LOCATION, IDENTIFICATION, AND MTBE CONCENTRATION IN GROUNDWATER. REPORTED IN MICROGRAMS PER LITER.
MW-05-01 290	MW-05-01 THROUGH MW-05-05 ARE PART OF IRP SITE 5. MW-05-01 HAS BEEN SAMPLED AS PART OF IRP SITE 14.
IRP-14-TMW-5 1U	TEMPORARY MONITORING WELL LOCATION, IDENTIFICATION, AND MTBE CONCENTRATION IN GROUNDWATER. REPORTED IN MICROGRAMS PER LITER.
5	ESTIMATED CONTOUR OF EQUAL MTBE CONCENTRATION IN GROUNDWATER.
4.5 ?	GROUNDWATER EQUIPOTENTIAL LINE IN FEET MEAN SEA LEVEL
	GENERALIZED DIRECTION OF REGIONAL GROUNDWATER FLOW
	WILDLIFE REFUGE
	RAILROAD TRACKS
	FORMER TANK LOCATION
	STRUCTURE

NOTES:

1. GROUNDWATER SAMPLES COLLECTED ON MARCH 27 & 28, 2006.
2. CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER.

LABORATORY QUALIFIERS:
J = ESTIMATED CONCENTRATION
U = ANALYTE NOT REPORTED ABOVE PRACTICABLE QUANTITATION LIMIT (PQL). NUMERIC VALUE IS THE PQL.
MTBE = METHYL TERTIARY-BUTYL ETHER

NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

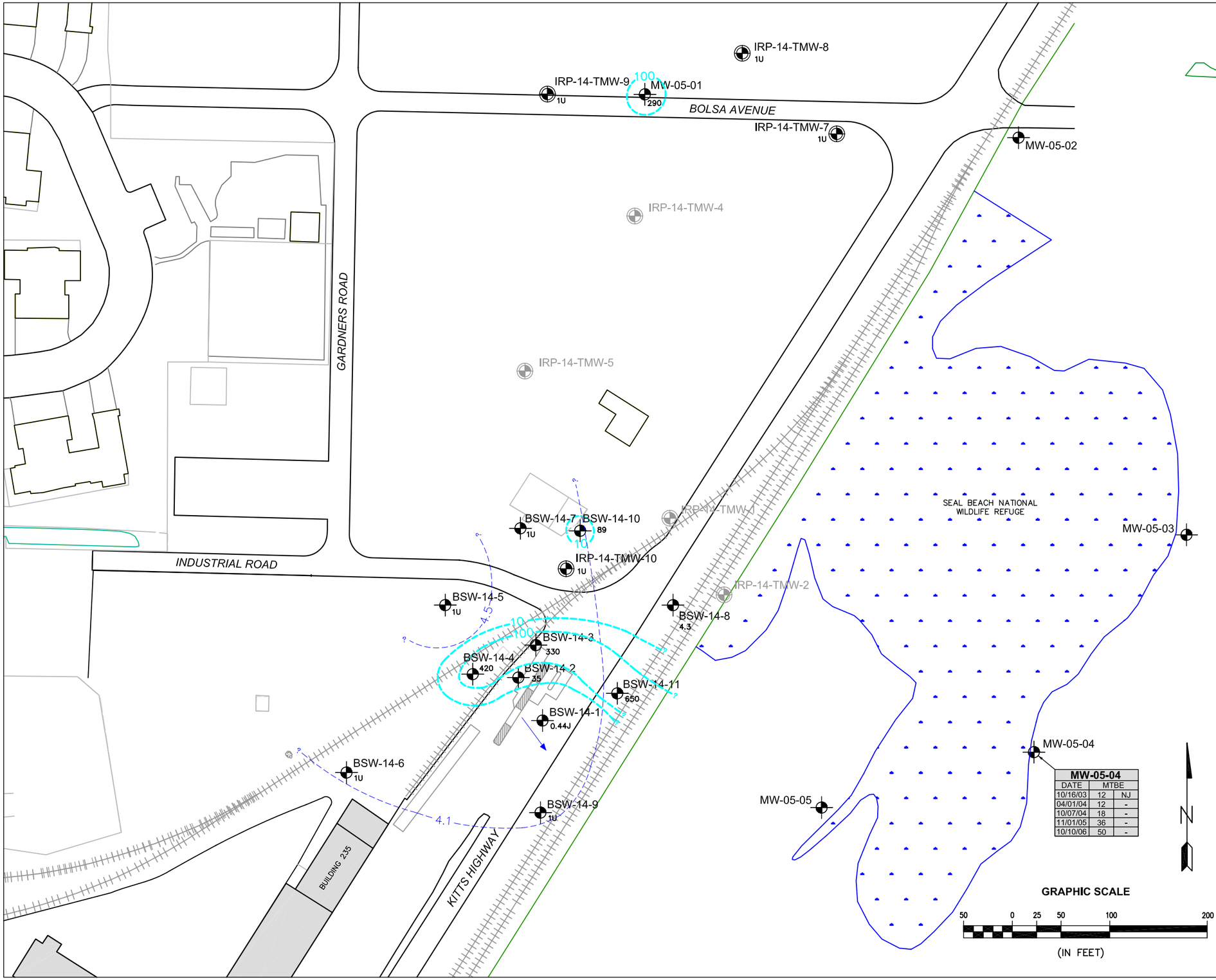
IRP SITE 14 - FIGURE 8

METHYL TERTIARY-BUTYL ETHER
in GROUNDWATER (March 2006)

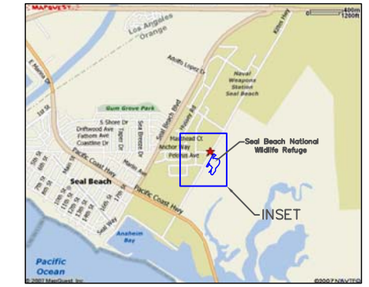
DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

DATE: JUNE 2007
PROJECT NO.: CA99 064 W021
CONTRACT NO.: N68711-99-D-6620
DELIVERY ORDER: D021



MW-05-04		
DATE	MTBE	
10/16/03	12	NJ
04/01/04	12	-
10/07/04	18	-
11/01/05	36	-
10/10/06	50	-



SITE 14 VICINITY

LEGEND:

BSW-14-1 0.44J	EXISTING MONITORING WELL LOCATION, IDENTIFICATION, AND MTBE CONCENTRATION IN GROUNDWATER. REPORTED IN MICROGRAMS PER LITER.
MW-05-01 290	MW-05-01 THROUGH MW-05-05 ARE PART OF IRP SITE 5. MW-05-01 HAS BEEN SAMPLED AS PART OF IRP SITE 14.
IRP-14-TMW-10 1U	TEMPORARY MONITORING WELL LOCATION, IDENTIFICATION, AND MTBE CONCENTRATION IN GROUNDWATER. REPORTED IN MICROGRAMS PER LITER.
IRP-14-TMW-4	TEMPORARY MONITORING WELLS INSTALLED, SAMPLED, AND ABANDONED DURING THE PREVIOUS MONITORING EVENT.
5	ESTIMATED CONTOUR OF EQUAL MTBE CONCENTRATION IN GROUNDWATER.
4.5 ?	GROUNDWATER EQUIPOTENTIAL LINE IN FEET MEAN SEA LEVEL
	GENERALIZED DIRECTION OF REGIONAL GROUNDWATER FLOW
	WILDLIFE REFUGE
	RAILROAD TRACKS
	FORMER TANK LOCATION
	STRUCTURE

NOTES:

1. GROUNDWATER SAMPLES COLLECTED FROM AUGUST 2 THROUGH 7, 2006.
2. CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER.
3. TEMPORARY MONITORING WELLS IRP-14-TMW-3 & IRP-14-TMW-6 CONVERTED TO PERMANENT MONITORING WELLS BSW-14-11 & BSW-14-10, RESPECTFULLY.

LABORATORY QUALIFIERS:
J = ESTIMATED CONCENTRATION
U = ANALYTE NOT REPORTED ABOVE PRACTICAL QUANTITATION LIMIT (PQL). NUMERIC VALUE IS THE PQL.
MTBE = METHYL TERTIARY-BUTYL ETHER

NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

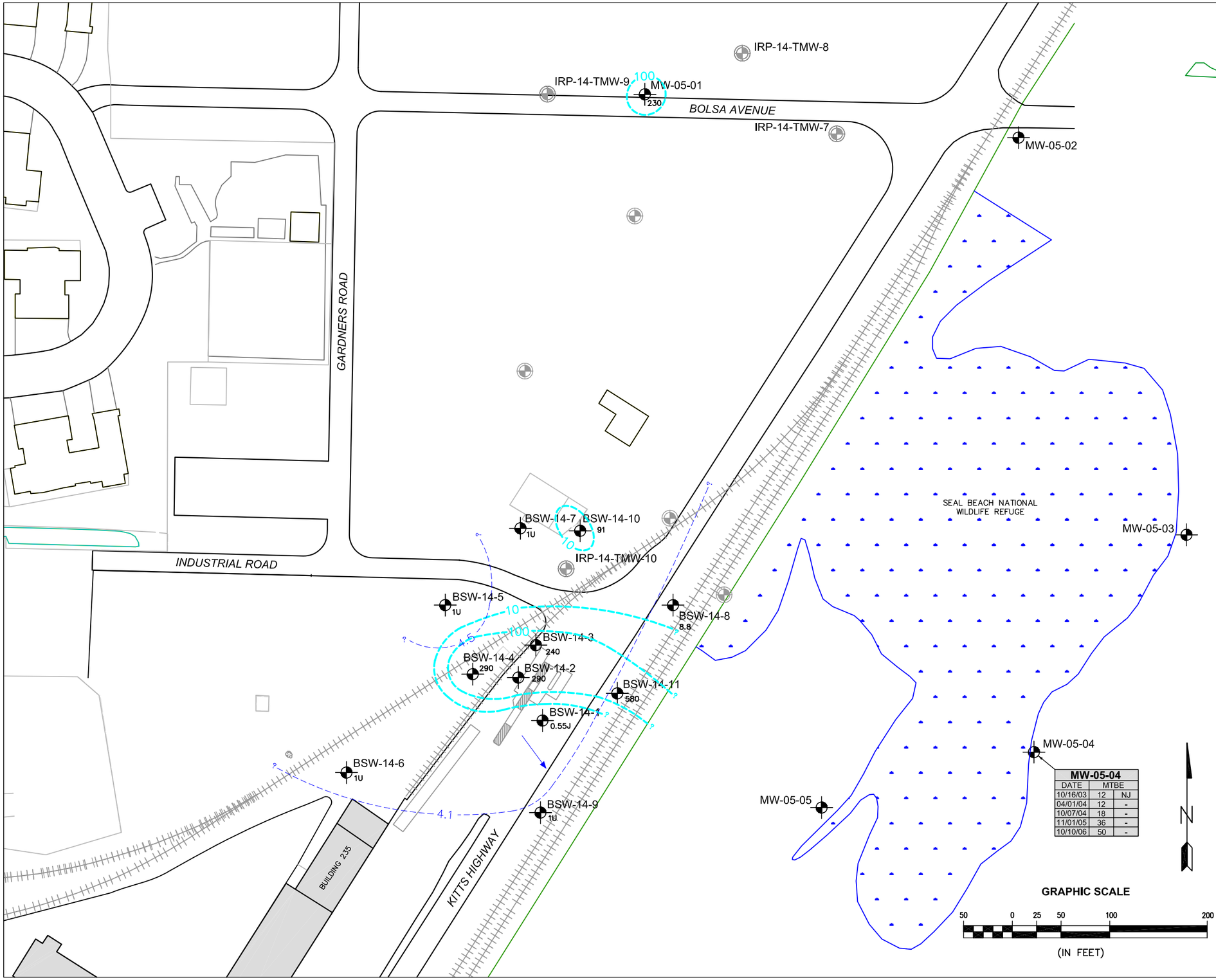
IRP SITE 14 - FIGURE 9

METHYL TERTIARY-BUTYL ETHER
in GROUNDWATER (August 2006)

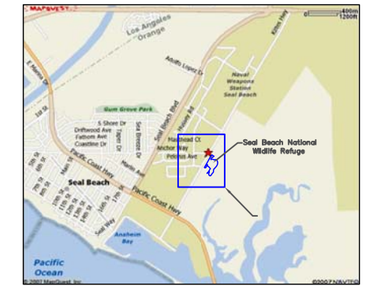
DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

DATE: JUNE 2007
PROJECT NO.: CA99 064 W021
CONTRACT NO.: N68711-99-D-6620
DELIVERY ORDER: D021



MW-05-04		
DATE	MTBE	
10/16/03	12	NJ
04/01/04	12	-
10/07/04	18	-
11/01/05	36	-
10/10/06	50	-



LEGEND:

- 0.55J — EXISTING MONITORING WELL LOCATION, IDENTIFICATION, AND MTBE CONCENTRATION IN GROUNDWATER.
- 230 — MW-05-01 THROUGH MW-05-05 ARE PART OF IRP SITE 5. MW-05-01 HAS BEEN SAMPLED AS PART OF IRP SITE 14.
- TEMPORARY MONITORING WELLS INSTALLED, SAMPLED, AND ABANDONED DURING THE PREVIOUS MONITORING EVENT.
- 5 — ESTIMATED CONTOUR OF EQUAL MTBE CONCENTRATION IN GROUNDWATER.
- 4.5 — GROUNDWATER EQUIPOTENTIAL LINE IN FEET MEAN SEA LEVEL
- GENERALIZED DIRECTION OF REGIONAL GROUNDWATER FLOW
- WILDLIFE REFUGE
- RAILROAD TRACKS
- FORMER TANK LOCATION
- STRUCTURE

NOTES:

1. GROUNDWATER SAMPLES COLLECTED ON OCTOBER 16 & 17, 2006.
2. CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER.
3. TEMPORARY MONITORING WELLS IRP-14-TMW-3 & IRP-14-TMW-6 CONVERTED TO PERMANENT MONITORING WELLS BSW-14-11 & BSW-14-10, RESPECTFULLY.

LABORATORY QUALIFIERS:
J = ESTIMATED CONCENTRATION
U = ANALYTE NOT REPORTED ABOVE PRACTICABLE QUANTITATION LIMIT (PQL). NUMERIC VALUE IS THE PQL.
MTBE = METHYL TERTIARY-BUTYL ETHER

NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

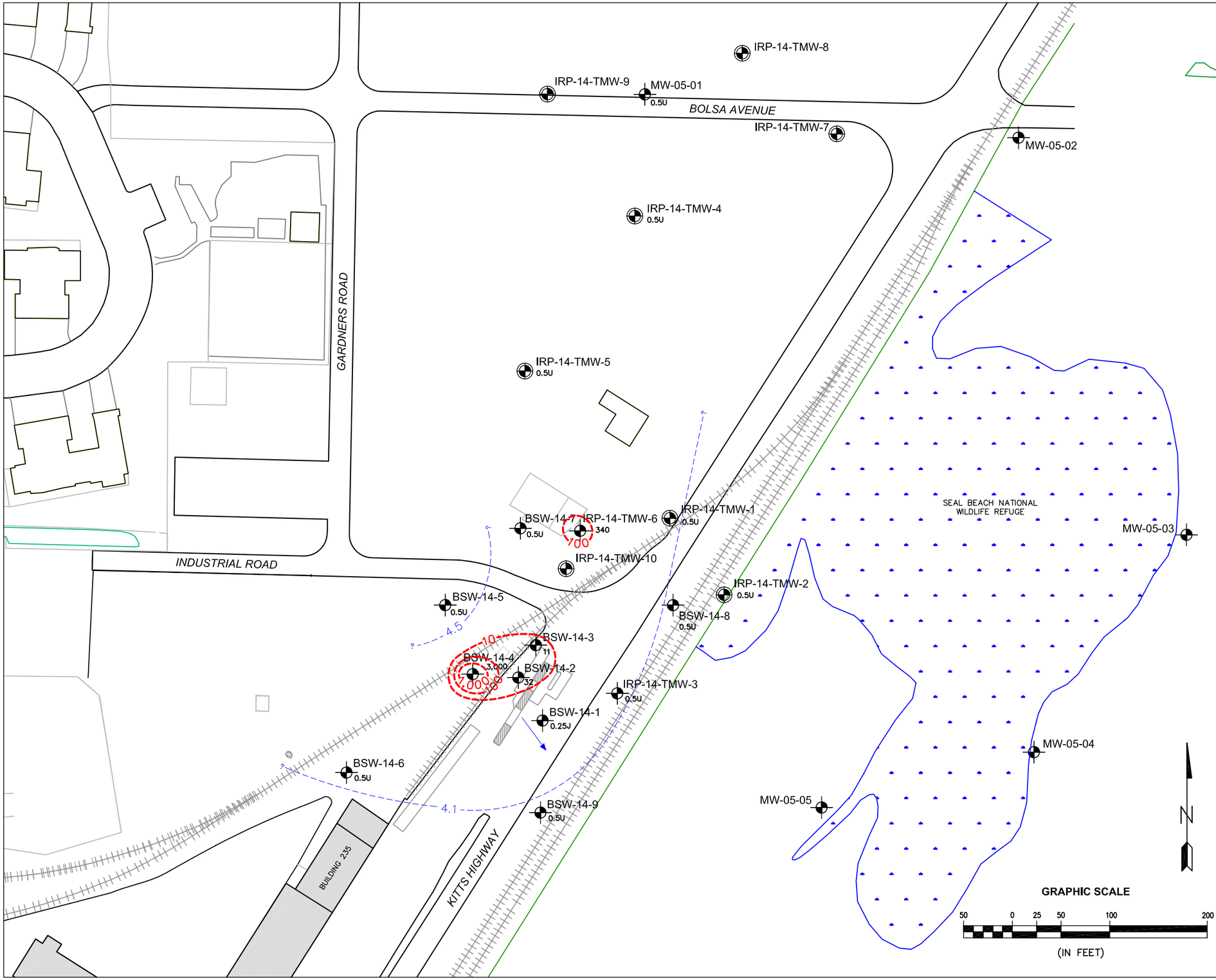
IRP SITE 14 - FIGURE 10

METHYL TERTIARY-BUTYL ETHER
in GROUNDWATER (October 2006)

DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

DATE: JUNE 2007
PROJECT NO.: CA99 064 W021
CONTRACT NO.: N68711-99-D-6620
DELIVERY ORDER: D021



SITE 14 VICINITY

LEGEND:

BSW-14-1 0.25J	EXISTING MONITORING WELL LOCATION, IDENTIFICATION, AND BENZENE CONCENTRATION IN GROUNDWATER. REPORTED IN MICROGRAMS PER LITER.
MW-05-01 0.5U	MW–05–01 THROUGH MW–05–05 ARE PART OF IRP SITE 5. MW–05–01 HAS BEEN SAMPLED AS PART OF IRP SITE 14.
IRP-14-TMW-5 0.5U	TEMPORARY MONITORING WELL LOCATION, IDENTIFICATION, AND BENZENE CONCENTRATION IN GROUNDWATER. REPORTED IN MICROGRAMS PER LITER.
10	ESTIMATED CONTOUR OF EQUAL BENZENE CONCENTRATION IN GROUNDWATER.
4.5 ?	GROUNDWATER EQUIPOTENTIAL LINE IN FEET MEAN SEA LEVEL
	GENERALIZED DIRECTION OF REGIONAL GROUNDWATER FLOW
	WILDLIFE REFUGE
	RAILROAD TRACKS
	FORMER TANK LOCATION
	STRUCTURE

NOTES:

1. GROUNDWATER SAMPLES COLLECTED ON MARCH 27 & 28, 2006.
2. CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER.

LABORATORY QUALIFIERS:
J = ESTIMATED CONCENTRATION
U = ANALYTE NOT REPORTED ABOVE PRACTICABLE QUANTITATION LIMIT (PQL). NUMERIC VALUE IS THE PQL.

NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

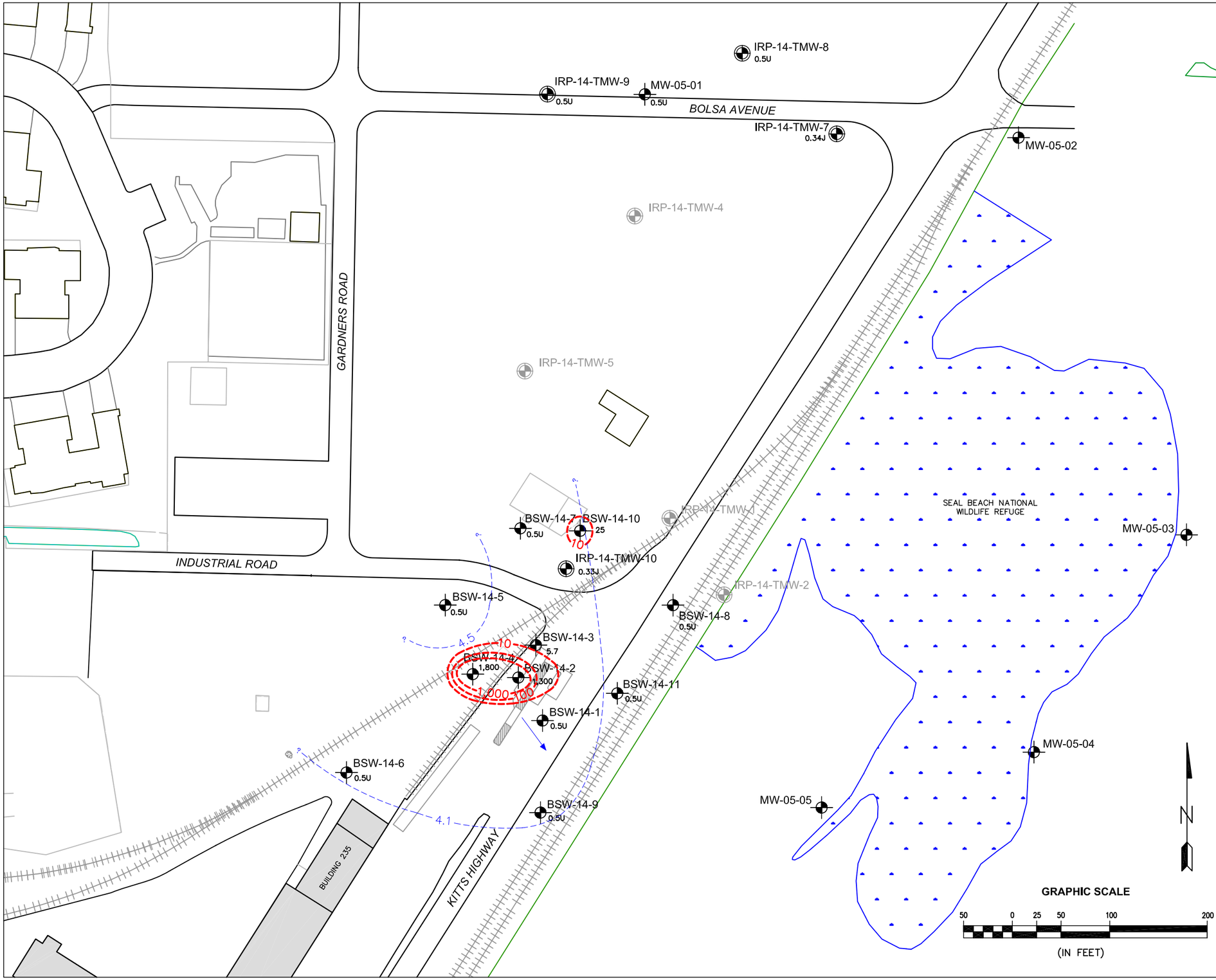
IRP SITE 14 - FIGURE 11

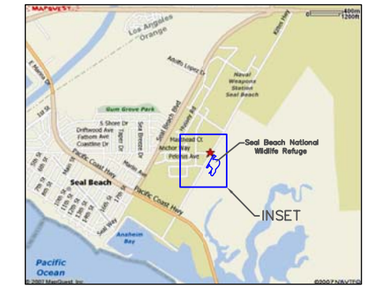
BENZENE in GROUNDWATER
(March 2006)

DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

DATE: JUNE 2007
PROJECT NO.: CA99 064 W021
CONTRACT NO.: N68711-99-D-6620
DELIVERY ORDER: D021





SITE 14 VICINITY

LEGEND:

BSW-14-1 0.5U	EXISTING MONITORING WELL LOCATION, IDENTIFICATION, AND BENZENE CONCENTRATION IN GROUNDWATER.
MW-05-01 0.5U	MW–05–01 THROUGH MW–05–05 ARE PART OF IRP SITE 5. MW–05–01 HAS BEEN SAMPLED AS PART OF IRP SITE 14.
IRP-14-TMW-10 0.33J	TEMPORARY MONITORING WELL LOCATION, IDENTIFICATION, AND BENZENE CONCENTRATION IN GROUNDWATER. REPORTED IN MICROGRAMS PER LITER.
IRP-14-TMW-4	TEMPORARY MONITORING WELLS INSTALLED, SAMPLED, AND ABANDONED DURING THE PREVIOUS MONITORING EVENT.
10	ESTIMATED CONTOUR OF EQUAL BENZENE CONCENTRATION IN GROUNDWATER.
4.5 ?	GROUNDWATER EQUIPOTENTIAL LINE IN FEET MEAN SEA LEVEL
	GENERALIZED DIRECTION OF REGIONAL GROUNDWATER FLOW
	WILDLIFE REFUGE
	RAILROAD TRACKS
	FORMER TANK LOCATION
	STRUCTURE

NOTES:

1. GROUNDWATER SAMPLES COLLECTED FROM AUGUST 2 THROUGH 7, 2006.
2. CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER.
3. TEMPORARY MONITORING WELLS IRP–14–TMW–3 & IRP–14–TMW–6 CONVERTED TO PERMANENT MONITORING WELLS BSW–14–11 & BSW–14–10, RESPECTFULLY.

LABORATORY QUALIFIERS:
J = ESTIMATED CONCENTRATION
U = ANALYTE NOT REPORTED ABOVE PRACTICABLE QUANTITATION LIMIT (PQL). NUMERIC VALUE IS THE PQL.

NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

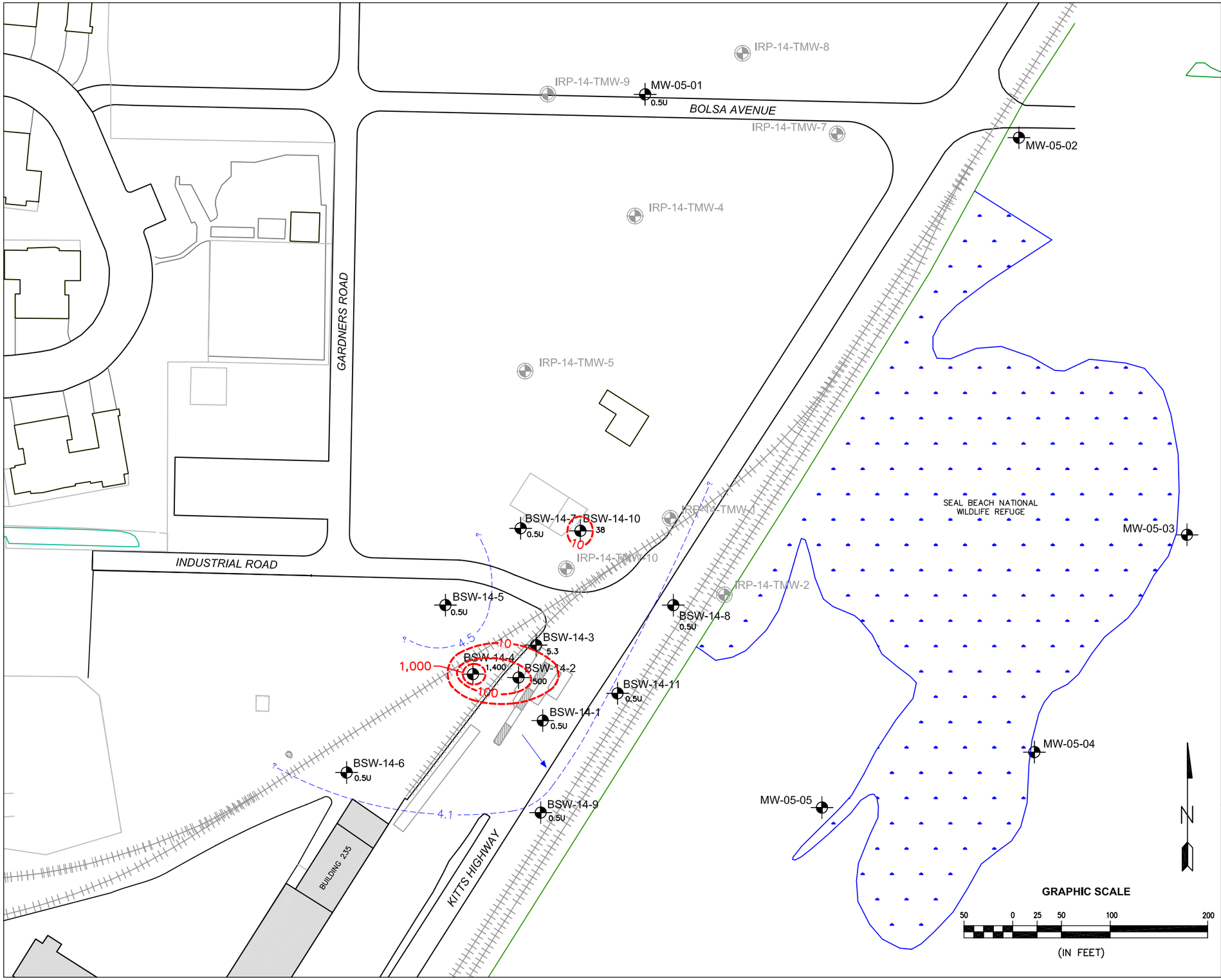
IRP SITE 14 - FIGURE 12

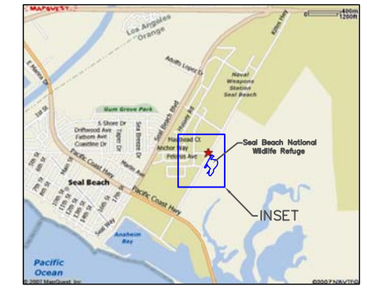
BENZENE in GROUNDWATER
(August 2006)

DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

DATE: JUNE 2007
PROJECT NO.: CA99 064 W021
CONTRACT NO.: N68711–99–D–6620
DELIVERY ORDER: D021





SITE 14 VICINITY

LEGEND:

BSW-14-1 0.5U	EXISTING MONITORING WELL LOCATION, IDENTIFICATION, AND BENZENE CONCENTRATION IN GROUNDWATER. REPORTED IN MICROGRAMS PER LITER.
MW-05-01	MW-05-01 THROUGH MW-05-05 ARE PART OF IRP SITE 5. MW-05-01 HAS BEEN SAMPLED AS PART OF IRP SITE 14.
IRP-14-TMW-4	TEMPORARY MONITORING WELLS INSTALLED, SAMPLED, AND ABANDONED DURING THE PREVIOUS MONITORING EVENT.
10	ESTIMATED CONTOUR OF EQUAL BENZENE CONCENTRATION IN GROUNDWATER.
4.5 ?	GROUNDWATER EQUIPOTENTIAL LINE IN FEET MEAN SEA LEVEL
	GENERALIZED DIRECTION OF REGIONAL GROUNDWATER FLOW
	WILDLIFE REFUGE
	RAILROAD TRACKS
	FORMER TANK LOCATION
	STRUCTURE

NOTES:

1. GROUNDWATER SAMPLES COLLECTED ON OCTOBER 16 & 17, 2006.
2. CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER.
3. TEMPORARY MONITORING WELLS IRP-14-TMW-3 & IRP-14-TMW-6 CONVERTED TO PERMANENT MONITORING WELLS BSW-14-11 & BSW-14-10, RESPECTFULLY.

LABORATORY QUALIFIERS:
J = ESTIMATED CONCENTRATION
U = ANALYTE NOT REPORTED ABOVE PRACTICABLE QUANTITATION LIMIT (PQL). NUMERIC VALUE IS THE PQL.

NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

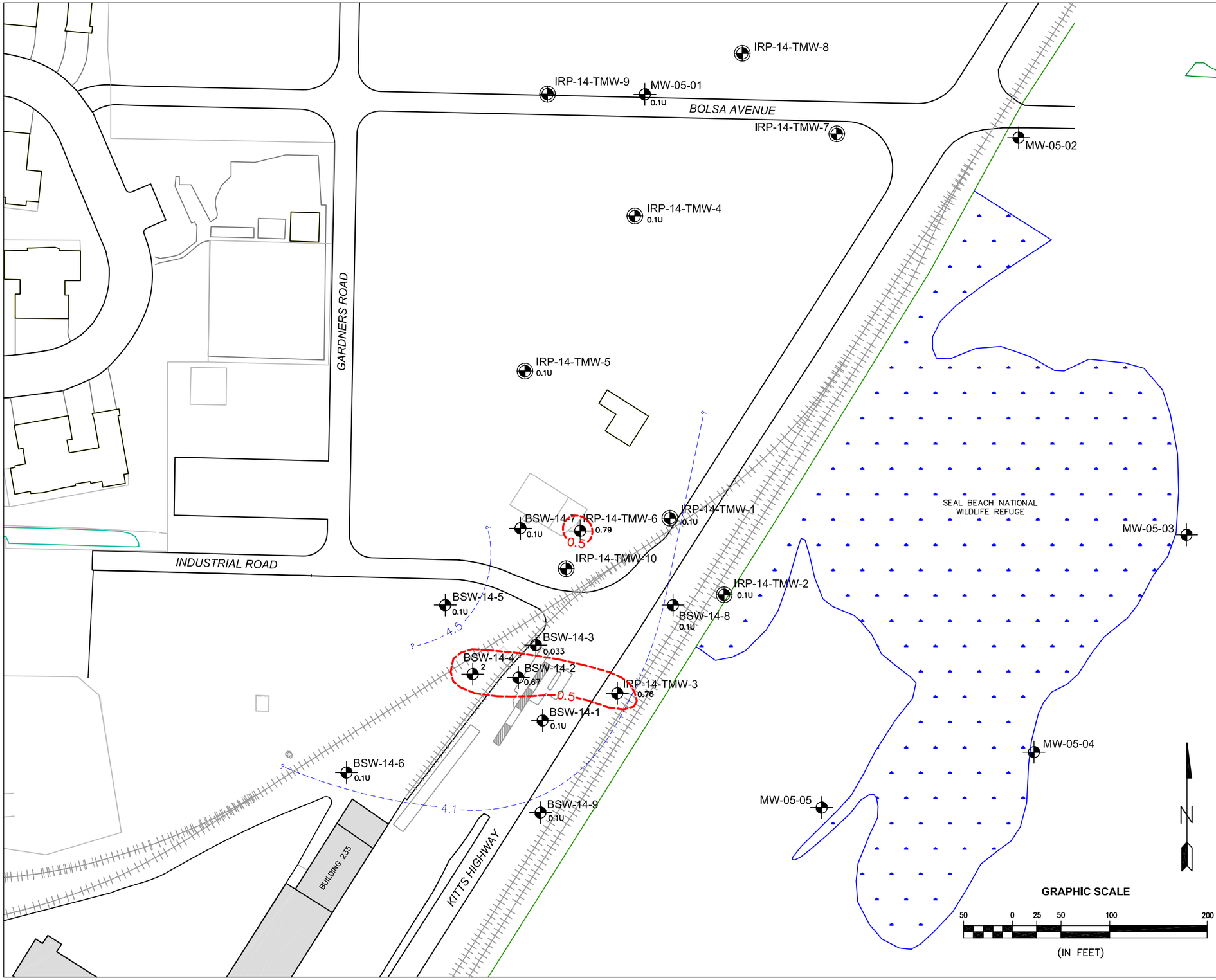
IRP SITE 14 - FIGURE 13

BENZENE in GROUNDWATER
(October 2006)

DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

DATE: JUNE 2007
PROJECT NO.: CA99 064 W021
CONTRACT NO.: N68711-99-D-6620
DELIVERY ORDER: D021



SITE 14 VICINITY

LEGEND:

BSW-14-1 0.1U	EXISTING MONITORING WELL LOCATION, IDENTIFICATION, AND TPHg CONCENTRATION IN GROUNDWATER. REPORTED IN MILLIGRAMS PER LITER.
MW-05-01 0.1U	MW–05–01 THROUGH MW–05–05 ARE PART OF IRP SITE 5. MW–05–01 HAS BEEN SAMPLED AS PART OF IRP SITE 14.
IRP-14-TMW-5 0.1U	TEMPORARY MONITORING WELL LOCATION, IDENTIFICATION, AND TPHg CONCENTRATION IN GROUNDWATER. REPORTED IN MILLIGRAMS PER LITER.
0.5	TOTAL PETROLEUM HYDROCARBONS CONCENTRATIONS IN GROUNDWATER.
4.5	GROUNDWATER EQUIPOTENTIAL LINE IN FEET MEAN SEA LEVEL
	GENERALIZED DIRECTION OF REGIONAL GROUNDWATER FLOW
	WILDLIFE REFUGE
	RAILROAD TRACKS
	FORMER TANK LOCATION
	STRUCTURE

NOTES:

1. GROUNDWATER SAMPLES COLLECTED ON MARCH 27 & 28, 2006.
2. CONCENTRATIONS REPORTED IN MILLIGRAMS PER LITER.
3. TEMPORARY MONITORING WELLS IRP–14–TMW–3 & IRP–14–TMW–6 CONVERTED TO PERMANENT MONITORING WELLS BSW–14–11 & BSW–14–10, RESPECTFULLY.

LABORATORY QUALIFIERS:
J = ESTIMATED CONCENTRATION
U = ANALYTE NOT REPORTED ABOVE PRACTICABLE QUANTITATION LIMIT (PQL). NUMERIC VALUE IS THE PQL.
TPHg = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE

NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

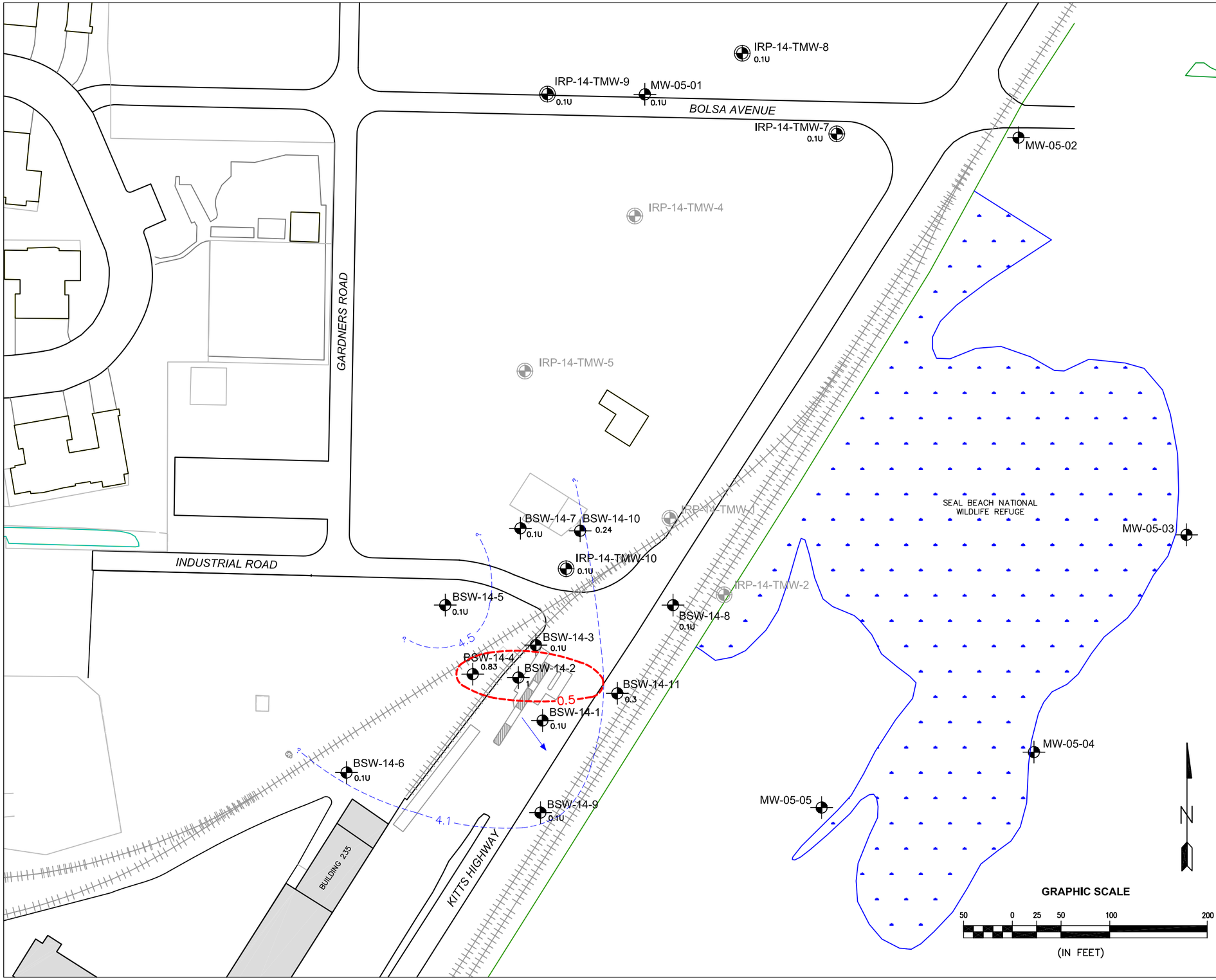
IRP SITE 14 - FIGURE 14

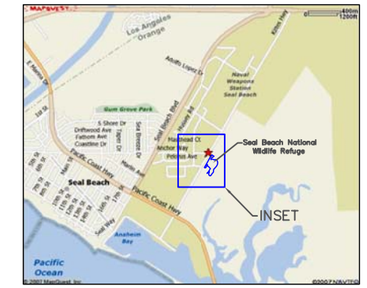
GASOLINE in GROUNDWATER
(March 2006)

DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

DATE: JUNE 2007
PROJECT NO.: CA99 064 W021
CONTRACT NO.: N68711-99-D-6620
DELIVERY ORDER: D021





SITE 14 VICINITY

LEGEND:

BSW-14-1 0.1U	EXISTING MONITORING WELL LOCATION, IDENTIFICATION, AND TPHg CONCENTRATION IN GROUNDWATER. REPORTED IN MILLIGRAMS PER LITER.
MW-05-01 0.1U	MW–05–01 THROUGH MW–05–05 ARE PART OF IRP SITE 5. MW–05–01 HAS BEEN SAMPLED AS PART OF IRP SITE 14.
IRP-14-TMW-10 0.1U	TEMPORARY MONITORING WELL LOCATION, IDENTIFICATION, AND TPHg CONCENTRATION IN GROUNDWATER. REPORTED IN MILLIGRAMS PER LITER.
IRP-14-TMW-4	TEMPORARY MONITORING WELLS INSTALLED, SAMPLED, AND ABANDONED DURING THE PREVIOUS MONITORING EVENT.
0.5	TOTAL PETROLEUM HYDROCARBONS CONCENTRATIONS IN GROUNDWATER.
4.5 ?	GROUNDWATER EQUIPOTENTIAL LINE IN FEET MEAN SEA LEVEL
	GENERALIZED DIRECTION OF REGIONAL GROUNDWATER FLOW
	WILDLIFE REFUGE
	RAILROAD TRACKS
	FORMER TANK LOCATION
	STRUCTURE

NOTES:

1. GROUNDWATER SAMPLES COLLECTED FROM AUGUST 2 THROUGH 7, 2006.
2. CONCENTRATIONS REPORTED IN MILLIGRAMS PER LITER.
3. TEMPORARY MONITORING WELLS IRP–14–TMW–3 & IRP–14–TMW–6 CONVERTED TO PERMANENT MONITORING WELLS BSW–14–11 & BSW–14–10, RESPECTFULLY.

LABORATORY QUALIFIERS:
J = ESTIMATED CONCENTRATION
U = ANALYTE NOT REPORTED ABOVE PRACTICABLE QUANTITATION LIMIT (PQL). NUMERIC VALUE IS THE PQL.
TPHg = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE

NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

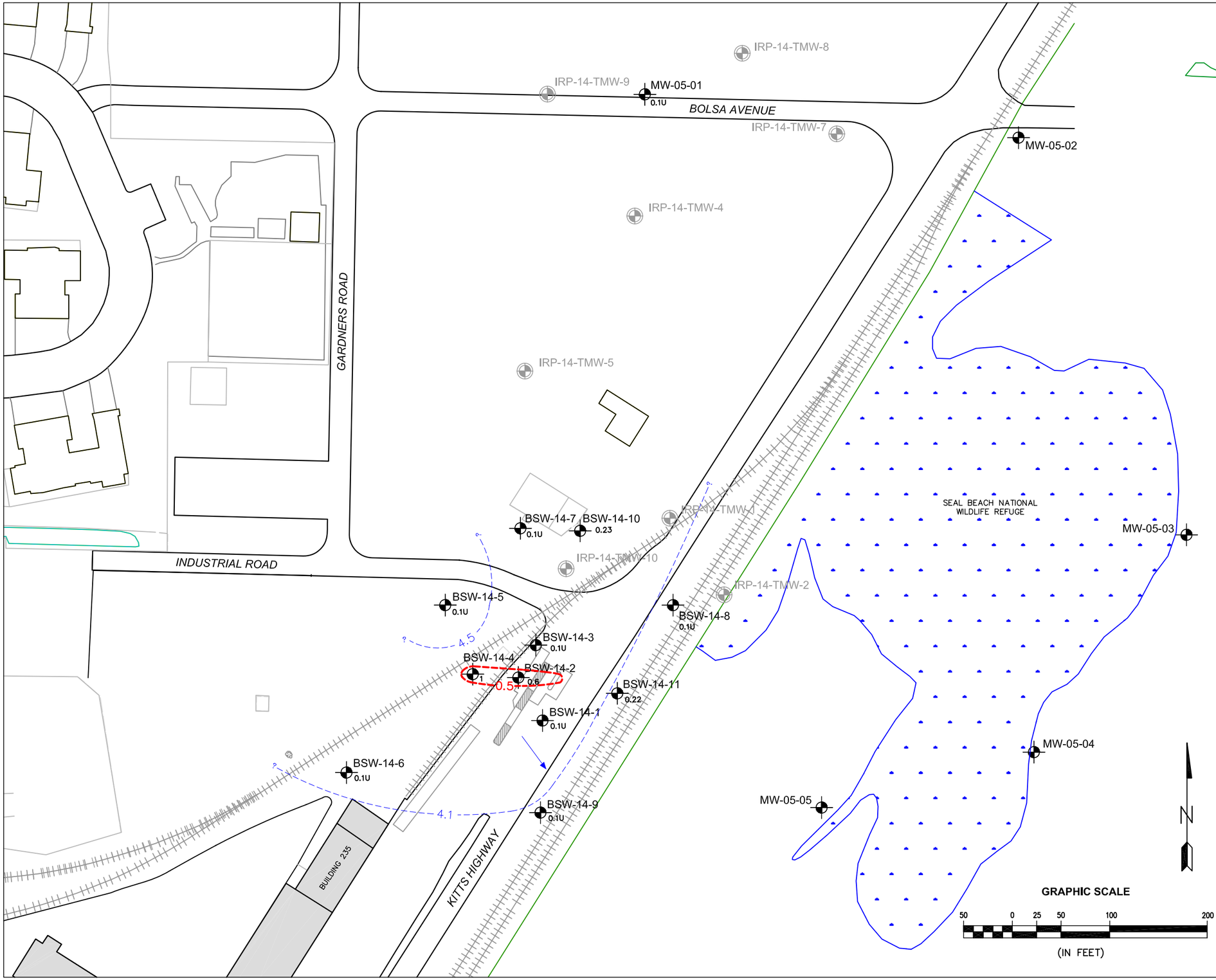
IRP SITE 14 - FIGURE 15

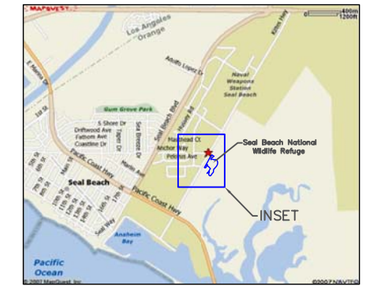
GASOLINE in GROUNDWATER
(August 2006)

DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

DATE: JUNE 2007
PROJECT NO.: CA99 064 W021
CONTRACT NO.: N68711–99–D–6620
DELIVERY ORDER: D021





SITE 14 VICINITY

LEGEND:

BSW-14-1 0.1U	EXISTING MONITORING WELL LOCATION, IDENTIFICATION, AND TPHg CONCENTRATION IN GROUNDWATER. REPORTED IN MILLIGRAMS PER LITER.
MW-05-01 0.1U	MW–05–01 THROUGH MW–05–05 ARE PART OF IRP SITE 5. MW–05–01 HAS BEEN SAMPLED AS PART OF IRP SITE 14.
IRP-14-TMW-4	TEMPORARY MONITORING WELLS INSTALLED, SAMPLED, AND ABANDONED DURING THE PREVIOUS MONITORING EVENT.
0.5	TOTAL PETROLEUM HYDROCARBONS CONCENTRATIONS IN GROUNDWATER.
4.5 ?	GROUNDWATER EQUIPOTENTIAL LINE IN FEET MEAN SEA LEVEL
	GENERALIZED DIRECTION OF REGIONAL GROUNDWATER FLOW
	WILDLIFE REFUGE
	RAILROAD TRACKS
	FORMER TANK LOCATION
	STRUCTURE

NOTES:

1. GROUNDWATER SAMPLES COLLECTED ON OCTOBER 16 & 17, 2006.
2. CONCENTRATIONS REPORTED IN MILLIGRAMS PER LITER.
3. TEMPORARY MONITORING WELLS IRP–14–TMW–3 & IRP–14–TMW–6 CONVERTED TO PERMANENT MONITORING WELLS BSW–14–11 & BSW–14–10, RESPECTFULLY.

LABORATORY QUALIFIERS:
J = ESTIMATED CONCENTRATION
U = ANALYTE NOT REPORTED ABOVE PRACTICABLE QUANTITATION LIMIT (PQL). NUMERIC VALUE IS THE PQL.
TPHg = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE

NAVWPNSTA SEAL BEACH
SEAL BEACH, CALIFORNIA

IRP SITE 14 - FIGURE 16

GASOLINE in GROUNDWATER
(October 2006)

DEPARTMENT OF THE NAVY
NAVFAC SOUTHWEST
SAN DIEGO, CALIFORNIA

MARRS

DATE: JUNE 2007
PROJECT NO.: CA99 064 W021
CONTRACT NO.: N68711–99–D–6620
DELIVERY ORDER: D021

TABLE 1
MONITOING CONSTRUCTION DETAILS
IRP SITE 14, NAVWPNSTA SEAL BEACH

WELL I.D.	WELL DIAMETER (inches)	WELL COMPLETION DATE	CASING TYPE	TOTAL WELL DEPTH (feet bgs)	BOTTOM OF SCREEN (feet bgs)	TOP OF SCREEN (feet bgs)	TOTAL LENGTH OF SCREEN (feet)	DEPTH OF TOP OF FILTER PACK (feet bgs)	DEPTH OT TOP OF SANITARY SEAL	SURFACE COMPLETION	COORDINATES
BSW-14-10	4	8/2/2006	Schedule 40 PVC	25	24.5	4.5	20	2.5	2	Flush mounted	Northing: 2219187.93 Easting: 6003326.57 Elevation (TOC): 12.74
BSW-14-11	4	8/3/2006	Schedule 40 PVC	25	24.5	4.5	20	2.5	2	Flush mounted	Northing: 2219021.19 Easting: 6003364.70 Elevation (TOC): 10.40

acronyms and abbreviations

bgs	below ground surface
TOC	top of casing
PVC	polyvinyl chloride

TABLE 2
SUMMARY OF GROUNDWATER ELEVATIONS
IRP SITE 14, NAVWPNSTA SEAL BEACH

MONITORING WELL	DATE MEASURED	TOP OF CASING ELEVATIONS	DEPTH TO FREE-PRODUCT	DEPTH OF WATER (below TOC)	GROUNDWATER ELEVATION (feet above MSL)
BSW-14-1	3/27/2006	12.06	-	7.64	4.42
	8/3/2006		-	7.57	4.49
	10/16/2006		-	7.65	4.41
BSW-14-2	3/27/2006	11.90	-	7.67	4.23
	8/3/2006		-	7.57	4.25
	10/16/2006		-	7.65	4.20
BSW-14-3	3/27/2006	12.06	-	7.70	4.36
	8/3/2006		-	7.61	4.45
	10/16/2006		-	7.67	4.39
BSW-14-4	3/27/2006	11.32	-	6.94	4.38
	8/3/2006		-	6.85	4.47
	10/16/2006		-	6.94	4.38
BSW-14-5	3/27/2006	12.32	-	7.74	4.58
	8/3/2006		-	7.76	4.56
	10/16/2006		-	7.76	4.56
BSW-14-6	3/27/2006	11.64	-	7.53	4.11
	8/3/2006		-	7.46	4.18
	10/16/2006		-	7.48	4.16
BSW-14-7	3/27/2006	13.39	-	9.35	4.04
	8/3/2006		-	9.18	4.21
	10/16/2006		-	9.35	4.04
BSW-14-8	3/27/2006	11.17	-	7.15	4.02
	8/3/2006		-	7.00	4.17
	10/16/2006		-	7.16	4.01
BSW-14-9	3/27/2006	10.62	-	6.53	4.09
	8/3/2006		-	6.35	4.27
	10/16/2006		-	6.55	4.07
BSW-14-10	8/7/2006	12.74	-	8.63	4.11
	10/16/2006		-	5.38	7.36
BSW-14-11	8/7/2006	10.40	-	6.39	4.01
	10/16/2006		-	6.34	4.06
MW-05-01	3/27/2006	14.33	-	12.99	1.34
	3/27/2006		-	13.09	1.24
	8/3/2006		-	12.85	1.48
		GROUND SURFACE ELEVATION			
IRP-14-TMW-1	3/29/2006	11.8	-	7.63	4.17
IRP-14-TMW-2	3/29/2006	11.26	-	7.40	3.86
IRP-14-TMW-3	3/29/2006	11.35	-	6.65	4.70
IRP-14-TMW-4	3/29/2006	13.46	-	9.30	4.16
IRP-14-TMW-5	3/29/2006	14.71	-	10.77	3.94
IRP-14-TMW-6	3/29/2006	13.31	-	8.87	4.44
IRP-14-TMW-7	8/2/2006	10.79	-	7.75	3.04
IRP-14-TMW-8	8/2/2006	7.84	-	7.10	0.74
IRP-14-TMW-9	8/2/2006	16.39	-	12.30	4.09
IRP-14-TMW-10	8/2/2006	12.12	-	8.10	4.02

acronyms/abbreviations

MSL mean sea level

TOC top of casing

TABLE 3
SUMMARY OF GROUNDWATER QUALITY PARAMETERS
IRP SITE 14, NAVWPNSTA SEAL BEACH

Well I.D.	Date	Time	Temp (^oC)	EC (mS/cm)	DO (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Field Kit DO (mg/L)	Field Kit Fe^{2+} (mg/L)	Field Kit H_2S (mg/L)	Comments
BSW-14-1	3/28/2006	13:34	21.16	1.590	0.22	6.39	0.80	-132	N/A	0.15	0.00	0.00	Silty
	8/3/2006	7:58	22.58	1.620	0.25	7.00	0.81	94	N/A	0.25	0.00	0.00	Clear, light odor
	10/16/2006	13:58	23.45	1.610	0.35	6.47	0.81	112	4.9	0.35	0.00	0.00	
BSW-14-2	3/28/2006	12:03	16.40	0.124	6.24	6.56	0.06	-142	N/A	5.50	0.10	0.20	Silty
	8/3/2006	10:28	22.65	1.449	0.18	8.44	0.72	-239	N/A	0.40	0.80	0.70	Light yellow color, strong odor
	10/17/2006	8:20	22.62	1.550	0.32	6.36	0.78	208	5.7	0.80	0.30	0.80	Strong odor
BSW-14-3	3/28/2006	11:04	20.99	1.414	0.23	6.54	0.68	-246	N/A	0.10	0.20	0.10	Murkey Brown
	8/3/2006	9:15	22.44	1.560	0.40	7.44	0.79	-200	N/A	0.40	0.20	0.60	Light yellow color, mild odor
	10/17/2006	7:28	22.32	1.710	0.39	6.45	0.86	181	6.3	0.40	0.30	0.10	Strong odor
BSW-14-4	3/28/2006	9:47	20.35	1.454	0.21	6.36	0.73	-306	N/A	0.15	0.50	1.50	Clear
	8/3/2006	11:41	21.74	1.499	0.19	8.41	0.76	-274	N/A	0.20	0.20	2.00	Yellow Color, mild-strong odor
	10/17/2006	9:13	22.79	1.520	0.37	6.35	0.76	247	5.4	0.40	0.20	2.00	Strong odor
BSW-14-5	3/27/2006	16:02	21.28	1.038	1.50	9.20	0.51	160	N/A	1.00	0.00	0.00	Clear
	8/2/2006	10:00	23.06	1.055	0.92	7.74	0.52	63	N/A	0.90	0.00	0.00	Clear, no odor
	10/16/2006	8:38	23.13	1.060	1.26	6.58	0.52	110	4.8	1.00	0.00	0.00	
BSW-14-6	3/27/2006	14:30	20.03	1.441	1.28	9.21	0.72	251	N/A	3.50	0.00	0.50	Cloudy
	8/2/2006	12:00	22.34	1.464	0.92	8.19	0.73	53	N/A	0.90	0.00	0.00	Clear, no odor
	10/16/2006	10:15	22.40	1.520	1.09	6.62	0.76	86	5.8	1.00	0.00	0.00	
BSW-14-7	3/27/2006	16:45	20.72	0.912	3.92	9.52	0.45	138	N/A	1.50	0.00	0.15	Clear
	8/2/2006	16:50	22.03	1.284	1.52	8.32	0.64	61	N/A	1.50	0.00	0.00	Clear, no odor
	10/16/2006	13:07	22.40	1.204	1.61	6.76	0.60	116	5.1	1.50	0.00	0.00	
BSW-14-8	3/27/2006	10:54	20.97	1.600	1.72	9.71	0.80	285	N/A	0.70	0.00	1.50	Clear
	8/2/2006	15:45	22.45	1.660	0.66	8.46	0.83	47	N/A	0.50	0.00	0.00	Clear, no odor
	10/16/2006	12:05	22.75	1.660	0.60	6.71	0.83	194	4.7	0.50	0.00	0.00	
BSW-14-9	3/27/2006	12:47	21.33	2.250	0.91	9.05	1.15	568	N/A	1.00	0.00	1.00	Clear
	8/2/2006	14:15	22.72	2.290	0.27	8.05	1.17	78	N/A	0.40	0.00	0.00	Light grey to clear, no dor
	10/16/2006	11:13	22.41	2.110	0.84	6.40	1.07	493	5.2	0.80	0.00	0.00	
BSW-14-10	8/7/2006	10:43	22.22	1.580	0.15	8.54	0.79	21	N/A	0.30	0.00	0.00	Clear, mild odor
	10/16/2006	16:59	23.15	1.386	0.37	6.56	0.69	123	6.3	0.40	0.00	0.00	
BSW-14-11	8/7/2006	9:07	22.05	2.660	0.21	8.37	1.05	57	N/A	0.30	0.00	0.00	Clear, no odor
	10/16/2006	15:04	22.87	1.910	0.38	7.04	0.97	172	8.2	0.40	0.40	0.00	
MW-05-01	3/27/2006	15:00	20.35	1.710	0.27	6.72	0.86	-107	N/A	0.25	0.00	0.00	Clear
	8/3/2006	13:25	21.95	1.740	0.18	9.02	0.89	-205	N/A	0.30	0.00	0.00	Light yellow to clear, no odor
	10/17/2006	10:13	22.10	1.790	0.36	6.68	0.91	168	4.7	0.30	0.00	0.00	

Acronyms/Abbreviations

TOC	top of cassing
^oC	degrees celcius
EC	electrical conductivitiy
mS/cm	millisiemens per centimeter
DO	dissolved oxygen
mg/l	milligrams per liter
PSS	practicle salinity scale
ORP	oxidation reduction potential
mV	millivolts
NTU	nephelometric turbidity units

TABLE 4
SUMMARY OF ANALYTICAL RESULTS
TPH as GASOLINE and VOCs
PERMANENT MONITORING WELLS
IRP SITE 14, NAVWPNSTA SEAL BEACH

MONITORING WELL	DATE SAMPLED	CONSULTANT	ANALYTES											
			GASOLINE		MTBE		BENZENE		TOLUENE		ETHYL BENZENE		TOTAL-XYLENES	
		units	MG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
		screening values [a]	0.5		8000		46		130		290		13	
BSW-14-1	11/1/1999	FWENC	0.19		10	U	5	J	1	J	5	U	2	J
	10/4/2001	FWENC	0.05	U	10	U	5.6		5	U	5	U	5	U
	1/24/2002	FWENC	0.091		10	U	3.8	J	5	U	5	U	5	U
	4/16/2002	FWENC	0.091		10	U	3.2	J	5	U	5	U	5	U
	7/24/2002	FWENC	0.05	U	5	U	1	U	5	U	5	U	5	U
	10/7/2002	FWENC	0.05	U	5	U	1	U	5	U	5	U	5	U
	3/28/2006	MARRS	0.1	U	0.42	J	0.25	J	1	U	1	U	2	U
	8/3/2006	MARRS	0.1	U	0.44	J	0.5	U	1	U	1	U	2	U
	10/16/2006	MARRS	0.1	U	0.55	J	0.5	U	1	U	1	U	2	U
BSW-14-2	11/1/1999	FWENC	2.2		680	J	4400		600		220	J	1200	
	10/4/2001	FWENC	0.92		1400		1300		88	J	91	J	130	
	1/24/2002	FWENC	0.6		280		920		14	J	33	J	39	J
	4/16/2002	FWENC	1.3		240		1000		22	J	110	J	130	
	7/25/2002	FWENC	1.9		360		1400		35	J	120	J	240	J
	10/8/2002	FWENC	1.2		140		980		15	J	62	J	110	J
	3/28/2006	MARRS	0.67		1	U	32		1.2		35		24.85	
	8/3/2006	MARRS	1		35		1300		2.2		3.4		3.8	
	10/17/2006	MARRS	0.6		290		500		4.8		16		7.1	
BSW-14-3	11/1/1999	FWENC	2.36		1200		570		170		40	J	480	
	10/4/2001	FWENC	6.3		450		2700		36	J	220		300	
	1/24/2002	FWENC	1.5		1700		2200		140		210		130	
	4/16/2002	FWENC	0.58		1200		1200		22	J	76		100	U
	7/25/2002	FWENC	1.8		2500		1400		250	J	160		260	J
	10/8/2002	FWENC	8.2		1000		1100		1100		250		1200	
	3/28/2006	MARRS	0.033	J	310		11		0.66	J	0.65	J	0.8	J
	8/3/2006	MARRS	0.1	U	330		5.7		1	U	1	U	2	U
	10/17/2006	MARRS	0.1	U	240		5.3		1	U	1	U	2	U
BSW-14-4	11/1/1999	FWENC	11.1		2800		5300		2800		700		5300	
	10/4/2001	FWENC	1.5		730		540		100	U	79	J	110	
	1/24/2002	FWENC	0.26		590		280		50	U	34	J	50	U
	4/16/2002	FWENC	0.25		690		340		12	J	19	J	50	U
	7/25/2002	FWENC	1.6		1400		1900		510		41	J	330	
	10/8/2002	FWENC	1.2		960		1500		130	J	78	J	140	J
	3/28/2006	MARRS	2		580		3000		200		91	J	108	
	8/3/2006	MARRS	0.83		420		1800		26		8.8		67.8	
	10/17/2006	MARRS	1		290		1400		11		8.1		52.9	
BSW-14-5	11/1/1999	FWENC	0.28		49		10		5	U	5	U	1	J
	10/4/2001	FWENC	0.067		20		5	U	5	U	5	U	5	U
	1/24/2002	FWENC	0.05	U	2.7	J	5	U	5	U	5	U	5	U
	4/16/2002	FWENC	0.05	U	5.4	J	5	UJ	5	U	5	U	5	U
	7/24/2002	FWENC	0.05	U	2.9	J	1	U	5	U	5	U	5	U
	10/8/2002	FWENC	0.05	U	3.5	J	1	U	5	U	5	U	5	U
	3/27/2006	MARRS	0.1	U	0.31	J	0.5	U	1	U	1	U	2	U
	8/2/2006	MARRS	0.1	U	1	U	0.5	U	1	U	1	U	2	U
	10/16/2006	MARRS	0.1	U	1	U	0.5	U	1	U	1	U	2	U
BSW-14-6	10/4/2001	FWENC	2.8		10	U	10		1.4	J	25	U	140	
	1/24/2002	FWENC	0.17		10	U	2.3	J	5	U	5	U	5	U
	4/16/2002	FWENC	0.11		10	U	1.3	J	5	U	5	U	5	U
	7/24/2002	FWENC	0.05	U	5	U	0.95	J	5	U	5	U	1.2	J
	10/7/2002	FWENC	0.05	U	5	U	2.6		5	U	0.32	J	2	J
	3/27/2006	MARRS	0.1	U	1	U	0.5	U	1	U	1	U	2	U
	8/2/2006	MARRS	0.1	U	1	U	0.5	U	1	U	1	U	2	U
	10/16/2006	MARRS	0.1	U	1	U	0.5	U	1	U	1	U	2	U
BSW-14-7	10/4/2001	FWENC	0.05	U	3.2	J	5	U	5	U	5	U	5	U
	1/24/2002	FWENC	0.05	U	10	U	5	U	5	U	5	U	5	U
	4/16/2002	FWENC	0.05	U	10	U	5	UJ	5	U	5	U	5	U
	7/25/2002	FWENC	0.05	U	2	J	1	U	5	U	5	U	5	U
	10/8/2002	FWENC	0.05	U	5	U	1	U	5	U	5	U	5	U
	3/27/2006	MARRS	0.1	U	0.27	J	0.5	U	1	U	1	U	2	U
	8/2/2006	MARRS	0.1	U	1	U	0.5	U	1	U	1	U	2	U
	10/16/2006	MARRS	0.1	U	1	U	0.5	U	1	U	1	U	2	U

TABLE 4
SUMMARY OF ANALYTICAL RESULTS
TPH as GASOLINE and VOCs
PERMANENT MONITORING WELLS
IRP SITE 14, NAVWPNSTA SEAL BEACH

MONITORING WELL	DATE SAMPLED	CONSULTANT	ANALYTES											
			GASOLINE		MTBE		BENZENE		TOLUENE		ETHYL BENZENE		TOTAL-XYLENES	
		units	MG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
		screening values [a]	0.5		8000		46		130		290		13	
BSW-14-8	10/3/2001	FWENC	0.81		130		5	U	5	U	5	U	5	U
	1/24/2002	FWENC	0.05	U	150		5	UJ	5	U	5	U	5	U
	4/16/2002	FWENC	0.067		100		5	U	5	U	5	U	5	U
	7/25/2002	FWENC	0.05	U	200		25	U	120	U	120	U	120	U
	10/7/2002	FWENC	0.05	U	110		10	U	50	U	50	U	50	U
	3/27/2006	MARRS	0.1	U	2.2		0.5	U	1	U	1	U	2	U
	8/2/2006	MARRS	0.1	U	4.3		0.5	U	1	U	1	U	2	U
	10/16/2006	MARRS	0.1	U	8.8		0.5	U	1	U	1	U	2	U
BSW-14-9	10/3/2001	FWENC	0.58		10	U	5	U	5	U	2	J	5.7	
	1/23/2002	FWENC	0.05	U	10	U	5	U	5	U	5	U	5	U
	4/16/2002	FWENC	0.05	U	10	U	5	U	5	U	5	U	5	U
	7/24/2002	FWENC	0.05	U	5	U	1	U	5	U	5	U	5	U
	10/7/2002	FWENC	0.05	U	5	U	1	U	5	U	5	U	5	U
	3/27/2006	MARRS	0.1	U	1	U	0.5	U	1	U	1	U	2	U
	8/2/2006	MARRS	0.1	U	1	U	0.5	U	1	U	1	U	2	U
	10/16/2006	MARRS	0.1	U	1	U	0.5	U	1	U	1	U	2	U
BSW-14-10	8/7/2006	MARRS	0.24		89		25		0.37	J	42		1.7	
	10/16/2006	MARRS	0.23		91		38		0.2	J	19		3.71	
BSW-14-11	8/7/2006	MARRS	0.3		650		0.5	U	1	U	1	U	2	U
	10/16/2006	MARRS	0.22		580		0.5	U	0.27	J	1	U	2	U
MW-05-01	3/28/2006	MARRS	0.1	U	290		0.5	U	1	U	1	U	2	U
	8/3/2006	MARRS	0.1	U	290		0.5	U	1	U	1	U	2	U
	10/17/2006	MARRS	0.1	U	230		0.5	U	1	U	1	U	2	U

Notes California Environmental Protection Agency, Regional Water Quality Control Board, San Francisco Bay Region, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, 2003 Values represent Estuary Aquatic Habitat Goals (chronic toxicity)

acronyms and abbreviations

UG/L	micrograms per liter
MG/L	milligrams per liter
U	not detected above the reporting limit
J	estimated concentration

TABLE 5
SUMMARY OF ANALYTICAL RESULTS
TPH as GASOLINE and VOCs
TEMPORARY MONITORING WELLS
IRP SITE 14, NAVWPNSTA SEAL BEACH

Analyte	RL	Units	Screening Values [a]	IRP-14-TMW-1		IRP-14-TMW-2		IRP-14-TMW-3		IRP-14-TMW-4		IRP-14-TMW-5		IRP-14-TMW-6		IRP-14-TMW-7		IRP-14-TMW-8		IRP-14-TMW-9		IRP-14-TMW-10	
				3/28/2006		3/28/2006		3/28/2006		3/28/2006		3/28/2006		3/28/2006		8/2/2006		8/2/2006		8/2/2006		8/2/2006	
VOLATILES (EPA 8260B)																							
BENZENE	0.5	UG/L	46	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	340		0.34	J	0.5	U	0.5		0.33	J
ETHYLBENZENE	1	UG/L	290	1	U	1	U	1.3		1	U	1	U	18		1	U	1	U	1	U	1	U
TOLUENE	1	UG/L	130	1	U	1	U	1	U	1	U	1	U	25		1	U	1	U	1	U	1	U
TOTAL XYLENES	2	UG/L	13	2	U	2	U	0.89	J	2	U	2	U	75		0.72	J	2	U	2	U	2	U
MTBE	1	UG/L	8000	1	U	1	U	5.6		1	U	1	U	510		1	U	1	U	1	U	1	U
TPH as GASOLINE (EPA 8015)																							
GASOLINE	0.01	MG/L	0.5	0.1	U	0.1	U	0.76		0.1	U	0.1	U	0.79		0.1	U	0.1	U	0.1	U	0.1	U

Notes California Environmental Protection Agency, Regional Water Quality Control Board, San Francisco Bay Region, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, 2003 Values represent Estuary Aquatic Habitat Goals (chronic toxicity)

acronyms and abbreviations

UG/L	micrograms per liter
MG/L	milligrams per liter
NE	not established
NA	not applicable
U	not detected above the reporting limit
J	estimated concentration
-	not analyzed

TABLE 6
SUMMARY OF ANALYTICAL RESULTS
GENERAL CHEMISTRY
PERMANENT MONITORING WELLS
IRP SITE 14, NAVWPNSTA SEAL BEACH

MONITORING WELL	DATE SAMPLED	ANALYTES																							
		AMMONIA (NH3-N)		CARBON DIOXIDE		CHLORIDE-CL		ORTHOPHOSPHATE-P		PH		PHOSPHORUS		SULFATE		TDS		TKN		TOTAL ALKALINITY		METHANE		ETHANE		ETHENE	
		MG/L		UG/L		MG/L		MG/L		PHUNIT		MG/L		MG/L		MG/L		MG/L		MG/L		UG/L		UG/L		UG/L	
BSW-14-1	3/28/2006	0.118		73,000		260		0.1	U	7.02		0.1	U	62.3		890		0.165		339		300		1.5	U	1.5	U
	8/3/2006	0.0972	J	66,000		287		0.1	U	7.07		0.1	U	67.7		945		0.28		283		3.1		1.5	U	1.5	U
	10/16/2006	0.0418	J	90,000		252		0.1	U	6.98		0.1	U	65.4		935		0.4		343		1.2	U	1.5	U	1.5	U
BSW-14-2	3/28/2006	0.137		4,200		7.83		0.1	U	7.27		0.1	U	13.4		105		0.511		29.9		760		1.5	U	1.5	U
	8/3/2006	0.135		120,000		212		0.345		6.86		0.235		35.6		855		0.34		384		3,300		1.5	U	1.5	U
	10/17/2006	0.0522	J	110,000		257		0.273		6.88		0.281		30.6		875		0.41		358		2,700		1.5	U	1.5	U
BSW-14-3	3/28/2006	0.142		47,000		226		0.123		7.19		0.135		51.1		805		0.307		327		350		1.5	U	1.5	U
	8/3/2006	0.259		91,000		250		0.148		7		0.174		48		890		0.36		355		520		1.5	U	1.5	U
	10/17/2006	0.208		99,000		277		0.263		7.01		0.271		41.4		1,010		0.58		400		280		1.5	U	1.5	U
BSW-14-4	3/28/2006	0.104		81,000		224		0.461		7.02		0.465		27.2		785		0.269		416		1,700		1.5	U	1.5	U
	8/3/2006	0.354		84,000		232		0.466		7		0.444		22.9		840		0.73		381		1,900		0.69	J	1.5	U
	10/17/2006	0.162		110,000		245		0.54		6.85		0.534		17.5		885		0.58		385		2,600		0.98	J	1.5	U
BSW-14-5	3/27/2006	0.118		49,000		91.7		0.1	U	7.25		0.1	U	70.2		605		0.208		324		1.1	J	1.5	U	1.5	U
	8/2/2006	0.1	U	37,000		100		0.1	U	7.09		0.1	U	73.2		680		0.35		283		1.2	U	1.5	U	1.5	U
	10/16/2006	0.104		52,000		109		0.1	U	7.15		0.1	U	75.8		645		0.442		298		1.2	U	1.5	U	1.5	U
BSW-14-6	3/27/2006	0.142		26,000		262		0.1	U	7.19		0.1	U	80.6		850		0.208		334		1.2	U	1.5	U	1.5	U
	8/2/2006	0.1	U	27,000		271		0.1	U	7.13		0.1	U	80.4		870		0.42		208		1.2	U	1.5	U	1.5	U
	10/16/2006	0.047	J	40,000		282		0.1	U	7.1		0.1	U	86.2		870		0.34		208		1.2	U	1.5	U	1.5	U
BSW-14-7	3/27/2006	0.189		20,000		103		0.1	U	7.48		0.1		61.2		590		0.425		289		1.2	U	1.5	U	1.5	U
	8/2/2006	0.145		26,000		171		0.1	U	7.4		0.1	U	81.5		770		0.4		267		1.2	U	1.5	U	1.5	U
	10/16/2006	0.141		30,000		149		0.1	U	7.36		0.1	U	76.4		735		0.44		290		1.2	U	1.5	U	1.5	U
BSW-14-8	3/27/2006	0.156		26,000		142		0.1		7.44		0.146		210		1,030		0.221		379		1.2	U	1.5	U	1.5	U
	8/2/2006	0.0876	J	34,000		154		0.114		7.39		0.125		231		1,070		0.37		336		1.2	U	1.5	U	1.5	U
	10/16/2006	0.125		48,000		160		0.119		7.33		0.123		234		1,090		0.42		355		1.2	U	1.5	U	1.5	U
BSW-14-9	3/27/2006	0.21		97,000		376		0.1	U	6.99		0.1	U	111		1,340		1.8		491		1.2	U	1.5	U	1.5	U
	8/2/2006	0.0405	J	150,000		377		0.1	U	6.83		0.1	U	106		1,300		0.31		491		1.2	U	1.5	U	1.5	U
	10/16/2006	0.0782	J	110,000		389		0.1	U	6.88		0.1	U	97.8		1,190		0.33		365		1.2	U	1.5	U	1.5	U
BSW-14-10	8/7/2006	0.207		38,000		249		0.1	U	7.21		0.1	U	71.8		880		0.51		326		160		1.5	U	0.95	J
	10/16/2006	0.193		130,000		163		0.1	U	6.84		0.101		60		830		0.46		400		530		37	U	1.4	J
BSW-14-11	8/7/2006	0.131		41,000		367		0.1	U	7.24		0.1	U	111		1,160		0.32		355		14		1.5	U	1.1	J
	10/16/2006	0.0418	J	44,000		331		0.1	U	7.36		0.1	U	93.2		1,090		0.21		370		82		0.88	J	2	
MW-05-01	3/28/2006	0.1		28,000		234		0.1	U	7.36		0.1	U	128		970		0.219		399		150		1.5	U	1.5	U
	8/3/2006	0.121		35,000		278		0.1	U	7.38		0.1	U	135		1,080		0.33		349		3.8		1.5	U	1.5	U
	10/17/2006	0.0626	J	43,000		68		0.1	U	7.46		0.1	U	34		1,110		0.6		348		1.2	U	1.5	U	1.5	U

acronyms and abbreviations

UG/L	micrograms per liter
MG/L	milligrams per liter
U	not detected above the reporting limit
J	estimated concentration

TABLE 7
MANN-KENDALL STATISTICAL RESULTS
IRP SITE, NAVWPNSTA SEAL BEACH

Monitoring Well	Trend and Stability	Analyte					
		TPGas Gasoline	MTBE	Benzene	Toluene	Ethylbenzene	Total Xylenes
BSW-14-1	M-K Statistical Test 80% Confidence Interval	decreasing	decreasing	decreasing	-	-	-
	M-K Statistical Test 90% Confidence Interval	decreasing	decreasing	decreasing	-	-	-
	Stability	NA	NA	NA	-	-	-
BSW-14-2	M-K Statistical Test 80% Confidence Interval	decreasing	decreasing	decreasing	decreasing	decreasing	decreasing
	M-K Statistical Test 90% Confidence Interval	no trend	decreasing	decreasing	decreasing	decreasing	decreasing
	Stability	NA	NA	NA	NA	NA	NA
BSW-14-3	M-K Statistical Test 80% Confidence Interval	decreasing	decreasing	decreasing	decreasing	decreasing	decreasing
	M-K Statistical Test 90% Confidence Interval	decreasing	decreasing	decreasing	decreasing	decreasing	decreasing
	Stability	NA	NA	NA	NA	NA	NA
BSW-14-4	M-K Statistical Test 80% Confidence Interval	no trend	decreasing	to trend	to trend	decreasing	decreasing
	M-K Statistical Test 90% Confidence Interval	no trend	decreasing	to trend	to trend	decreasing	no trend
	Stability	non-stable	NA	stable	non-stable	NA	NA
BSW-14-6	M-K Statistical Test 80% Confidence Interval	decreasing	-	decreasing	-	-	-
	M-K Statistical Test 90% Confidence Interval	decreasing	-	decreasing	-	-	-
	Stability	NA	-	NA	-	-	-
BSW-14-8	M-K Statistical Test 80% Confidence Interval	decreasing	decreasing	-	-	-	-
	M-K Statistical Test 90% Confidence Interval	decreasing	decreasing	-	-	-	-
	Stability	NA	NA	-	-	-	-

TABLE 7
MANN-KENDALL STATISTICAL RESULTS
IRP SITE, NAVWPNSTA SEAL BEACH

Monitoring Well	Trend and Stability	Analyte					
		TPGas Gasoline	MTBE	Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-05-04	M-K Statistical Test 80% Confidence Interval	-	increasing	-	-	-	-
	M-K Statistical Test 90% Confidence Interval	-	increasing	-	-	-	-
	Stability	-	NA	-	-	-	-

acronyms and abbreviations

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

\- Statistical test not perforned on data because a majority or all analytical results were non-detect.

TABLE A.1
SUMMARY OF DATA QUALITY OBJECTIVES

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
IRP Site 14 is the former location of three USTs which were used to store leaded gasoline and diesel fuel for a refueling service station used by base vehicles. The use of the USTs was discontinued in 1984 after the gasoline tank was found to have leaked. Subsequent soil and groundwater investigations indicated that the release impacted soil and groundwater at the site. Numerous soil and groundwater investigations and a recent ecological risk assessment indicated that the extent of petroleum hydrocarbons in soil and the dissolved-phase petroleum hydrocarbon plume at the site has not been fully delineated. COPC at IRP Site 14 have the potential to impact ecological receptors in the surface water body associated with SBNWR. However, these COPC have not been detected in boundary wells at concentrations exceeding the selected ecological risk-based screening values (RWQCB-SF, 2003). Groundwater COPC at IRP Site 14 are presented in Table A.2. Ecological risk-based screening values are also included in Table A.2. Identified COPC exceeding the selected ecological risk-based screening values include TPH as gasoline, benzene, and total xylenes. Other COPC include toluene and MTBE. Additional assessment is needed to delineate the extent of petroleum hydrocarbon impact to groundwater and to document that natural attenuation is occurring in order to move the site toward regulatory closure.	1. What is the lateral extent of the dissolved-phase petroleum hydrocarbon plume at IRP Site 14? 2. Is the dissolved-phase petroleum hydrocarbon plume at IRP Site 14 stable and is natural attenuation occurring? 3. Are COPC concentrations along the boundary IRP Site 14 and the SBNWR below the selected ecological risk-based screening values?	Historical data from previous site assessments and groundwater monitoring. Recommendations presented in the Technical Memorandum entitled, Ecological Risk Screening Results for Potential Impacts to Seal Beach National Wildlife Refuge from Site 14, Naval Weapons Station Seal Beach. Results for this groundwater investigation.	The lateral extent of the groundwater investigation will include all existing and newly installed permanent groundwater monitoring wells. Field work is tentatively scheduled to begin in July 2005. The project duration is tentatively scheduled for 6 months. Project Action Levels are listed on Tables A.2.	1. Groundwater grab samples collected from temporary wells will be analyzed for the identified COPC in order to fill data gaps and delineate the extent of the dissolve-phase petroleum hydrocarbon plume. If groundwater concentrations of COPC are below their respective ecological risked-based screening values (see Table A.2), then delineation will have been achieved and no further delineation will occur. If groundwater concentrations of COPC are above their respective ecological risked-based screening values (see Table A.2), then additional sampling and delineation will be conducted. 2. The analytical results from the permanent groundwater monitoring well sampling events will be used to evaluate the stability of the petroleum hydrocarbon plume and determine if natural attenuation processes are occurring. The sampling events will consist of purging and sampling of groundwater from all existing and newly installed permanent groundwater monitoring wells at IRP Site 14. Groundwater samples will be analyzed for the identified COPC and natural attenuation parameters. Plume stability will be statistically determined by using the Mann-Kendall trend analysis (refer to Section 6.0 of the Work Plan). The evaluation of the natural attenuation parameters collected during the groundwater monitoring events will determine if natural attenuation is occurring. The natural attenuation parameters include total dissolved solids (TDS); alkalinity; anions; pH; methane, ethane, and ethane; ammonia; total kjeldahl nitrogen; orthophosphate; dissolved metals; ferrous (Fe^{2+}) iron; hydrogen sulfide; and dissolved oxygen (refer to Section 4.0 of the Work Plan). If the groundwater monitoring data indicates that natural attenuation is occurring, then the site will be evaluated for MNA, or a request for regulatory case closure and NFA status will be made to the RWQCB-Santa Ana Region. If the groundwater monitoring program indicates that natural attenuation is not occurring or statistical analysis indicates that the concentrations of COPC are not stable, then additional monitoring may be conducted.	Sample collection strategy for this project is based on previous investigation findings. In addition, locations of soil boring and depth of samples may be adjusted based on field observation. Published analytical methods and laboratory-specific performance requirements will be used by the analytical laboratory while performing sample analysis. Statistical trend analysis will be performed after collection of Two groundwater monitoring sampling events. Soil and groundwater grab sample data will be validated as prescribed in Section 10.2 after field decisions (placement of well locations) have been determined.	During the initial stage of the investigation soil and groundwater grab samples will be collected to delineate the extent of petroleum hydrocarbons in soil and the dissolved-phase petroleum hydrocarbon plume. Boring and sampling locations will be based on information obtained from previous investigations at IRP Site 14. The newly obtained data will be used to assess if delineation is complete or if additional delineation is warranted. Groundwater data, in specific, will be used to assess the need for additional groundwater monitoring wells and their locations. This investigation assumes, based on existing data gaps, that a minimum of three additional monitoring wells are needed at the site. The approximate locations of there monitoring wells are designed to monitor groundwater at the boundary between the site and the SBNWR, and to provide one upgradient monitoring well. Following the installation of the new groundwater monitoring wells, two rounds of groundwater sampling using all wells at the site will be conducted. Groundwater samples will be analyzed for the COPC and natural attenuation parameters. The analytical results will be compared to existing data to assess contaminant concentration trends and compared to the selected ecological risk-based screening values to assess if a threat to ecological receptors in the surface water body associated with the

TABLE A.1
SUMMARY OF DATA QUALITY OBJECTIVES
(Continued)

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
Sufficient groundwater quality data has not been collected from IRP Site 14 to assess if natural attenuation and biodegradation is occurring in order to move the site toward MNA and regulatory closure.				3. Groundwater monitoring results from the boundary wells will be compared to the ecological risk-based screening values. If the boundary well groundwater concentrations are below the selected ecological risk-based screening values, then groundwater does not pose a threat to ecological receptors in the surface water associated with the SBNWR. If the boundary well groundwater concentrations are above the ecological risk-based screening values, then additional assessment or alternative remedial activities may be required.		SBNWR exists or supports the finding previously established by the ERS (MARRS and GeoSyntec 2005). In addition, data will be evaluated to assess if natural attenuation processes are occurring at the site.

SubSurface Surveys & Associates, Inc.
An Applied Geophysical Company

215 S. Hwy 101, Suite 203
Solana Beach, CA 92075

Office: (858) 481-8949
Fax: (858) 481-8998

February 8, 2006

MARRS Services, Inc.
101 State Place
Suite O
Escondido, California 92029

Project/Invoice Number 06-051

Attn: Bob Breglio

Re: Geophysical Investigation, Borehole Clearance, Seal Beach Naval Weapons Base (SBNWB), 800 Seal Beach Boulevard, Seal Beach, California

This report is to present the results of our geophysical survey carried out over portions of SBNWB property located at 800 Seal Beach Boulevard, in Seal Beach, California (Figure 1) on February 7, 2006. Purpose of the survey was to locate and identify, insofar as possible, piping, conduit, and other buried features that exist near the immediate vicinity of 8 proposed borehole locations.

A combination of electromagnetic induction (EM) and ground penetrating radar (GPR) were applied to the search. A utility locator with line tracing capabilities was also brought to the field and used where risers exist onto which a signal could be impressed and traced.

Multiple methods were utilized because each instrument senses different material properties of the ground and buried objects. At any given site the situation, geologic and cultural, may be such that one or more of the instruments may record excessive "noise", the ground may not provide sufficient contrasts, or there may be overlapping anomalies, for a given instrument to be effective. Summarily stated, there are generally instrumental limits and interpretational impediments.

Survey Design – The areas to be surveyed were located within SBNWB property as indicated in the field by the client, and included numerous above-ground cultural objects that could potentially cause interference with the instruments should a formal rectilinear grid for data collection be established. In situations such as this, where cultural objects limit the use of a formal rectilinear grid, the best use of time is achieved by systematically free-traversing with the instruments while monitoring them continuously to determine which responses are significant and due to true subsurface targets, and which are due to above-ground features and must be ignored. The line tracer, magnetic gradiometer, EM equipment and GPR were traversed systematically over the areas along the eight lines of the standard search pattern (Figure 2) wherein, there are two sets of three parallel lines, mutually orthogonal, and two diagonals, all centered on the marked drill location. Adjacent parallel lines are approximately 5 feet apart, and each line is approximately 20 feet long, access permitting. Other traverses were taken, access permitting, for detailing and confirmation where anomalous conditions were found. Multiple GPR profiles were also collected throughout the area and in specific areas for confirmation where other instruments detected anomalies.

Sub Surface Surveys

SITE LOCATION MAP

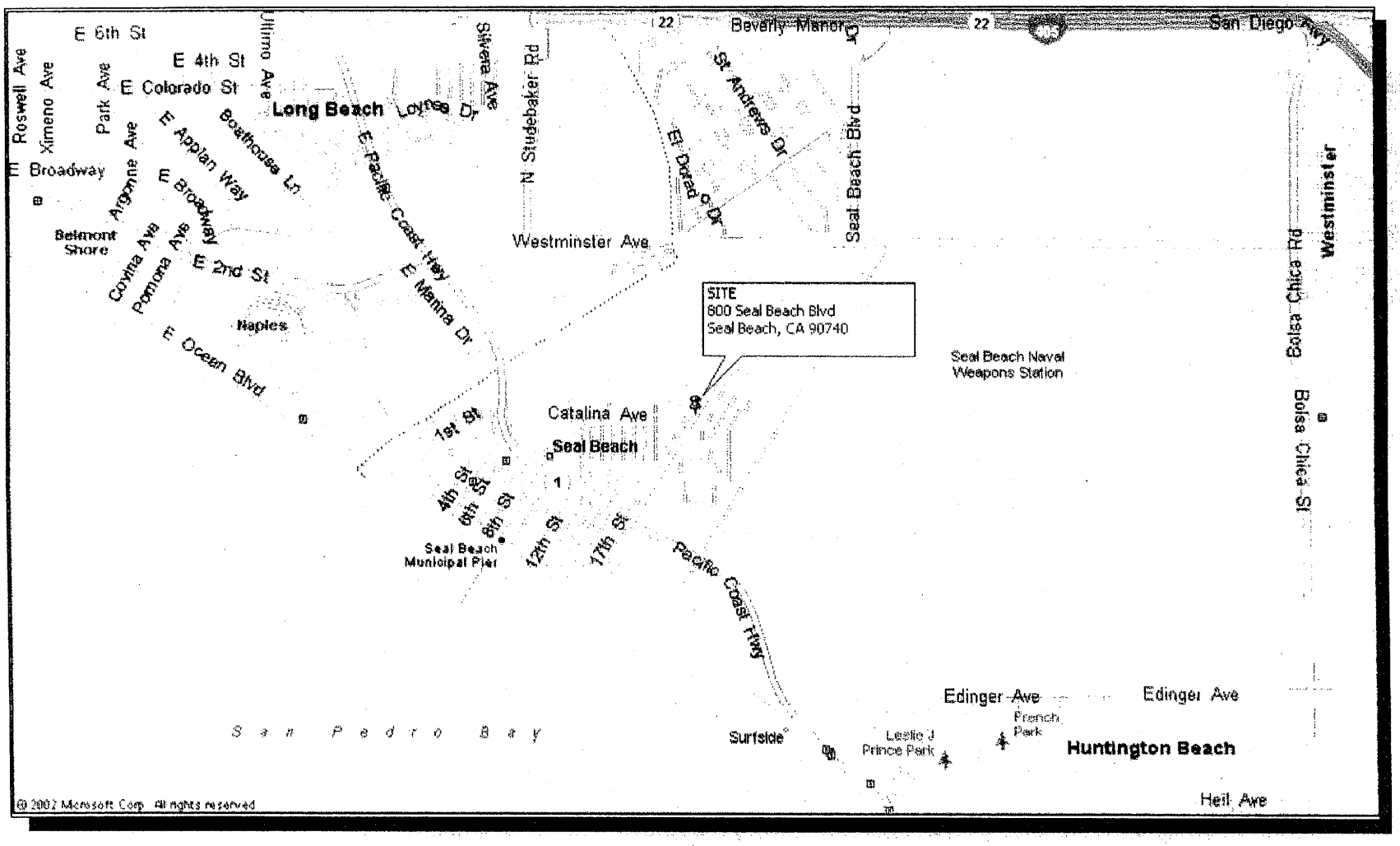


FIGURE 1

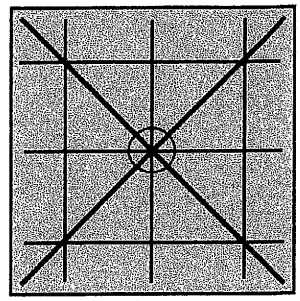


Figure 2: Standard search pattern around borehole

A Geonic's model EM61, and a Fischer M-Scope, were used for the EM sampling. A Sensors & Software Noggin Ground Penetrating Radar unit produced the radar images. The magnetic gradiometer was a Schonstedt GA-52, and a Metrotech 9890 utility locator rounded out the tools applied.

Brief Description of the Geophysical Methods Applied – The M-Scope device energizes the ground by producing an alternating primary magnetic field with AC current in a transmitting coil. If conducting materials are within the area of influence of the primary field, AC eddy currents are induced to flow in the conductors. A receiving coil senses the secondary magnetic field produced by these eddy currents, and outputs the response as anomalous conditions. The strength of the secondary field is a function of the conductivity of the object, say a pipe, tank or cluster of drums, its size, and its depth and position relative to the instrument's two coils. Conductive objects, to a depth of approximately 7 feet below ground surface (bgs) for the M-Scope are sensed. The device is also somewhat focused; that is, it is more sensitive to conductors below the instrument than they are to conductors off to the side.

The EM61 instrument is a high resolution, time-domain device for detecting buried conductive objects. It consists of a powerful transmitter that generates a pulsed primary magnetic field when its coils are energized, which induces eddy currents in nearby conductive objects. The decay of the eddy currents, following the input pulse, is measured by the coils, which in turn serve as receiver coils. The decay rate is measured for two coils, mounted concentrically, one above the other. By making the measurements at a relatively long time interval (measured in milliseconds) after termination of the primary pulse, the response is nearly independent of the electrical conductivity of the ground. Thus, the instrument is a super-sensitive metal detector. Due to its unique coil arrangement, the response curve is a single well-defined positive peak directly over a buried conductive object. This facilitates quick and accurate location of targets.

The magnetic gradiometer has two flux gate magnetic fixed sensors that are passed closely to and over the ground. When not in close proximity to a magnetic object, that is, only in the earth's field, the instrument emits a sound signal at a low frequency. When the instrument passes over a buried iron or steel object, so that locally there is a high magnetic gradient, the frequency of the emitted sound increases. The frequency is a function of the gradient between the two sensors.

The line locator is used to passively detect energized high voltage electric lines and electrical conduit (50-60 Hz), VLF signals (14-22 kHz), as well as to actively trace other utilities. Where risers are present, the utility locator transmitter can be connected directly to the object, and a signal (9.8-82 kHz) is sent traveling along the conductor, pipe, conduit, etc. In the absence of a riser, the transmitter can be used to impress an input signal on the utility by induction. In either case, the receiver unit is tuned to the input signal, and is used to actively trace the signal along the pipe's surface projection.

The GPR instrument beams energy into the ground from its transducer/antenna, in the form of electromagnetic waves. A portion of this energy is reflected back to the antenna at a boundary in the subsurface across which there is an electrical contrast. The instrument produces a continuous record of the reflected energy as the antenna is traversed across the ground surface. The greater the electrical contrast, the higher the amplitude of the returned energy. The radar wave travels at a velocity unique to the material properties of the ground being investigated, and when these velocities are known, the two-way travel times can be converted to depth. The depth of penetration and image resolution produced are a function of ground electrical conductivity and dielectric constant.

Interpretation and Conclusions - The interpretation took place in real time as the survey progressed, and accordingly, the findings of our investigation were marked on the ground cover at the site. The intent of this document is to demonstrate the procedure, and report the findings of the work.

GPR was especially useful at detecting both metallic and non-metallic lines and utilities. According to principles of physics, radar penetration is a function of soil conductivity and dielectric constant. At this site, local conditions reduced radar penetration due to the nature of the soil and materials covering the survey areas. This resulted in radar penetration down to approximately 2.5 feet bgs.

Piping and utilities detected during the survey were marked with spray chalk on the ground cover at the site (blue for water, red for electric, yellow for product corridor, orange for communications, green for storm drain/sanitary sewer, and white for unknown). Once all detectable utilities and anomalies were accounted for, the proposed boreholes were marked in paint with a pink dot (Figures 3-10), and with a white marking whisker when applicable. No detectable utilities were located within the immediate vicinity of the proposed boreholes illustrated in Figures 3, 4 and 6. While water, sewer and an unknown line were detected outside of a three foot radius from the proposed boreholes illustrated in Figures 5, 8 and 9. Additionally, the proposed borehole illustrated in Figure 7 was placed inline with existing monitoring wells to reduce the possibility of encountering undetectable utilities while drilling. Furthermore, a communications and an electric line were detected outside of a three foot radius from the proposed borehole illustrated in Figure 10. Finally, all detected utilities in the survey areas were marked out and it was left up to the client to determine if the boreholes should be further relocated.

Subsurface Survey's professional personnel are trained and experienced and have completed thousands of projects since the company's inception in 1988. It is our policy to work diligently to bring this training and experience to bear to acquire quality data sets, which in turn, can provide clues useful in formulating our interpretations. Still, non-uniqueness of interpretations, methodological limitations, and non-target interferences are prevailing problems. Subsurface Surveys makes no guarantee either expressed or implied regarding the accuracy of the interpretations presented. And, in no event will Subsurface Surveys be liable for any direct, indirect, special, incidental, or consequential damages resulting from interpretations and opinions presented herewith.

All data acquired in these surveys are in confidential file in this office, and are available for review by your staff, or by us at your request, at any time. We appreciate the opportunity to participate in this project. Please call, if there are questions.

Ryan T. Merkey
Project Geophysicist

Gary W. Crosby, PhD, GP# 960
Senior Geophysicist

Sub Surface Surveys

BOREHOLE PHOTOGRAPHS

800 Seal Beach Boulevard
Seal Beach, California

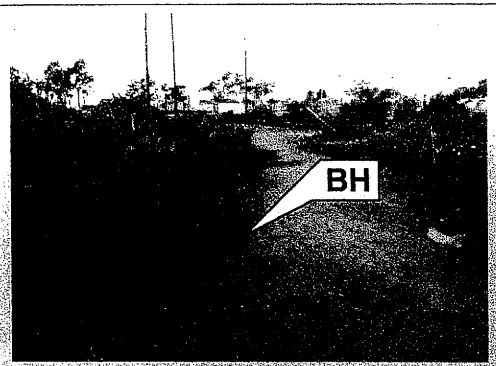


Figure 3

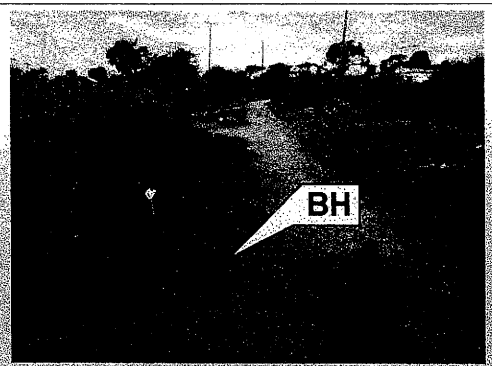


Figure 4

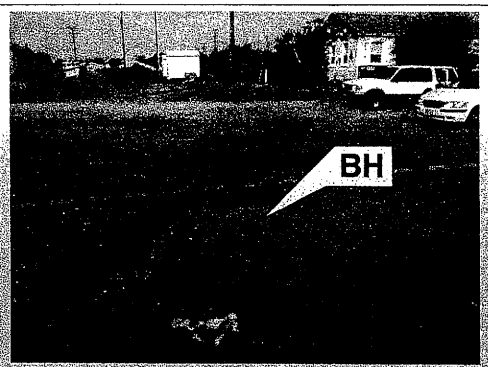


Figure 5

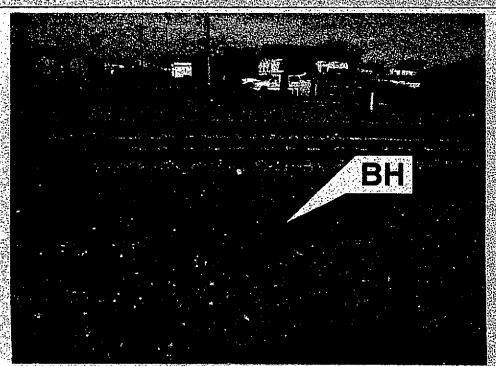


Figure 6

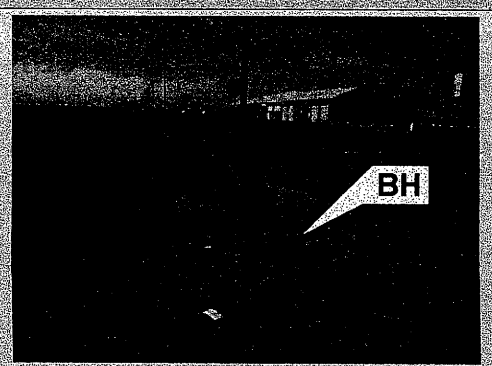


Figure 7

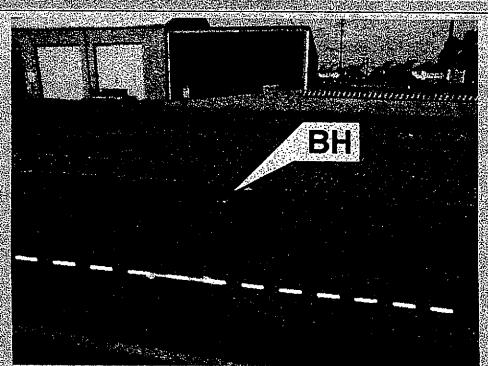


Figure 8

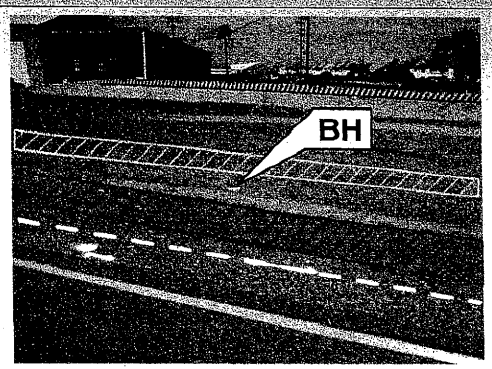


Figure 9

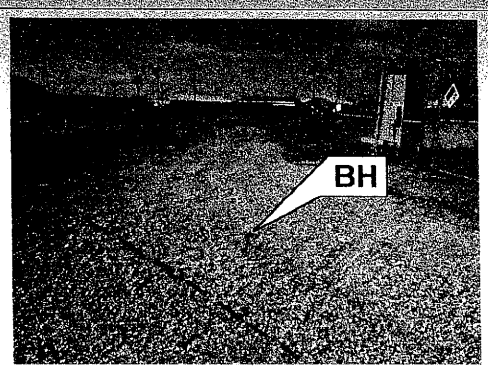


Figure 10

SubSurface Surveys & Associates, Inc. *An Applied Geophysical Company*

2075 Corte Del Nogal,
Suite W
Carlsbad, CA 92011
Office: (760) 476-0492
Fax: (760) 476-0493

July 20, 2006

Project/Invoice Number 06-303

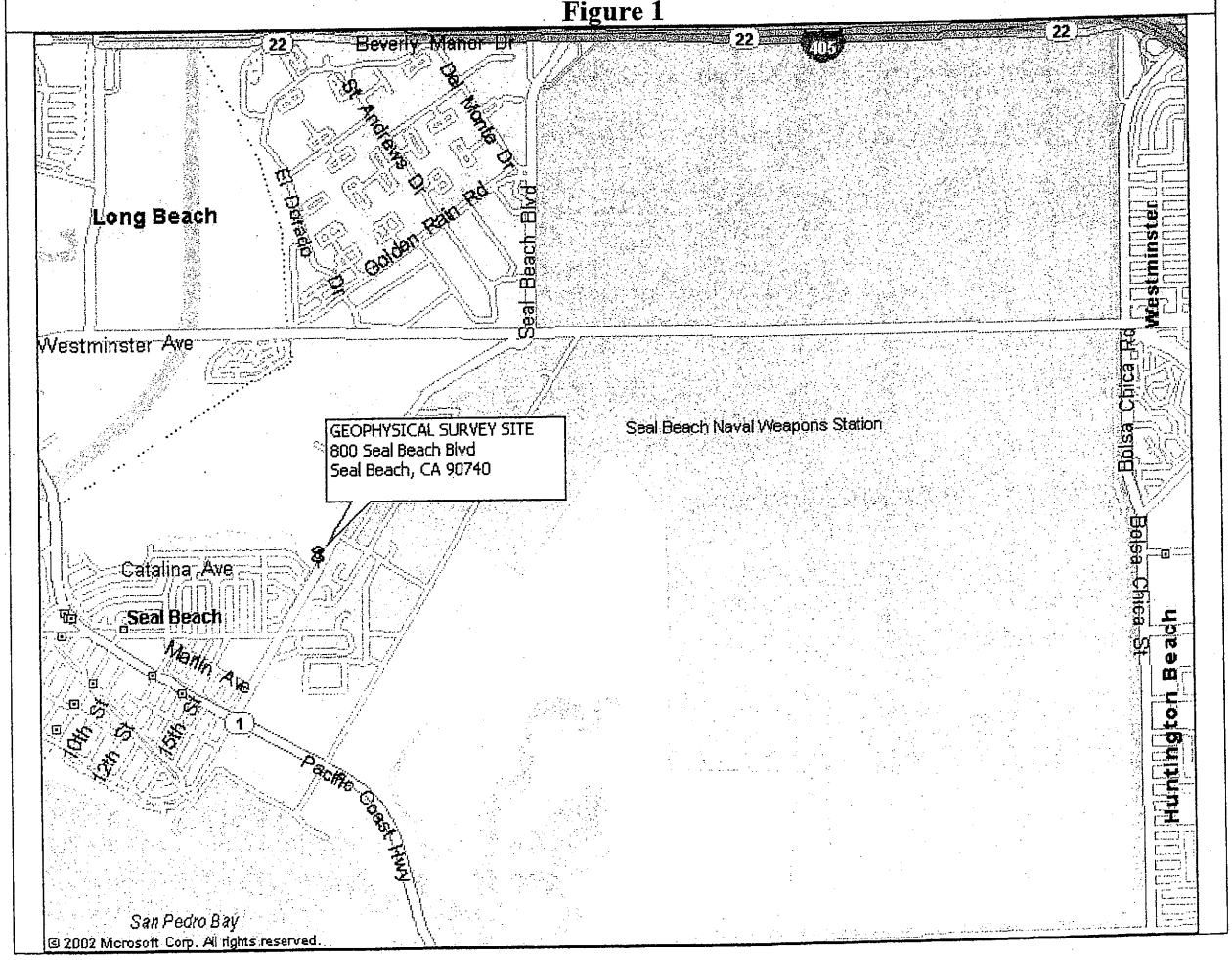
MARRS Services, Inc.
101 State Place
Suite O
Escondido, California 92029

Attn: Bob Breglio

Re: Geophysical Investigation, 7 Borehole Clearance, Seal Beach Naval Weapons Base (SBNWB), 800 Seal Beach Boulevard, Seal Beach, California

This report is to present the results of our geophysical survey carried out over portions of SBNWB property located at 800 Seal Beach Boulevard, in Seal Beach, California (Figure 1) on July 14, 2006. Purpose of the survey was to locate and identify, insofar as possible, piping, conduit, and other buried features that exist near the immediate vicinity of seven proposed borehole locations.

Figure 1



A combination of electromagnetic induction (EM), magnetometry and ground penetrating radar (GPR) were applied to the search. A utility locator with line tracing capabilities was also brought to the field and used where risers exist onto which a signal could be impressed and traced.

Multiple methods were utilized because each instrument senses different material properties of the ground and buried objects. At any given site the situation, geologic and cultural, may be such that one or more of the instruments may record excessive "noise", the ground may not provide sufficient contrasts, or there may be overlapping anomalies, for a given instrument to be effective. Summarily stated, there are generally instrumental limits and interpretational impediments.

Survey Design – The areas to be surveyed were located within SBNWB property as indicated in the field by the client, and included numerous above-ground cultural objects that could potentially cause interference with the instruments should a formal rectilinear grid for data collection be established. In situations such as this, where cultural objects limit the use of a formal rectilinear grid, the best use of time is achieved by systematically free-traversing with the instruments while monitoring them continuously to determine which responses are significant and due to true subsurface targets, and which are due to above-ground features and must be ignored. The line tracer, magnetic gradiometer, EM equipment and GPR were traversed systematically over the areas along the eight lines of the standard search pattern (Diagram A) wherein, there are two sets of three parallel lines, mutually orthogonal, and two diagonals, all centered on the marked drill location. Adjacent parallel lines are approximately 5 feet apart, and each line is approximately 20 feet long, access permitting. Other traverses were taken, access permitting, for detailing and confirmation where anomalous conditions were found. Multiple GPR profiles were also collected throughout the area and in specific areas for confirmation where other instruments detected anomalies.

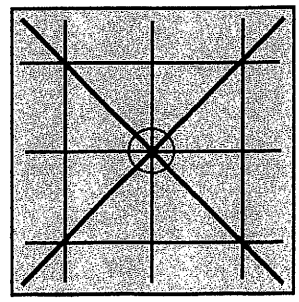


Diagram A: Standard search pattern around borehole

A Fischer M-Scope was used for the EM sampling. A Sensors & Software Noggin Ground Penetrating Radar unit produced the radar images. The magnetic gradiometer was a Schonstedt GA-52, and a Metrotech 9890 utility locator rounded out the tools applied.

Brief Description of the Geophysical Methods Applied – The M-Scope device energizes the ground by producing an alternating primary magnetic field with AC current in a transmitting coil. If conducting materials are within the area of influence of the primary field, AC eddy currents are induced to flow in the conductors. A receiving coil senses the secondary magnetic field produced by these eddy currents, and outputs the response as anomalous conditions. The strength of the secondary field is a function of the conductivity of the object, say a pipe, tank or cluster of drums, its size, and its depth and position relative to the instrument's two coils. Conductive objects, to a depth of approximately 7 feet below ground surface (bgs) for the M-Scope are sensed. The device is also

somewhat focused; that is, it is more sensitive to conductors below the instrument than they are to conductors off to the side.

The magnetic gradiometer has two flux gate magnetic fixed sensors that are passed closely to and over the ground. When not in close proximity to a magnetic object, that is, only in the earth's field, the instrument emits a sound signal at a low frequency. When the instrument passes over a buried iron or steel object, so that locally there is a high magnetic gradient, the frequency of the emitted sound increases. The frequency is a function of the gradient between the two sensors.

The line locator is used to passively detect energized high voltage electric lines and electrical conduit (50-60 Hz), VLF signals (14-22 kHz), as well as to actively trace other utilities. Where risers are present, the utility locator transmitter can be connected directly to the object, and a signal (9.8-82 kHz) is sent traveling along the conductor, pipe, conduit, etc. In the absence of a riser, the transmitter can be used to impress an input signal on the utility by induction. In either case, the receiver unit is tuned to the input signal, and is used to actively trace the signal along the pipe's surface projection.

The GPR instrument beams energy into the ground from its transducer/antenna, in the form of electromagnetic waves. A portion of this energy is reflected back to the antenna at a boundary in the subsurface across which there is an electrical contrast. The instrument produces a continuous record of the reflected energy as the antenna is traversed across the ground surface. The greater the electrical contrast, the higher the amplitude of the returned energy. The radar wave travels at a velocity unique to the material properties of the ground being investigated, and when these velocities are known, the two-way travel times can be converted to depth. The depth of penetration and image resolution produced are a function of ground electrical conductivity and dielectric constant.

Interpretation and Conclusions - The interpretation took place in real time as the survey progressed, and accordingly, the findings of our investigation were marked on the ground cover at the site. The intent of this document is to demonstrate the procedure, and report the findings of the work.

GPR was especially useful at detecting both metallic and non-metallic lines and utilities. According to principles of physics, radar penetration is a function of soil conductivity and dielectric constant. At this site, local conditions reduced radar penetration due to the nature of the soil and materials covering the survey areas. This resulted in radar penetration down to approximately 2.0 feet bgs.

Piping and utilities detected during the survey were marked with spray chalk on the ground cover at the site (blue for water, orange for communications, green for storm drain/sanitary sewer, and white for unknown). Once all detectable utilities and anomalies were accounted for, the proposed boreholes were marked in white paint crosshairs with a yellow "SSS" (Figures 2-9). No detectable utilities were located within the immediate vicinity of the proposed boreholes illustrated in Figures 5 and 8. While water, sewer and an unknown line were detected outside of a three foot radius from the proposed borehole illustrated in Figure 4 (also see Fig. 9). Furthermore, communications lines were detected outside of a three foot radius from the proposed boreholes illustrated in Figures 2, 3, 6 and 7. Additionally, the proposed borehole pictured in Figure 3 was shifted roughly two feet to the north in order to achieve a minimum of three feet of clearance from both the detected communications line and an observed storm drain conduit. Finally, all detected utilities in the survey areas were marked out and it was left up to the client to determine if the boreholes should be drilled.

Sub Surface Surveys

SITE PHOTOGRAPHS

Naval Weapons Station,
Seal Beach, California

FIGURE 2

FIGURE 3

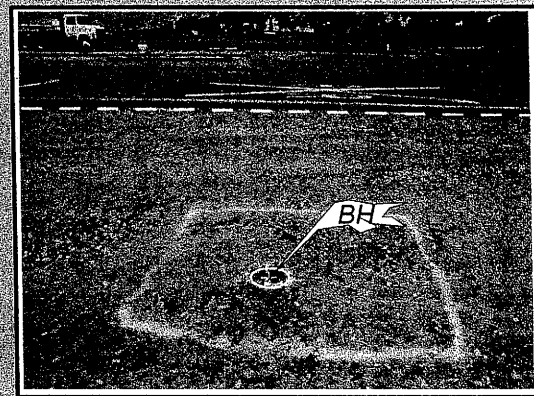


FIGURE 4

FIGURE 5

FIGURE 6

FIGURE 7

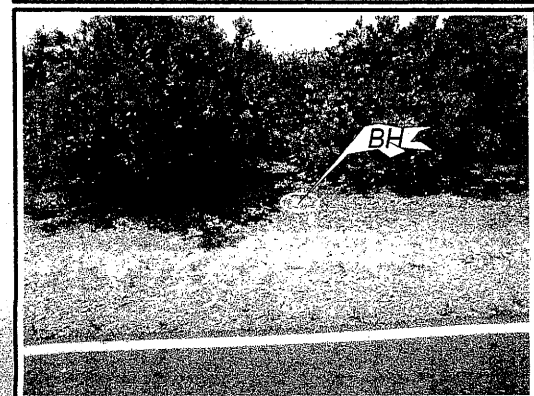


FIGURE 8

FIGURE 9

Subsurface Survey's professional personnel are trained and experienced and have completed thousands of projects since the company's inception in 1988. It is our policy to work diligently to bring this training and experience to bear to acquire quality data sets, which in turn, can provide clues useful in formulating our interpretations. Still, non-uniqueness of interpretations, methodological limitations, and non-target interferences are prevailing problems. Subsurface Surveys makes no guarantee either expressed or implied regarding the accuracy of the interpretations presented. And, in no event will Subsurface Surveys be liable for any direct, indirect, special, incidental, or consequential damages resulting from interpretations and opinions presented herewith.

All data acquired in these surveys are in confidential file in this office, and are available for review by your staff, or by us at your request, at any time. We appreciate the opportunity to participate in this project. Please call, if there are questions.

David B. Kaufman
Staff Geophysicist

Gary W. Crosby, PhD, GP# 960
Senior Geophysicist

DIGGING PERMIT NWS Seal Beach

rev. 10-24-05

Section A (to be completed by Contractor):
Contractor: MARRS Services, Inc. Contract No. N68711-99-D-6620, Delivery Order 021
Contract rep name: Bob Breglio Phone Number: (760) 233-1840 ext 205; (760) 644-2815 (cel)
Date submitted: February 3, 2006 *(note: allow up to 8 working days for PW approval of permit)*
Date that project is planned to start: March 6, 2006 Completion Date: March 7, 2006 (1-2 days)

The attached drawings/sketches indicate the location of trenching*.
Description and Location of Work Area: As part of the continuing groundwater investigation at IRP Site 14, the former gasoline station at the intersection of Kitts Highway and Industrial Road, 6 temporary groundwater monitoring wells need to be installed. The wells will be installed using a direct-push drill rig and the resulting bore hole will be 2-inches in diameter. The temporary wells will be constructed with ¾-inch PVC pipe one the first day of drilling and destroyed on the second day. Two of the well locations are in the garden area between Bolsa Avenue and Industrial Road. Two of the well locations are near the intersection of Industrial Road and Kitts Highway, and two of the well locations are located adjacent to the railroad tracks, as shown on the attached figure.

Prior to drilling, MARRS Services will be conducting a subsurface geophysical survey to identify potential utilities beneath the proposed boring locations. This survey is scheduled for February 7, 2006. The results of the geophysical survey will be made available to Public Works and the ROICC. All Borings will be hand-augured to 5 feet to check for utilities.

Section B (to be completed by Public Works):
Public Works has reviewed the Utility Drawing Checklist and the applicable as-built drawings available at the Public Works Department and has identified the following potential obstructions:

a) shown in red on attached sketch and/or
b) listed below:

Type of utility			Reference drawing #
Active Water Main or Service	☐ No Impact	☐ Impact	Comments: 6387798
Abandoned Water Main or Service	☒ No Impact	☐ Impact	Comments:
Irrigation Piping	☒ No Impact	☐ Impact	Comments:
Electrical	☐ No Impact	☐ Impact	Comments: 80091
Exterior Lighting	☒ No Impact	☐ Impact	Comments:
Telecommunications (Fiber Optic)	☐ No Impact	☐ Impact	Comments: OSL3-022 & 033
Sewer	☐ No Impact	☐ Impact	Comments: 8173116
Abandoned Sewer	☒ No Impact	☐ Impact	Comments:
Natural Gas	☐ No Impact	☐ Impact	Comments: 6361806
Abandoned Steam and Comp. Air	☒ No Impact	☐ Impact	Comments:
Fire Alarm	☐ No Impact	☐ Impact	Comments: 6037388
Cable TV	☒ No Impact	☐ Impact	Comments:

DPK 2/17/06

PWD Rep/Date : [illegible] / 2-17-06 PW Shops /Date _____

*Note: if Contractor does the as-built drawing review, he will mark potential obstructions in blue and Public Works will review his mark-ups and mark any additional potential obstructions in red.

Section C (to be signed by Contractor after Sections A and B are complete):
Contractor will comply with the following:

1. As builts show only approximate locations of utilities. Contractor will determine exact locations by site investigation, hiring locator services and/or pot holing or any combination of above.
2. Contractor will hand excavate within 3 ft of either side of potential obstructions and be solely responsible for any damages to any existing utilities that were indicated on attached sketches/drawings or listed above.
3. If Contractor has any questions regarding fiber optic locations it is their responsibility to contact the Contracting Officer or Government Representative immediately.
4. Digging permit needs to be in the possession of the person or crew performing the excavation/digging.

Contractor's signature/date: [signature]

(If PW shop project: Shop foreman or representative/Date: _____)

Section D (to be completed by ROICC only if this contract is being administered by ROICC):

I, DAVID CRAWLEY have reviewed the above and any attached sketches. I certify that the contractor has physically marked potential obstructions in the field and that the contractor will hand dig in the vicinity of these markings. The contractor is authorized to begin work in accordance with this document and enclosures.

ROICC Rep/Date: David Crawley 03-15-06

DIGGING PERMIT NWS Seal Beach

rev. 10-24-05

Section A (to be completed by Contractor):
Contractor: MARRS Services, Inc. Contract No. N68711-99-D-6620, Delivery Order 021
Contract rep name: Bob Breglio Phone Number: (760) 233-1840 ext 205; (760) 644-2815 (cel)
Date submitted: July 7, 2006 *(note: allow up to 8 working days for PW approval of permit)*
Date that project is planned to start: July 24, 2006 Completion Date: July 26, 2006

The attached drawings/sketches indicate the location of trenching*.
Description and Location of Work Area: As part of the continuing groundwater investigation at IRP Site 14, the former gasoline station at the intersection of Kitts Highway and Industrial Road, 1 permanent groundwater monitoring well and 6 additional temporary groundwater monitoring wells need to be installed. **THIS DIG PERMIT IS THE SECOND FOR THIS PROJECT. THE FIRS DIG PERMIT WAS SIGNON ON 3/14/2006 AND IS INCLUDED AS AN ATTACHMENT TO THIS PERMIT.** The perminant groundwater monitoring well will be installed on the east side of Kitts Highway across the street from IRP Site 14. 4 temporary wells will be installed along Bolsa Avenue between Gardeners Road and Kitts Highway, and 2 temporary wells will be installed near the intersection of Industrial Road and Kitts Highway, as shown on the attached figure. The wells will be installed using a direct-push drill rig and the resulting bore hole will be 2-inches in diameter. The temporary wells will be constructed with ¾-inch PVC pipe one the first day of drilling and destroyed on the second day. The perminant groundwater monitoring well will be constructed similar to existing monitoring wells at the site. The well will be completed with a flush mounted well box.

Prior to drilling, MARRS Services will be conducting a subsurface geophysical survey to identify potential utilities beneath the proposed boring locations. This survey is scheduled for July 19, 2006. The results of the geophysical survey will be made available to Public Works and the ROICC. All Borings will be hand-augured to 5 feet to check for utilities.

Section B (to be completed by Public Works):
Public Works has reviewed the Utility Drawing Checklist and the applicable as-built drawings available at the Public Works Department and has identified the following potential obstructions:

a) shown in red on attached sketch and/or
b) listed below:

Type of utility			Reference drawing #
Active Water Main or Service	☐ No Impact	☐ Impact	Comments: 6387798
Abandoned Water Main or Service	☑ No Impact	☐ Impact	Comments:
Irrigation Piping	☑ No Impact	☐ Impact	Comments:
Electrical	☐ No Impact	☐ Impact	Comments: 80091
Exterior Lighting	☑ No Impact	☐ Impact	Comments:
Telecommunications (Fiber Optic)	☐ No Impact	☐ Impact	Comments: OSLB 022, 023
Sewer	☐ No Impact	☐ Impact	Comments: 8173116
Abandoned Sewer	☑ No Impact	☐ Impact	Comments:
Natural Gas	☑ No Impact	☐ Impact	Comments:
Abandoned Steam and Comp. Air	☐ No Impact	☐ Impact	Comments: 6361806
Fire Alarm	☐ No Impact	☐ Impact	Comments: 6037388
Cable TV	☑ No Impact	☐ Impact	Comments:

DPF 7/17/06

PWD Rep/Date : [signature] 7/17/06 PW Shops /Date _____

*Note: if Contractor does the as-built drawing review, he will mark potential obstructions in blue and Public Works will review his mark-ups and mark any additional potential obstructions in red.

Section C (to be signed by Contractor after Sections A and B are complete):
Contractor will comply with the following:

1. As builts show only approximate locations of utilities. Contractor will determine exact locations by site investigation, hiring locator services and/or pot holing or any combination of above.
2. Contractor will hand excavate within 3 ft of either side of potential obstructions and be solely responsible for any damages to any existing utilities that were indicated on attached sketches/drawings or listed above.
3. If Contractor has any questions regarding fiber optic locations it is their responsibility to contact the Contracting Officer or Government Representative immediately.
4. Digging permit needs to be in the possession of the person or crew performing the excavation/digging.

Contractor's signature/date: [signature] 07/27/06

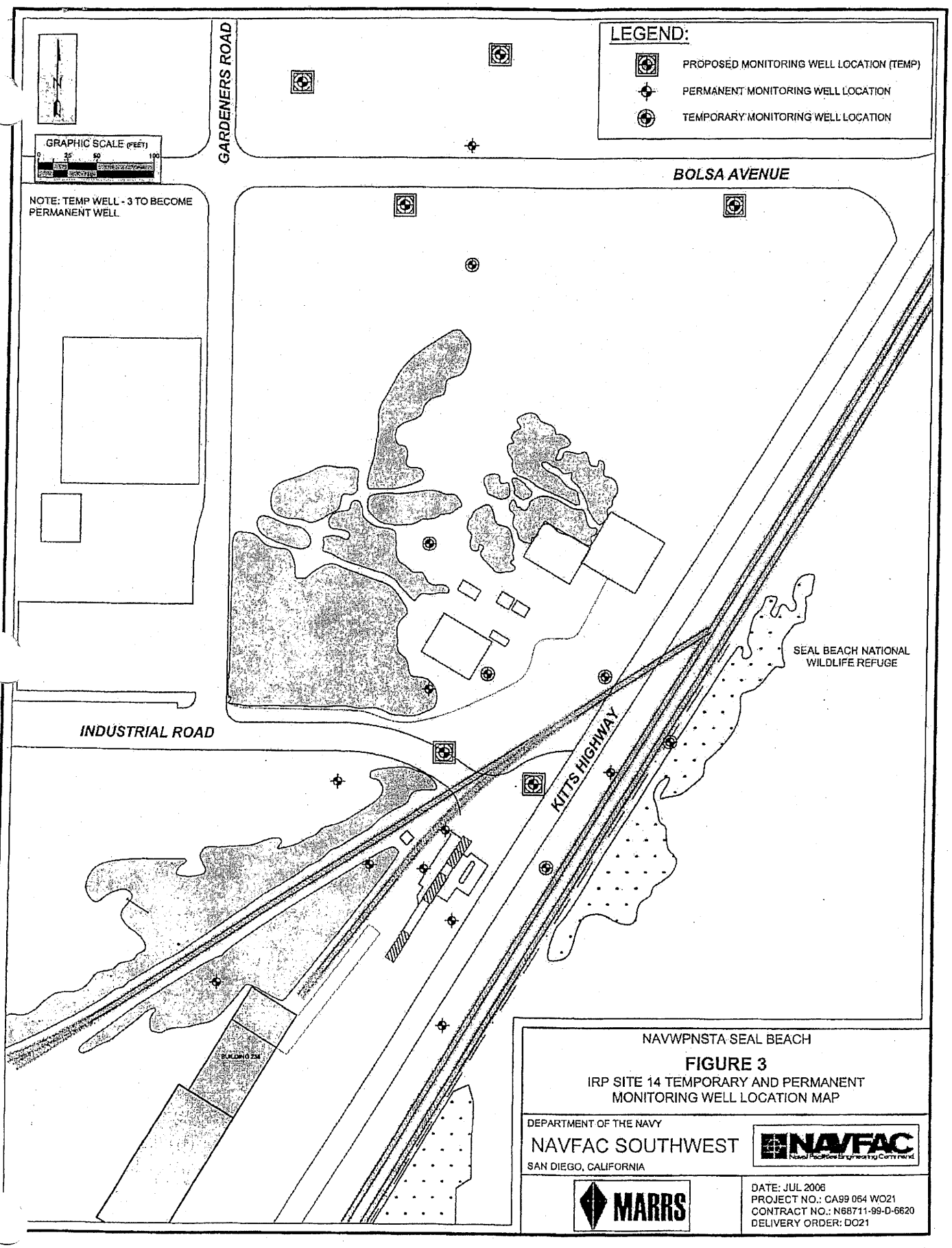
(If PW shop project: Shop foreman or representative/Date: _____)

06 JUL 8 PM 4:33

Section D (to be completed by ROICC only if this contract is being administered by ROICC):

I, DAVID CRAWLEY have reviewed the above and any attached sketches. I certify that the contractor has physically marked potential obstructions in the field and that the contractor will hand dig in the vicinity of these markings. The contractor is authorized to begin work in accordance with this document and enclosures.

ROICC Rep/Date: DCL 07-27-04



NAVWPNSTA SEAL BEACH

FIGURE 3

IRP SITE 14 TEMPORARY AND PERMANENT MONITORING WELL LOCATION MAP

DEPARTMENT OF THE NAVY

NAVFAC SOUTHWEST

SAN DIEGO, CALIFORNIA

MARRS

DATE: JUL 2006
PROJECT NO.: CA99 064 WO21
CONTRACT NO.: N68711-99-D-6620
DELIVERY ORDER: DO21

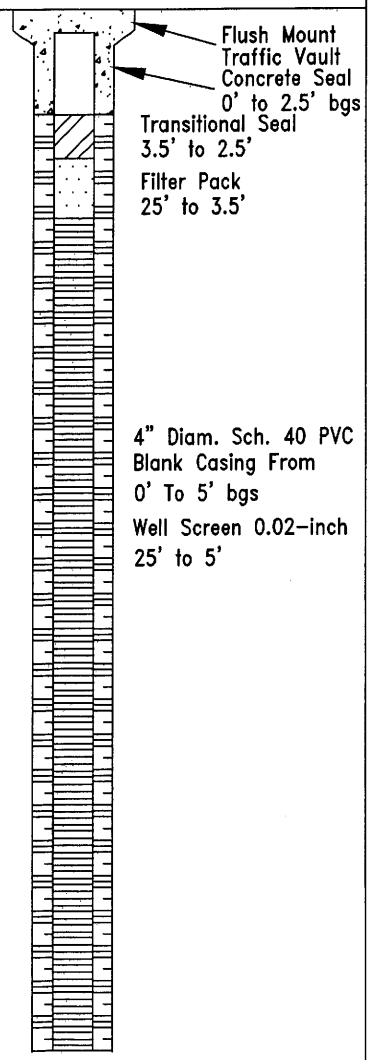
TA:SEAL BEACH FIG 3 V3, IRP SITE 14 27JUN.DWG DSG

BOREHOLE LOG

Project Name: SITE 14, NAVWPNSTA SEAL BEACH	Project No: CA99-164-W021	Borehole Number: BSW-14-10	
Borehole Location: IN FRONT OF AST	Northing: 2219187.93 Easting: 6003326.57	Sheet: 1 of 1	
Drilling Agency: TEST AMERICA DRILLING CORP.	Driller: TED NICHOLS, RON SAMOIAN		
Drilling Equipment: CME 75	Date Started: 8/1/2006	Total Depth (feet): 25	
Drilling Method: HOLLOW STEM AUGER	Number of Samples: 0	Date Finished: 8/1/2006	Depth to Bedrock (feet): NA
Drilling Fluid: NONE	Borehole Diameter (in): 10	Sample Type: Bulk: Drive: SS: Grab:	Sample Length: n/a Drop Length: n/a Driving Weight: n/a
Completion Information:		Elevation at top of casing (feet MSL) : 12.74	
		Logged By: BOB BREGLIO	Checked By: ROD REEVE

Depth (feet)	Sample ID	Type	Blow Count	PID	Time	Gravel	Sand	Fines	Graphic	USCS or Rock Type	Lithologic Description
				0		35	65	0			(hand auger to 5 feet) hand augering difficult gravelly sand, fine to medium gravel
5											no recovery in sampler
											cuttings become saturated
10			8 14 17	0	0936	0	90	10	SP		(10-12.5) SAND, medium, greenish gray (Gley 1 5/1), loose, saturated, hydrocarbon odor
				0		0	35	65	ML		(12.5-15) SANDY CLAY, dark greenish gray (Gley 1 4/1), medium stiff, slightly plastic sand fraction is medium, hydrocarbon odor
15			27 50	0	0947	0	75	25			(15-20) SILTY SAND, fine, strong brown (7.5 YR 4/4), medium dense, laminated (2-3 mm), saturated, slight hydrocarbon odor
											SILTY SAND, as above, becomes medium
20			17 24 38	0	0956	0	75	25	SM		(20-25) SILTY SAND, as above, becomes micacous, limonite staining (laminated)
25											boring terminated at 25 feet
30											

Monitoring Well Construction Diagram

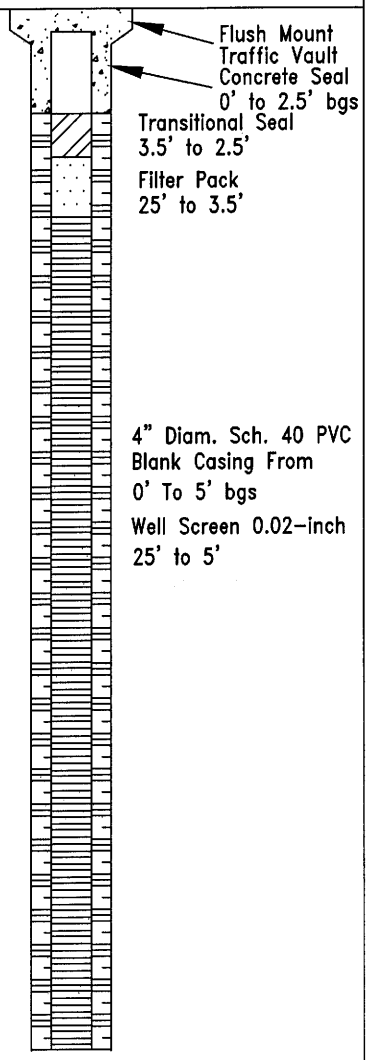


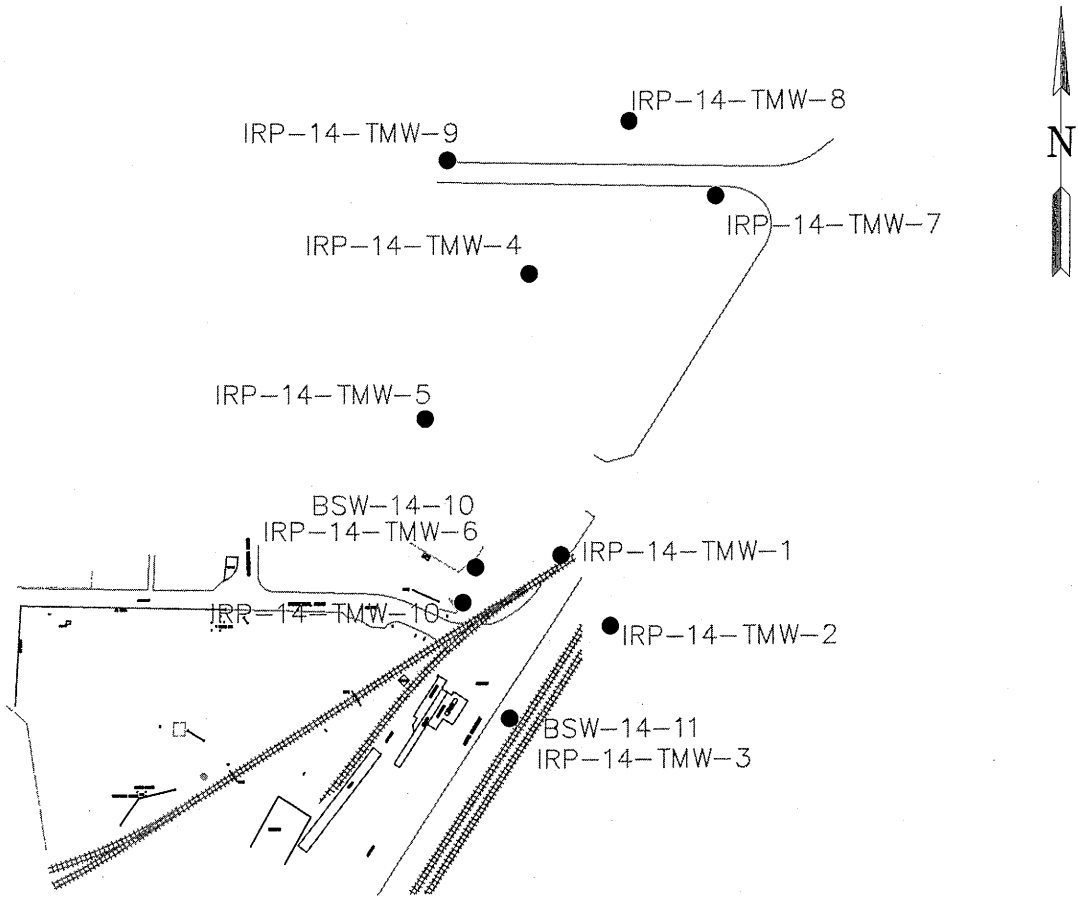
BOREHOLE LOG

Project Name: SITE 14, NAVWPNSTA SEAL BEACH	Project No: CA99-164-W021	Borehole Number: BSW-14-11	
Borehole Location: BETWEEN BSW-14-8 AND BSW-14-9 Northing: 2219121.19 Easting: 6003364.70			Sheet: 1 of 1
Drilling Agency: TEST AMERICA DRILLING CORP.		Driller: TED NICHOLS, RON SAMOIAN	
Drilling Equipment: CME 75		Date Started: 8/2/2006	Total Depth (feet): 25
Drilling Method: HOLLOW STEM AUGER	Number of Samples: 0	Date Finished: 8/2/2006	Depth to Bedrock (feet): NA
Drilling Fluid: NONE	Borehole Diameter (in): 10	Sample Type: Bulk: Drive: SS: Grab:	Sample Length: n/a Drop Length: n/a Driving Weight: n/a
Completion Information:		Elevation at top of casing (feet MSL) : 10.40	
		Logged By: BOB BREGLIO	Checked By: ROD REEVE

Depth (feet)	Sample ID	Type	Blow Count	PID	Time	Gravel	Sand	Fines	Graphic	USCS or Rock Type	Lithologic Description
				0		0	65	35			(hand auger to 5 feet) (surface to 4.5) SILTY SAND, fine, dark brown (7.5 YR 3/4), medium dense
5			6 13 18	56	0905	0	60	40			(4.5-15) SILTY SAND with clay, fine greenish gray (Glay 1 5/1), saturated, slightly plastic, strong hydrocarbon odor
10			8 14 17	0	0912	0	50	40		SM	SILTY SAND as above
15			27 48	0	0925	0	75	25			(15-25) SILTY SAND, fine, brown (7.5 YR 4/3), medium dense saturated, No hydrocarbon odor
20											
25			28 50		1005	0	75	25			(25-27.5) SILTY SAND, as above, with lenses of coarse, brownish yellow (10 YR 6/6) medium dense, saturated, No hydrocarbon odor boring terminated at 27.5 feet
30											

Monitoring Well Construction Diagram





BORE HOLE	NORTHING	EASTING	ELEV.
IRP-14-TMW-1	2219200.73	6003419.39	11.80
IRP-14-TMW-2	2219122.14	6003475.00	11.26
IRP-14-TMW-3	2219021.03	6003364.65	11.35
IRP-14-TMW-4	2219510.81	6003383.39	13.46
IRP-14-TMW-5	2219351.70	6003270.61	14.71
IRP-14-TMW-6	2219187.83	6003326.51	13.31
IRP-14-TMW-7	2219595.12	6003590.62	10.79
IRP-14-TMW-8	2219677.82	6003493.66	7.84
IRP-14-TMW-9	2219635.93	6003293.78	16.39
IRP-14-TMW-10	2219148.86	6003312.88	12.12

MONITORING WELL	NORTHING	EASTING	ELEV. 4" PVC	ELEV. LID	ELEV. GROUND
BSW-14-11	2219021.19	6003364.70	10.40	11.35	11.00
BSW-14-10	2219187.93	6003326.57	12.74	13.31	13.11

JOB #: 101-026	SITE 14	COAST SURVEYING, INC.
DATE: 8/04/06	NAVAL WEAPONS STATION SEAL BEACH	2681 DOW AVENUE, SUITE A
SCALE: 1"=200'	SAMPLES	TUSTIN, CALIFORNIA 92780-7244 (714) 734-0184
SHEET 1 OF 1		

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: BSW-14-1
DATE: 3-28-2006

PREPARED BY
Name: Chen Myetrang
Signature: [signature]

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS: light grey, silty, no odor

Groundwater Well Information: 7.64
DEPTH TO WATER ~~[illegible]~~ feet BTOC
DEPTH TO PUMP INLET 18 feet BTOC
SCREEN INTERVAL: feet BGS
BASE OF WELL:

Sample ID BSW-14-1
Purge Start Time 1304
Sample Time 1350

DO 0.15 mg/L
Fe^{2+} 0 mg/L
H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
1304	400	7.69	20.51	1.57	2.04	6.25	0.79	-90	silty	
1307	400	7.70	20.92	1.58	0.97	6.27	0.79	-108	silty	
1310	400	7.70	21.14	1.58	0.63	6.29	0.79	-121	silty	
1313	400	7.70	21.16	1.58	0.45	6.34	0.79	-126	silty	
1316	400	7.70	21.14	1.58	0.67	6.36	0.79	-128	silty	
1319	400	7.69	21.10	1.58	0.70	6.38	0.79	-124	silty	
1322	400	7.69	21.17	1.58	0.43	6.39	0.79	-127	silty	
1325	400	7.69	21.16	1.58	0.24	6.39	0.80	-130	silty	
1328	400	7.69	21.19	1.59	0.23	6.39	0.80	-131	silty	
1331	400	7.69	21.14	1.59	0.23	6.39	0.80	-132	silty	
1334	400	7.69	21.16	1.59	0.22	6.39	0.80	-132	silty	

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: BSW 14-02
DATE: 3/28/06

PREPARED BY
Name: Chen, Murtaugh
Signature: Chen

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS: slightly silty, not 100% clear
noticed rain water penetrating TOC, might influence data

Groundwater Well Information:

DEPTH TO WATER 7.67 feet BTOC
DEPTH TO PUMP INLET 18 feet BTOC
SCREEN INTERVAL: feet BGS
BASE OF WELL:

Sample ID BSW-14-2.
Purge Start Time 1136
Sample Time 1215

DO 5.5 mg/L
Fe^{2+} 0.1 mg/L
H_2S 0.2 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
1136	450	7.67	16.95	0.321	5.33	6.65	0.13	-163	silty	
1139	450	7.67	16.46	0.156	6.30	6.67	0.08	-157	silty	
1142	450	7.67	16.31	0.129	6.41	6.71	0.06	-157	silty	
1145	450	7.67	16.27	0.125	6.34	6.67	0.06	-150	silty	
1148	450	7.67	16.31	0.123	6.28	6.63	0.06	-148	"	
1151	450	7.67	16.33	0.123	6.30	6.61	0.06	-142	"	
1154	450	7.67	16.33	0.123	6.22	6.60	0.06	-142	"	
1157	450	7.67	16.38	0.124	6.25	6.56	0.06	-142	"	
1200	450	7.67	16.34	0.124	6.24	6.57	0.06	-143	"	
1203	450	7.67	16.40	0.124	6.24	6.56	0.06	-142	"	

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: ~~BSW14-3~~ (MW-3)
DATE: 3-28-2006

PREPARED BY
Name: Chen / Murtaugh
Signature: J.M.

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS: fuel odor, murky brown

Groundwater Well Information:

DEPTH TO WATER 7.70 feet BTOC
DEPTH TO PUMP INLET 18 feet BTOC
SCREEN INTERVAL: feet BGS
BASE OF WELL:

Sample ID BSW-14-3
Purge Start Time 1037
Sample Time 1115

DO 0.10 mg/L
Fe^{2+} 0.20 mg/L
H_2S 0.10 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
1037	450	7.73	20.47	1.358	1.28	6.46	0.68	-234	murky brown	
1040	450	7.71	21.00	1.361	0.49	6.46	0.68	-237	murky brown	
1043	450	7.72	21.16	1.366	0.30	6.46	0.68	-238	"	
1046	450	7.72	21.14	1.371	0.25	6.46	0.68	-240	"	
1049	450	7.73	21.08	1.383	0.22	6.47	0.68	-241	"	
1052	450	7.72	20.97	1.389	0.22	6.49	0.68	-242	"	
1055	450	7.72	20.56	1.403	0.26	6.59	0.68	-243	"	
1058	450	7.72	20.94	1.405	0.22	6.62	0.68	-244	"	
1101	450	7.72	20.96	1.413	0.24	6.55	0.68	-245	"	
1104	450	7.72	20.99	1.414	0.23	6.54	0.68	-246	"	

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: ~~BSW~~ BSW14-04
DATE: 3/28/06

PREPARED BY
Name: Chen, Murtaugh
Signature: [illegible]

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS: odor, slight sheen on water
hydrocarbon odor

Groundwater Well Information:

DEPTH TO WATER 6.94 feet BTOC
DEPTH TO PUMP INLET 18 feet BTOC
SCREEN INTERVAL: feet BGS
BASE OF WELL:

Sample ID BSW-14-4
Purge Start Time 926
Sample Time 955

DO 0.15 mg/L
Fe^{2+} 0.2 mg/L
H_2S 1.5 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
926	400	6.90	20.05	1.436	1.21	5.29	0.71	-401	clear	
929	400	6.90	20.34	1.449	0.70	5.09	0.72	-336	clear	
932	400	6.90	20.35	1.451	0.49	5.96	0.72	-304	clear	
935	400	6.90	20.33	1.454	0.24	6.31	0.73	-303	clear	
938	400	6.90	20.46	1.453	0.23	6.32	0.73	-305	clear	
941	400	6.90	20.42	1.453	0.21	6.33	0.73	-306	clear	
944	400	6.90	20.40	1.455	0.21	6.35	0.73	-307	clear	
947	400	6.90	20.35	1.454	0.21	6.36	0.73	-306	clear	

WELL SAMPLING

PROJECT: **NAVWPNSTA Seal Beach, IRP Site 14**

JOB NO.: **CA99-064-WO021**

WELL NO.: BSW 14-05

DATE: 3/27/06

PREPARED BY

Name: Chen, Murtaugh

Signature: Qihai Ch

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY

Name: Bob Breglio

Signature:

REMARKS :

Groundwater Well Information:

DEPTH TO WATER 7.74 feet BTOC

DEPTH TO PUMP INLET 18 feet BTOC

SCREEN INTERVAL: feet BGS

BASE OF WELL:

Sample ID BSW-14-5

Purge Start Time 1532

Sample Time 1610

DO 1 mg/L

Fe^{2+} 0 mg/L

H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
1532	450	7.92	21.07	1.040	1.64	9.28	0.51	150	clear	
1535	450	7.91	21.21	1.040	1.51	9.25	0.51	156	clear	
1538	450	7.91	21.21	1.039	1.52	9.23	0.51	161	clear	
1541	450	7.91	21.30	1.038	1.55	9.21	0.51	163	clear	
1544	450	7.92	21.26	1.038	1.60	9.20	0.51	164	clear	
1547	450	7.91	21.27	1.038	1.15	9.20	0.51	164	clear	
1550	450	7.91	21.23	1.039	1.12	9.20	0.51	163	clear	
1553	450	7.92	21.24	1.038	1.08	9.21	0.51	161	clear	
1556	450	7.92	21.28	1.038	1.49	9.23	0.51	160	clear	
1559	450	7.92	21.28	1.038	1.52	9.21	0.51	160	clear	
1602	450	7.92	21.28	1.038	1.50	9.20	0.51	160	clear	

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: BSW 14 -06
DATE: 3/27/06

PREPARED BY
Name: Chen, Murtaugh
Signature: Catherine Chen

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS :

Groundwater Well Information:

DEPTH TO WATER 7.53ft feet BTOC
DEPTH TO PUMP INLET 20 feet BTOC
SCREEN INTERVAL: feet BGS
BASE OF WELL:

Sample ID BSW-14-6
Purge Start Time 1354
Sample Time 1440

DO 1.0 mg/L
Fe^{2+} 0 mg/L
H_2S 1.0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
1354	300	7.65	19.55	1.470	1.69	9.12	0.73	309	cloudy	
1357	300	7.65	19.78	1.460	1.32	9.16	0.72	317	cloudy	
1400	300	7.67	19.66	1.460	1.18	9.17	0.72	319	cloudy	
1403	300	7.67	19.78	1.450	1.14	9.17	0.73	310	cloudy	
1406	300	7.65	20.08	1.450	1.09	9.17	0.72	302	cloudy	
1409	300	7.66	20.10	1.448	1.17	9.15	0.72	295	cloudy	
1412	300	7.66	20.18	1.442	1.22	9.18	0.72	278	cloudy	
1415	300	7.67	20.08	1.441	1.22	9.16	0.72	266	cloudy	
1418	300	7.66	20.03	1.443	1.23	9.20	0.72	260	cloudy	
1421	300	7.65	20.10	1.442	1.26	9.19	0.73	256	cloudy	
1424	300	7.66	20.13	1.441	1.28	9.20	0.72	253	cloudy	
1427	300	7.65	20.04	1.441	1.27	9.20	0.72	252	cloudy	
1430	300	7.66	20.03	1.441	1.28	9.21	0.72	251	cloudy	

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: BSW14-07
DATE: 3/27/06

PREPARED BY
Name: Chen, Murtaugh
Signature: [illegible]

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS :

Groundwater Well Information:
DEPTH TO WATER 9.35 feet BTOC
DEPTH TO PUMP INLET 18 feet BTOC
SCREEN INTERVAL: feet BGS
BASE OF WELL:

Sample ID BSW-14-7
Purge Start Time 1627
Sample Time 1655

DO 3.50 mg/L
Fe^{2+} 0 mg/L
H_2S 0.5 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
1627	400	9.50	19.61	0.910	3.95	9.48	0.45	114	clear	
1630	400	9.50	20.40	0.907	4.00	9.54	0.44	127	clear	
1633	400	9.50	20.52	0.908	3.99	9.52	0.44	132	clear	
1636	400	9.50	20.58	0.909	3.94	9.52	0.45	135	clear	
1639	400	9.51	20.66	0.909	3.94	9.52	0.45	137	clear	
1642	400	9.51	20.65	0.910	3.93	9.52	0.45	138	clear	
1645	400	9.50	20.72	0.912	3.92	9.52	0.45	138	clear	

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: 14-8
DATE: 3-27-2006

PREPARED BY: CHEN Breglio
Name: Joe Montanez
Signature: Angel Montanez

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS:
Duplicate Sample Collected Time given 1800

Groundwater Well Information:

DEPTH TO WATER 7.15 feet BTOC
DEPTH TO PUMP INLET 17' feet BTOC
SCREEN INTERVAL: feet BGS
BASE OF WELL:

Sample ID BSW-14-8
Purge Start Time 1036
Sample Time ~~[illegible]~~

DO 1.5 mg/L
Fe^{2+} 0 mg/L
H_2S ~~0.2~~ 0.15 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
1036	300ml	7.24	20.75	1.59	2.89	9.72	0.80	292	clear	
1039	300	7.26	20.62	1.59	2.18	9.70	0.80	300	clear	
1042	300	7.21	20.62	1.60	1.90	9.70	0.80	299	clear	
1045	300	7.21	20.78	1.80	1.79	9.69	0.80	296	clear	
1048	300	7.19	20.92	1.59	1.71	9.69	0.80	289	clear	
1051	300	7.21	21.01	1.60	1.70	9.71	0.80	286	clear	
1054	300	7.22	20.97	1.60	1.72	9.71	0.80	285	clear	
1057	300									
1100	300									

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: BSW 14-9
DATE: 3/27/06

PREPARED BY
Name: Chen, Murtaugh
Signature: [illegible]

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS :

Groundwater Well Information:

DEPTH TO WATER 6.53 feet BTOC
DEPTH TO PUMP INLET 20 feet BTOC
SCREEN INTERVAL: feet BGS
BASE OF WELL:

Sample ID BSW 14-9
Purge Start Time 1216
Sample Time 1305

DO 0.7 mg/L
Fe^{2+} 0 mg/L
H_2S 1.5 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
1216	450	6.63	20.86	2.27	1.46	8.98	1.16	513	clear	
1219	450	6.63	20.99	2.28	1.17	8.98	1.16	528	clear	
1222	450	6.62	21.06	2.27	1.28	8.99	1.15	553	clear	
1225	450	6.65	21.18	2.27	1.00	8.98	1.16	560	clear	
1228	450	6.65	21.13	2.27	0.92	9.01	1.15	563	clear	
1231	450	6.63	21.20	2.26	0.87	9.01	1.15	564	clear	
1234	450	6.67	21.34	2.25	0.92	9.01	1.15	564	clear	
1237	450	6.64	21.33	2.25	0.85	9.02	1.15	565	clear	
1240	450	6.65	21.50	2.25	0.93	9.03	1.15	567	clear	
1243	450	6.65	21.48	2.24	0.94	9.04	1.15	567	clear	
1247	450	6.65	21.33	2.25	0.91	9.05	1.15	568	clear	

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: MW-05-01
DATE: 03-27-06

PREPARED BY
Name: Chen, Murtaugh
Signature: [illegible]

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS :

Groundwater Well Information:

DEPTH TO WATER 12.99 feet BTOC
DEPTH TO PUMP INLET _____ feet BTOC
SCREEN INTERVAL: feet BGS
BASE OF WELL:

Sample ID ~~[illegible]~~ MW-05-01
Purge Start Time 1430
Sample Time 1510

DO 0.25 mg/L
Fe^{2+} 0 mg/L
H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
1430	350	13.00	20.00	1.56	3.02	6.66	0.79	-58	clear	
1433	350	13.00	20.18	1.58	1.20	6.73	0.79	-74	clear	
1436	350	13.00	20.22	1.60	0.57	6.74	0.80	-83	clear	
1439	350	13.00	20.24	1.63	0.89	6.74	0.82	-90	clear	
1442	350	13.00	20.29	1.64	0.50	6.74	0.82	-94	clear	
1445	350	13.00	20.33	1.66	0.34	6.73	0.83	-99	clear	
1448	350	13.00	20.38	1.68	0.30	6.72	0.83	-102	"	
1451	350	13.00	20.33	1.70	0.28	6.72	0.84	-104	"	
1454	350	13.00	20.30	1.71	0.27	6.72	0.85	-105	"	
1457	350	13.00	20.36	1.71	0.27	6.71	0.86	-106	"	
1500	350	13.00	20.35	1.71	0.27	6.	0.86	-107	"	

BSW-14-1

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: ~~MW 1~~
DATE: Aug 3, 2006

PREPARED BY
Name: Joe M / Qibai
Signature:

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS :

Groundwater Well Information:

DEPTH TO WATER 7.57 feet BTOC
DEPTH TO PUMP INLET 16 feet BTOC
SCREEN INTERVAL 5-25 feet BGS
BASE OF WELL: 25

Sample ID BSW-14-1
Purge Start Time 0728
Sample Time 0800

DO 0.60 mg/L (0740) / 0.25 mg/L (0758)
Fe^{2+} 0 mg/L
H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
0728	400	7.58	23.53	1.54	3.79	6.30	0.78	111	—	Clear, light hydro-carbon odor NO SHEEN
0731	400	7.58	22.88	1.62	2.07	6.28	0.81	91	—	"
0734	400	7.61	22.72	1.62	1.64	6.51	0.81	98	—	"
0737	400	7.60	22.67	1.62	1.64	6.77	0.81	98	—	"
0740	400	7.60	22.67	1.62	0.90	6.82	0.81	97	—	" *collected D.O. sample
0743	400	7.60	22.63	1.62	0.44	6.98	0.81	96	—	"
0746	400	7.60	22.60	1.62	0.44	6.98	0.81	96	—	"
0749	400	7.60	22.58	1.62	0.31	6.98	0.81	95	—	"
0752	400	7.60	22.59	1.62	0.28	6.93	0.81	94	—	"
0755	400	7.60	22.58	1.62	0.26	6.95	0.81	94	—	"
0758	400	7.60	22.58	1.62	0.25	7.00	0.81	94	—	"

BSW-14-2

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: MW-2
DATE: Aug 3, 2006

PREPARED BY
Name: Joe M/Dihal
Signature:

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS :

Groundwater Well Information:

DEPTH TO WATER 7.57 feet BTOC
DEPTH TO PUMP INLET 19 feet BTOC
SCREEN INTERVAL: 5-25 feet BGS
BASE OF WELL: 25

Sample ID BSW-14-2
Purge Start Time 0958
Sample Time 1030

1018 HRS
DO 0.40 mg/L
Fe^{2+} 0.80 mg/L
H_2S 0.70 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
0958	300	7.57	26.17	1.460	4.18	6.97	0.75	-168	— V-S	~~light yellow color~~ strong hydrocarbon odor
1001	300	7.58	23.24	1.434	0.40	7.31	0.72	-223	—	No sheen - floating brown particles
1004	300	7.59	23.05	1.437	0.31	7.38	0.72	-225	—	H2S odor
1007	300	7.60	22.90	1.438	0.24	7.84	0.72	-227	—	"
1010	300	7.60	22.81	1.440	0.20	8.25	0.72	-231	—	"
1013	300	7.60	22.83	1.443	0.20	8.36	0.72	-232	—	"
1016	300	7.60	22.79	1.444	0.22	8.38	0.72	-232	—	"
1019	300	7.60	22.77	1.446	0.19	8.36	0.72	-234	—	"
1022	300	7.60	22.71	1.447	0.20	8.44	0.72	-235	—	"
1025	300	7.60	22.66	1.448	0.18	8.44	0.72	-239	—	"
1028	300	7.60	22.65	1.449	0.18	8.4	0.72	-239	—	"

BSW-14-3

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14

JOB NO.: CA99-064-WO021

WELL NO.: ~~MW-3~~

DATE: Aug 3, 2006

PREPARED BY

Name: Joe M / Qihao

Signature:

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY

Name: Bob Breglio

Signature:

REMARKS :

Groundwater Well Information:

DEPTH TO WATER 7.61 feet BTOC

DEPTH TO PUMP INLET 18 feet BTOC

SCREEN INTERVAL: 5-25 feet BGS

BASE OF WELL: 25

Sample ID BSW-14-03

Purge Start Time 0845

Sample Time 0920

DO 0.4 mg/L

Fe^{2+} 0.2 mg/L

H_2S 0.6 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
0845	300	7.61	23.06	1.56	1.73	7.31	0.78	-173	—	Mostly clear but light yellow color - mild hydrocarbon odor
0848	300	7.61	22.60	1.56	0.62	7.37	0.79	-184	—	- Floating particulates (brown)
0851	300	7.61	22.41	1.57	0.31	7.46	0.79	-189	—	" H2S odor
0854	300	7.61	22.38	1.57	0.45	7.41	0.79	-193	—	"
0857	300	7.61	22.39	1.57	0.28	7.50	0.79	-196	—	"
0900	300	7.61	22.40	1.57	0.70	7.42	0.79	-195	—	"
0903	300	7.61	22.42	1.57	0.44	7.41	0.79	-198	—	"
0906	300	7.61	22.40	1.57	0.44	7.39	0.79	-200	—	"
0909	300	7.61	22.43	1.56	0.45	7.39	0.78	-201	—	"
0912	300	7.61	22.45	1.56	0.39	7.45	0.79	-200	—	"
0915	300	7.61	22.44	1.56	0.40	7.44	0.79	-200	—	"

BSW-14-4

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: ~~AAW-4~~
DATE: Aug 3, 2006

PREPARED BY
Name: Joe M/Dihai
Signature:

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS:

(1135 HRS)

Groundwater Well Information:

DEPTH TO WATER 6.85 feet BTOC
DEPTH TO PUMP INLET 15 feet BTOC
SCREEN INTERVAL: 5-25 feet BGS
BASE OF WELL: 25

Sample ID BSW-14-4
Purge Start Time 1108
Sample Time 1145

DO 0.2 mg/L
Fe^{2+} 0.2 mg/L
H_2S 2.0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
1108	350	6.85	22.15	1.479	1.15	8.45	0.74	-252	—	Light yellow color mild - strong hydrocarbon odor.
1111	350	6.86	21.87	1.480	0.89	8.47	0.74	-256	—	" ; sewage odor
1114	350	6.87	21.82	1.482	0.62	8.48	0.74	-259	—	"
1117	350	6.86	21.77	1.482	1.42	8.46	0.74	-262	—	"
1120	350	6.86	21.76	1.483	0.38	8.46	0.74	-265	—	"
1123	350	6.86	21.77	1.484	0.41	8.46	0.74	-267	—	"
1126	350	6.86	21.74	1.485	0.92	8.44	0.74	-263	—	"
1129	350	6.86	21.77	1.489	1.10	8.41	0.75	-267	—	"
1132	350	6.86	21.74	1.495	0.74	8.42	0.75	-270	—	"
1135	350	6.86	21.74	1.498	0.20	8.42	0.75	-272	—	"
1138	350	6.86	21.74	1.499	0.19	8.41	0.76	-273	—	"
1141	350	6.86	21.74	1.499	0.19	8.41	0.76	-274	—	"

BSW-14-5

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: ~~MW-5~~
DATE: Aug 2, 2006

PREPARED BY
Name: Joe M / Dihal
Signature:

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS :

Groundwater Well Information:

DEPTH TO WATER 7.76 feet BTOC
DEPTH TO PUMP INLET 14 feet BTOC
SCREEN INTERVAL: 5-25 feet BGS
BASE OF WELL: 25

Sample ID ~~MW-5~~
Purge Start Time 9:30 AM
Sample Time 10:05

DO 0.90 mg/L
Fe^{2+} 0 mg/L
H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
0930	325	7.67	23.86	1.050	2.65	7.38	0.52	92	clear	clear - no odor
0933	325	7.66	23.52	1.054	2.08	7.45	0.52	86	—	"
0936	325	7.66	23.33	1.054	1.46	7.47	0.52	80	—	"
0939	325	7.66	23.20	1.054	1.16	7.52	0.52	72	—	"
0942	325	7.66	23.16	1.054	1.06	7.56	0.52	71	—	"
0945	325	7.66	23.10	1.054	1.02	7.59	0.52	68	—	"
0948	325	7.66	23.10	1.054	0.95	7.58	0.52	68	—	"
0951	325	7.67	23.11	1.056	0.97	7.64	0.52	62	—	"
0954	325	7.67	23.13	1.055	0.95	7.70	0.52	63	—	"
0957	325	7.67	23.09	1.055	0.94	7.72	0.52	63	—	"
1000	325	7.67	23.09	1.055	0.92	7.74	0.52	63	—	"

BSW-14-6

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: ~~MW-6~~
DATE: Aug 2, 2006

PREPARED BY
Name: Joe M/Qibal
Signature:

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS :

Groundwater Well Information:

DEPTH TO WATER 7.46 feet BTOC
DEPTH TO PUMP INLET _____ feet BTOC
SCREEN INTERVAL: 5-25 feet BGS
BASE OF WELL: 25

Sample ID ~~MW-6~~
Purge Start Time 11:27
Sample Time 12:00

DO 0.90 mg/L
Fe^{2+} 0 mg/L
H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
11:27	450	7.46	31.25	1.076	2.78	5.65	0.68	20	–	Clear - No odor
11:30	300	7.47	23.05	1.466	1.02	7.38	0.73	26	–	Clear - No odor
11:33	300	7.47	22.38	1.467	0.94	7.89	0.73	44	–	"
11:36	300	7.47	22.22	1.472	0.88	8.04	0.73	49	–	"
11:39	300	7.47	22.31	1.469	0.86	8.08	0.73	51	–	"
11:42	300	7.47	22.27	1.469	0.85	8.15	0.73	54	–	"
11:45	300	7.47	22.29	1.469	0.86	8.06	0.73	54	–	"
11:48	300	7.47	22.28	1.466	0.90	8.13	0.73	53	–	"
11:51	300	7.47	22.29	1.466	0.92	8.17	0.73	52	–	"
11:54	300	7.47	22.32	1.466	0.91	8.16	0.73	53	–	"
11:57	300	7.47	22.33	1.465	0.91	8.19	0.73	53	–	"
1200	300	7.47	22.34	1.464	0.92	8.19	0.73	53	–	"

BSW-14-7

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: ~~MW-7~~
DATE: Aug 2, 2006

PREPARED BY
Name: Joe M / Qibal
Signature:

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS:

Groundwater Well Information:

DEPTH TO WATER 9.18 feet BTOC
DEPTH TO PUMP INLET 17 feet BTOC
SCREEN INTERVAL 5-25 feet BGS
BASE OF WELL: 25

Sample ID BSW-14-MW-7
Purge Start Time 1626
Sample Time 1655

DO 1.50 mg/L
Fe^{2+} 0 mg/L
H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
1626	325	9.18 ~~22.62~~	22.62	1.263	2.38	7.99	0.63	54	–	clear, no odor
1629	325	9.16	22.22	1.274	2.08	8.20	0.63	56	–	"
1632	325	9.18	22.14	1.278	1.92	8.31	0.63	58	–	"
1635	325	9.18	22.10	1.279	1.86	8.32	0.64	59	–	"
1638	325	9.18	22.07	1.280	1.73	8.33	0.64	60	–	"
1641	325	9.18	22.08	1.281	1.67	8.33	0.64	60	–	"
1644	325	9.18	22.05	1.283	1.58	8.33	0.64	61	–	"
1647	325	9.18	22.05	1.283	1.55	8.32	0.64	60	–	"
1650	325	9.18	22.03	1.284	1.52	8.32	0.64	61	–	"

BSW-14-8

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: ~~MW-8~~
DATE: Aug 2, 2006

PREPARED BY
Name: Tom / Qihai
Signature:

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS :

Groundwater Well Information:

DEPTH TO WATER 7.00 feet BTOC
DEPTH TO PUMP INLET 18 feet BTOC
SCREEN INTERVAL: 5-25 feet BGS
BASE OF WELL: 25

Sample ID BSW-14-MW8
Purge Start Time 1500
Sample Time 1548

DO 0.5 mg/L
Fe^{2+} 0 mg/L
H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
1500	300	7.00	23.75	1.63	1.73	7.94	0.83	53	—	Clear, No odor
1503	300	7.00	23.02	1.66	0.67	8.19	0.83	50	—	"
1506	300	7.00	22.97	1.66	0.69	8.27	0.83	51	—	"
1509	300	7.00	22.83	1.66	0.60	8.33	0.83	51	—	"
1512	300	7.00	22.83	1.66	0.56	8.36	0.83	50	—	"
1515	300	7.00	22.73	1.66	0.57	8.40	0.83	50	—	"
1518	300	7.00	22.70	1.66	0.57	8.41	0.83	50	—	"
1521	300	7.00	22.65	1.66	0.58	8.44	0.83	50	—	"
1524	300	7.00	22.57	1.66	0.52	8.44	0.83	48	—	"
1527	300	7.00	22.64	1.66	0.49	8.45	0.83	48	—	"
1530	300	7.00	22.50	1.66	0.47	8.46	0.83	48	—	"
1533	300	7.00	22.48	1.66	0.95	8.47	0.83	47	—	"
1536	300	7.00	22.48	1.66	0.68	8.49	0.83	47	—	"
1539	300	7.00	22.48	1.66	0.69	8.47	0.83	47	—	"
1542	300	7.00	22.46	1.66	0.67	8.45	0.83	47	—	"
1545	300	7.00	22.45	1.66	0.66	8.46	0.83	47		"

BSW-14-9

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: ~~MW-9~~
DATE: Aug 2, 2006

PREPARED BY
Name: JOE M. QIBAI
Signature:

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS :

Groundwater Well Information:

DEPTH TO WATER 6.35 feet BTOC
DEPTH TO PUMP INLET 18 feet BTOC
SCREEN INTERVAL: 5-25 feet BGS
BASE OF WELL: 25

Sample ID BSW-14-MW-9
Purge Start Time 13:33
Sample Time 1415 HRS

DO 0.40 mg/L
Fe^{2+} 0 mg/L
H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
1333	325	6.35	25.33	2.25	1.68	5.49	1.17	34	—	~~light gray to~~ Clear, No odor
1336	325	6.35	23.44	2.31	0.54	5.55	1.19	37	—	"
1339	325	6.35	22.98	2.32	0.30	5.98	1.18	49	—	"
1342	325	6.35	22.77	2.31	0.56	6.52	1.18	56	—	"
1345	325	6.35	22.75	2.31	0.93	7.12	1.18	65	—	"
1348	325	6.35	22.73	2.30	0.32	7.62	1.18	71	—	"
1351	325	6.35	22.75	2.30	0.43	7.74	1.18	72	—	"
1354	325	6.35	22.75	2.30	0.44	7.89	1.18	75	—	"
1357	325	6.35	22.76	2.30	0.28	7.96	1.18	76	—	"
1400	325	6.35	22.73	2.30	0.20	8.02	1.18	77	—	"
1403	325	6.35	22.75	2.99	0.59	8.00	1.18	78	—	"
1406	325	6.35	22.72	2.29	0.22	7.99	1.17	78	—	"
1409	325	6.35	22.73	2.29	0.33	8.02	1.17	78	—	"
1412	325	6.35	22.73	2.29	0.29	8.04	1.17	78	—	"
1415	325	6.35	22.72	2.29	0.27	8.05	1.17	78	—	"

AST

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14
JOB NO.: CA99-064-WO021

WELL NO.: BSW-14-10
DATE: 8/7/06

PREPARED BY
Name: Ethan / Brent
Signature: [illegible]

PURGING CRITERIA: Low Flow Purging
Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY
Name: Bob Breglio
Signature:

REMARKS :

Groundwater Well Information:

DEPTH TO WATER 8.63 feet BTOC
DEPTH TO PUMP INLET 18 feet BTOC
SCREEN INTERVAL: 5-25 feet BGS
BASE OF WELL: 25

Sample ID BSW-14-10
Purge Start Time 1008
Sample Time 1045

DO 0.3 mg/L
Fe^{2+} 0 mg/L
H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
1010	400	8.66	22.52	1.58	0.58	8.17	0.79	63	—	clear
1013	400	8.65	22.42	1.58	0.43	8.30	0.79	54	—	clear, slight hydrocarbon odor
1016	400	8.66	22.36	1.58	0.48	8.37	0.79	47		
1019	400	8.66	22.33	1.58	0.33	8.41	0.79	42		
1022	400	8.66	22.28	1.59	0.27	8.44	0.80	39		
1025	400	8.66	22.27	1.58	0.23	8.45	0.80	35		
1028	400	8.66	22.25	1.58	0.22	8.47	0.79	32		
1031	400	8.66	22.25	1.59	0.20	8.48	0.79	29		
1034	400	8.66	22.23	1.58	0.23	8.49	0.79	27		
1037	400	8.66	22.20	1.58	0.18	8.52	0.79	24		
1040	400	8.66	22.22	1.58	0.16	8.54	0.79	22		
1043	400	8.66	22.22	1.58	0.15	8.54	0.79	21		

rrT

WELL SAMPLING

PROJECT: NAVWPNSTA Seal Beach, IRP Site 14

JOB NO.: CA99-064-WO021

WELL NO.: BSW MW-11

DATE: 8/7/06

PREPARED BY

Name: Chihai / Brent

Signature: [illegible]

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY

Name: Bob Breglio

Signature:

REMARKS :

Groundwater Well Information:

DEPTH TO WATER 6.39 feet BTOC

DEPTH TO PUMP INLET 17 feet BTOC

SCREEN INTERVAL: 5-25 feet BGS

BASE OF WELL: 25

Sample ID BSW-~~14~~-11

Purge Start Time 8:37

Sample Time 910

DO 0.3 mg/L

Fe^{2+} 0 mg/L

H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
8:40	400	6.58	22.17	2.06	0.40	7.18	1.05	57	—	clear
8:43	400	6.76	22.08	2.07	0.34	7.68	1.05	58	—	"
8:46	300	6.73	22.16	2.07	0.32	7.82	1.05	58	—	"
8:49	300	6.69	22.14	2.07	0.30	7.93	1.05	58	—	"
8:52	300	6.69	22.04	2.08	0.27	8.04	1.05	57	—	"
8:55	300	6.69	22.10	2.07	0.25	8.11	1.05	56	—	"
8:58	300	6.69	22.09	2.07	0.24	8.24	1.05	57	—	"
9:01	300	6.69	22.05	2.06	0.23	8.28	1.05	57	—	"
9:04	300	6.69	22.04	2.06	0.22	8.33	1.05	57	—	"
9:07	300	6.69	22.05	2.06	0.21	8.37	1.05	57	—	"

WELL SAMPLING

PROJECT: **NAVWPNSTA Seal Beach, IRP Site 14**

JOB NO.: **CA99-064-WO021**

WELL NO.: MW-05-01

DATE: Aug 3, 2006

PREPARED BY

Name: Joe Miqihai

Signature:

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY

Name: Bob Breglio

Signature:

REMARKS :

(1316 HRS)

Groundwater Well Information:

DEPTH TO WATER 12.85 feet BTOC

DEPTH TO PUMP INLET ~15 feet BTOC

SCREEN INTERVAL: 5-25 feet BGS

BASE OF WELL: 25

Sample ID MW-05-01

Purge Start Time 1258

Sample Time 1325

DO 0.3 mg/L

Fe^{2+} 0 mg/L

H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
1258	300	12.85	25.42	1.66	4.34	5.26	0.84	-230	—	~~light yellow to~~ clear, no odor
1301	300	12.85	22.25	1.68	2.01	5.09	0.85	-216	—	"
1304	300	12.85	22.03	1.66	0.40	7.01	0.83	-262	—	"
1307	300	12.85	22.32	1.68	0.22	8.45	0.84	-333	—	"
1310	300	12.85	22.82	1.68	0.21	8.62	0.85	-215	—	"
1313	300	12.85	22.50	1.69	0.30	8.68	0.85	-208	—	"
1316	300	12.85	22.44	1.69	0.34	8.85	0.85	-192	—	"
1319	300	12.85	22.06	1.72	0.20	9.02	0.87	-200	—	"
1322	300	12.85	21.97	1.73	0.19	9.02	0.88	-204	—	"
1325	300	12.85	21.95	1.74	0.18	9.02	0.89	-205	—	"

WELL SAMPLING

PROJECT: **Naval Weapon Station Seal Beach IR 14**

JOB NO.: **CA99-064-WO21**

WELL NO.: BSW-14-01

DATE: October 16, 2006

PREPARED BY

Name: Qihai Chen/John Jackson

Signature:

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY

Name: Bob Breglio

Signature:

REMARKS: Depth to ground water 7.65ft from top of well casing. 11/16/06

Groundwater Well Information:

DEPTH TO WATER 7.65 feet BTOC

DEPTH TO PUMP INLET 18 feet BTOC

SCREEN INTERVAL: 10-23 feet BGS

BASE OF WELL: 25 feet

Sample ID BSW-14-01

Purge Start Time 13:40

Sample Time 14:00

DO 0.35 mg/L

Fe^{2+} 0 mg/L

H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
13:43	300	7.63	23.45	1.60	0.57	6.27	0.80	92	5.2	
13:46	300	7.63	23.46	1.60	0.43	6.36	0.80	99	5.0	
13:49	300	7.63	23.48	1.61	0.39	6.39	0.81	104	4.9	
13:52	300	7.63	23.45	1.60	0.38	6.43	0.81	108	4.9	
13:55	300	7.63	23.45	1.61	0.35	6.46	0.81	111	4.9	
13:58	300	7.63	23.45	1.61	0.35	6.47	0.81	112	4.9	

WELL SAMPLING

PROJECT: **Naval Weapon Station Seal Beach IR 14**

JOB NO.: **CA99-064-WO21**

WELL NO.: BSW-14-02

DATE: October 17, 2006

PREPARED BY

Name: Qihai Chen/John Jackson

Signature:

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY

Name: Bob Breglio

Signature:

REMARKS: Depth to ground water 7.65 ft from top of well casing. Smell noted from well. 10/16/06

Groundwater Well Information:

DEPTH TO WATER 7.65 feet BTOC

DEPTH TO PUMP INLET 19 feet BTOC

SCREEN INTERVAL: 10-23 feet BGS

BASE OF WELL: 25 feet

Sample ID BSW-14-02

Purge Start Time 8:02

Sample Time 823

DO 0.8 mg/L

Fe^{2+} 0.3 mg/L

H_2S 0.8 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
8:05	300	7.65	22.42	1.54	0.58	5.97	0.77	192	7.1	
8:08	300	7.65	22.68	1.55	0.48	6.27	0.77	196	6.0	
8:11	300	7.65	22.72	1.54	0.41	6.31	0.78	198	5.9	
8:14	300	7.65	22.64	1.55	0.40	6.34	0.78	202	5.7	
8:17	300	7.65	22.62	1.55	0.34	6.35	0.78	206	5.7	
8:20	300	7.65	22.62	1.55	0.32	6.36	0.78	208	5.7	

WELL SAMPLING

PROJECT: **Naval Weapon Station Seal Beach IR 14**

JOB NO.: **CA99-064-WO21**

WELL NO.: BSW-14-03

DATE: October 17, 2006

PREPARED BY

Name: Qihai Chen/John Jackson

Signature:

CHECKED BY

Name: Bob Breglio

Signature:

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

REMARKS: Depth to groundwater 7.67 ft from top of well casing. Smell noted from well. 10/16/06

Groundwater Well Information:

DEPTH TO WATER 7.67 feet BTOC

DEPTH TO PUMP INLET 19 feet BTOC

SCREEN INTERVAL: 10-23 feet BGS

BASE OF WELL: 25 feet

Sample ID BSW-14-03

Purge Start Time 07:04

Sample Time 07:30

DO 0.4 mg/L

Fe^{2+} 0.3 mg/L

H_2S 0.1 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
7:07	30	7.65	22.00	1.70	~~0.62~~ 0.61	5.85	0.86	182	10	
7:10	300	7.64	22.27	1.70	0.52	6.18	0.86	181	10	
7:13	300	7.64	22.59	1.70	0.48	6.32	0.86	181	8.2	
16	300	7.63	22.46	1.71	0.47	6.37	0.86	181	7.3	
7:19	300	7.62	22.45	1.70	0.55	6.39	0.86	181	6.3	
7:22	300	7.62	22.46	1.70	0.40	6.43	0.86	181	6.4	
7:25	300	7.62	22.43	1.71	0.39	6.45	0.86	182	6.3	
7:28	300	7.62	22.32	1.71	0.39	6.45	0.86	181	6.3	

WELL SAMPLING

PROJECT: **Naval Weapon Station Seal Beach IR 14**

JOB NO.: **CA99-064-WO21**

WELL NO.: BSW-14-04

DATE: October 17, 2006

PREPARED BY

Name: Qihai Chen/John Jackson

Signature:

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY

Name: Bob Breglio

Signature:

REMARKS: Depth to groundwater 6.94 ft below top of well casing. Smell noted. 10/16/06

Groundwater Well Information:

DEPTH TO WATER 6.94 feet BTOC

DEPTH TO PUMP INLET 16 feet BTOC

SCREEN INTERVAL: 10-23 feet BGS

BASE OF WELL: 25 feet

Sample ID BSW-14-04

Purge Start Time 8:52

Sample Time 9:15

DO 9.4 mg/L

Fe^{2+} 0.2 mg/L

H_2S 2.0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
8:55	300	6.94	22.55	1.50	0.59	4.97	0.75	235	5.4	
8:58	300	6.94	22.82	1.52	0.71	6.18	0.76	237	5.4	
9:01	300	6.94	22.81	1.52	0.45	6.27	0.76	241	5.4	
9:04	300	6.94	22.78	1.52	0.50	6.32	0.76	211	5.4	
9:07	300	6.94	22.74	1.50	0.49	6.35	0.76	245	5.4	
9:10	300	6.94	22.74	1.52	0.39	6.35	0.76	247	5.4	
9:13	300	6.94	22.74	1.52	0.37	6.35	0.76	247	5.4	

WELL SAMPLING

PROJECT: **Naval Weapon Station Seal Beach IR 14**

JOB NO.: **CA99-064-WO21**

WELL NO.: BSW-14-05

DATE: October 16, 2006

PARED BY

Name: Qihai Chen/John Jackson

Signature:

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY

Name: Bob Breglio

Signature:

REMARKS: 7.76' (10/16/06 7:53AM)
duplicate & MS/MSD Taken (4 samples total)

Groundwater Well Information:

DEPTH TO WATER 7.76 feet BTOC

DEPTH TO PUMP INLET 15 feet BTOC

SCREEN INTERVAL: 10-23 feet BGS

BASE OF WELL: 25 feet

Sample ID BSW-14-05

Purge Start Time 0815

Sample Time 0840

DO 1 mg/L

Fe^{2+} 0 mg/L

H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
0820	300	7.76	22.95	1.060	1.71	6.50	0.52	148	4.8	
0823	300	7.77	23.15	1.060	1.48	6.55	0.52	140	4.8	
0826	300	7.77	23.16	1.059	1.36	6.57	0.52	132	4.8	
[illegible]29	300	7.77	23.14	1.059	1.30	6.57	0.52	127	4.8	
0832	300	7.76	23.12	1.060	1.28	6.57	0.52	119	4.8	
0835	300	7.76	23.11	1.060	1.27	6.57	0.52	113	4.8	
0838	300	7.76	23.13	1.060	1.26	6.58	0.52	110	4.8	

WELL SAMPLING

PROJECT: **Naval Weapon Station Seal Beach IR 14**

JOB NO.: **CA99-064-WO21**

WELL NO.: BSW-14-06

DATE: October 16, 2006

PREPARED BY

Name: Qihai Chen/John Jackson

Signature:

CHECKED BY

Name: Bob Breglio

Signature:

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

REMARKS: Depth to ground water 7.48 ft below top of well casing. 10/16/06

Groundwater Well Information:

DEPTH TO WATER 7.48 feet BTOC

DEPTH TO PUMP INLET 17 feet BTOC

SCREEN INTERVAL: 10-23 feet BGS

BASE OF WELL: 25 feet

Sample ID BSW-14-06

Purge Start Time 9:51

Sample Time 10:18

DO 1 mg/L

Fe^{2+} 0 mg/L

H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	(ft) GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
9:54	300	7.48	22.56	1.52	1.01	6.14	0.76	92	6.5	
9:57	300	7.48	22.60	1.52	0.98	6.33	0.76	91	6.4	
10:00	300	7.49	22.67	1.52	0.99	6.43	0.76	89	6.2	
10:03	300	7.49	22.69	1.52	1.01	6.45	0.76	88	5.8	
10:06	300	7.49	22.58	1.52	1.01	6.53	0.76	87	5.8	
10:09	300	7.49	22.56	1.52	1.02	6.55	0.76	87	5.8	
10:12	300	7.49	22.50	1.52	1.06	6.58	0.76	87	5.8	
10:15	300	7.45	22.40	1.52	1.09	6.62	0.76	86	5.8	

WELL SAMPLING

PROJECT: **Naval Weapon Station Seal Beach IR 14**

JOB NO.: **CA99-064-WO21**

WELL NO.: BSW-14-07

DATE: October 16, 2006

PREPARED BY

Name: Qihai Chen/John Jackson

Signature:

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY

Name: Bob Breglio

Signature:

REMARKS: Depth to top of ground water 9.35 ft below top of well casing. Well cap is damaged. 10/16/06

Groundwater Well Information:

DEPTH TO WATER 9.35 feet BTOC

DEPTH TO PUMP INLET 19.0 feet BTOC

SCREEN INTERVAL: 10-23 feet BGS

BASE OF WELL: 25 feet

Sample ID BSW-14-07

Purge Start Time 12:49

Sample Time 13:02

DO 1.5 mg/L

Fe^{2+} 0 mg/L

H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
12:52	300	9.35	22.54	1.146	2.53	6.68	0.57	122	5.5	
12:55	300	9.35	22.56	1.170	2.20	6.73	0.58	121	5.4	
12:58	300	9.35	22.54	1.194	1.65	6.77	0.59	~~120~~ 119	5.4	
13:01	300	9.35	22.57	1.199	1.52	6.78	0.59	118	5.1	
13:04	300	9.35	22.46	1.202	1.60	6.77	0.60	117	5.1	
13:07	300	9.35	22.40	1.204	1.61	6.76	0.60	116	5.1	

WELL SAMPLING

PROJECT: **Naval Weapon Station Seal Beach IR 14**

JOB NO.: **CA99-064-WO21**

WELL NO.: BSW-14-08

DATE: October 16, 2006

PREPARED BY

Name: Qihai Chen/John Jackson

Signature:

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY

Name: Bob Breglio

Signature:

REMARKS: Depth to water ~~4.58~~ ft ~~from~~ top of casing. 10/16/06
7.16 ft

Groundwater Well Information:

DEPTH TO WATER 7.16 feet BTOC

DEPTH TO PUMP INLET 17 feet BTOC

SCREEN INTERVAL: 10-23 feet BGS

BASE OF WELL: 25 feet

Sample ID BSW-14-08

Purge Start Time 11:47

Sample Time 12:10

DO 0.5 mg/L

Fe^{2+} 0 mg/L

H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
11:50	300	~~3.00~~ 7.16	22.61	1.65	0.70	6.22	0.83	230	4.8	
11:53	300	~~3.00~~ 7.16	22.66	1.66	0.65	6.31	0.83	221	4.6	
11:56	300	~~3.00~~ 7.16	22.84	1.66	0.68	6.37	0.83	210	4.7	
11:59	300	~~3.00~~ 7.16	22.71	1.66	0.64	6.55	0.83	204	4.7	
12:02	300	~~3.00~~ 7.18	22.75	1.66	0.60	6.71	0.83	194	4.7	
12:05	300	~~3.00~~ 7.18	22.75	1.66	0.60	6.71	0.83	194	4.7	

WELL SAMPLING

PROJECT: **Naval Weapon Station Seal Beach IR 14**

JOB NO.: **CA99-064-WO21**

WELL NO.: BSW-14-09

DATE: October , 2006

PREPARED BY

Name: Qihai Chen/John Jackson

Signature:

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY

Name: Bob Breglio

Signature:

REMARKS: Depth to ground water 6.51 Ft Below top of casing. 10/16/06

Groundwater Well Information:

DEPTH TO WATER 6.55 feet BTOC

DEPTH TO PUMP INLET 18 feet BTOC

SCREEN INTERVAL: 10-23 feet BGS

BASE OF WELL: 25 feet

Sample ID BSW-14-09

Purge Start Time 10:55

Sample Time 11:15

DO 0.8 mg/L

Fe^{2+} 0 mg/L

H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
10:58	300	6.55	22.40	2.11	0.80	6.15	1.07	489	5.5	
11:01	300	6.56	22.43	2.11	0.85	6.28	1.07	513	5.2	
11:04	300	6.55	22.43	2.11	0.73	6.35	1.07	526	5.3	
11:07	300	6.56	22.39	2.11	0.83	6.40	1.07	521	5.2	
11:10	300	6.56	22.38	2.11	0.80	6.39	1.07	531	5.2	
11:13	300	6.56	22.41	2.11	0.84	6.40	1.07	493	5.2	

WELL SAMPLING

PROJECT: **Naval Weapon Station Seal Beach IR 14**

JOB NO.: **CA99-064-WO21**

WELL NO.: BSW-14-~~11~~ 10

DATE: October 16, 2006

PREPARED BY

Name: Qihai Chen/John Jackson

Signature:

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY

Name: Bob Breglio

Signature:

REMARKS: Depth to ground water 5.38 ft below top of casing 10/16/06

Groundwater Well Information:

DEPTH TO WATER 5.38 feet BTOC

DEPTH TO PUMP INLET 12 feet BTOC

SCREEN INTERVAL: 10-23 feet BGS

BASE OF WELL: 25 feet

Sample ID BSW-14-10

Purge Start Time 15:41

Sample Time 16:00

DO 0.4 mg/L

Fe^{2+} 0.4 mg/L

H_2S Ø mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
15:44	300	5.38	23.11	1.391	0.50	6.51	0.69	~~5.9~~ 120	6.9	
15:47	300	5.38	23.15	1.383	0.46	6.52	0.69	119	6.3	
15:50	300	5.38	23.15	1.384	0.44	6.55	0.69	118	6.3	
15:53	300	5.38	23.12	1.384	0.40	6.56	0.69	120	6.3	
15:56	300	5.38	23.14	1.385	0.38	6.56	0.69	122	6.3	
15:59	300	5.38	23.15	1.386	0.37	6.56	0.69	123	6.3	

WELL SAMPLING

PROJECT: **Naval Weapon Station Seal Beach IR 14**

JOB NO.: **CA99-064-WO21**

WELL NO.: BSW-14-~~10~~ 11

DATE: October 16, 2006

PREPARED BY

Name: Qihai Chen/John Jackson

Signature:

CHECKED BY

Name: Bob Breglio

Signature:

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

REMARKS: Depth to ground water 6.34 ft below top of well casing. 10/16/06

Groundwater Well Information:

DEPTH TO WATER 6.34 feet BTOC

DEPTH TO PUMP INLET 17 feet BTOC

SCREEN INTERVAL: 10-23 feet BGS

BASE OF WELL: 25 feet

Sample ID BSW-14-11

Purge Start Time 14:46

Sample Time 15:05

DO 0.41 mg/L

Fe^{2+} 0 mg/L

H_2S 0 mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
14:49	300	6.29	22.96	1.91	0.51	7.10	0.97	~~5.9~~ 165	9.3	
14:52	300	6.35	22.45	1.91	0.46	7.11	0.97	168	9.0	
14:55	300	6.70	22.95	1.91	0.42	7.10	0.97	170	8.2	
15:58	300	6.68	22.42	1.91	0.38	7.08	0.97	170	8.2	
15:01	300	6.67	22.45	1.91	0.37	7.08	0.97	172	8.2	
15:04	300	6.67	22.87	1.91	0.38	7.04	0.97	172	8.2	

WELL SAMPLING

PROJECT: **Naval Weapon Station Seal Beach IR 14**

JOB NO.: **CA99-064-WO21**

WELL NO.: MW-05-01

DATE: October 17, 2006

PREPARED BY

Name: Qihai Chen/John Jackson

Signature:

PURGING CRITERIA: Low Flow Purging

Guidelines: flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: ± 0.1 pH, ± 3% conductivity, and ± 10% for turbidity or DO

CHECKED BY

Name: Bob Breglio

Signature:

REMARKS: 13.09 depth to ground water from top of casing

Groundwater Well Information:

DEPTH TO WATER 13.09 feet BTOC

DEPTH TO PUMP INLET _____ feet BTOC

SCREEN INTERVAL: 10-23 feet BGS

BASE OF WELL: 25 feet

Sample ID MW-05-01

Purge Start Time 9:52

Sample Time 10:15

DO 0.35 mg/L

Fe^{2+} Ø mg/L

H_2S Ø mg/L

PURGE LOG			WATER QUALITY PARAMETERS							
Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	Comments
9:55	300	13.09	22.15	1.71	0.75	6.26	0.86	168	4.7	
9:58	300	13.09	22.13	1.71	0.52	6.47	0.86	173	4.7	
10:01	300	13.09	22.13	1.72	0.45	6.58	0.87	172	4.7	
10:04	300	13.09	22.13	1.75	0.39	6.64	0.88	171	4.7	
10:07	300	13.09	22.08	1.76	0.38	6.65	0.89	170	4.7	
10:10	300	13.09	22.10	1.78	0.37	6.67	0.90	169	4.7	
10:13	300	13.09	22.10	1.79	0.36	6.68	0.91	168	4.7	

LABORATORY ANALYTICAL RESULTS

VOLATILE ORGANIC COMPOUNDS (VOCs)

MARCH 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/04/06 20:39
Sample ID:	BSW-14-1	Date Analyzed:	04/04/06 20:39
Lab Samp ID:	C251-10R	Dilution Factor:	1
Lab File ID:	RDE058	Matrix :	WATER
Ext Btch ID:	VOD3D05	% Moisture :	NA
Calib. Ref.:	RCE527	Instrument ID :	T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	.25J	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	.42J	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	113	63-143
4-BROMOFLUOROBENZENE	96	63-143
TOLUENE-D8	107	63-143

5/9/06

2022

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/04/06 08:08
Sample ID:	BSW-14-2	Date Analyzed:	04/04/06 08:08
Lab Samp ID:	C251-09	Dilution Factor:	1
Lab File ID:	RDE038	Matrix :	WATER
Ext Btch ID:	VOD3D03	% Moisture :	NA
Calib. Ref.:	RCE527	Instrument ID :	T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	32	.5	.2
ETHYLBENZENE	35	1	.2
M/P-XYLENES	24	2	.5
MTBE	ND	1	.2
O-XYLENE	.85J	1	.2
TOLUENE	1.2	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	138	63-143
4-BROMOFLUOROBENZENE	113	63-143
TOLUENE-D8	106	63-143

5/9/06

2021

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/04/06 22:27
Sample ID:	BSW-14-3	Date Analyzed:	04/04/06 22:27
Lab Samp ID:	C251-08R	Dilution Factor:	1
Lab File ID:	RDE061	Matrix :	WATER
Ext Btch ID:	VOD3D05	% Moisture :	NA
Calib. Ref.:	RCE527	Instrument ID :	T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	11	.5	.2
ETHYLBENZENE	.65J	1	.2
M/P-XYLENES	.8J	2	.5
MTBE	290E ~~J~~ R	1	.2
O-XYLENE	ND	1	.2
TOLUENE	.66J	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	110	63-143
4-BROMOFLUOROBENZENE	100	63-143
TOLUENE-D8	107	63-143

5/9/06

2919

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/04/06 21:51
Sample ID:	BSW-14-3DL	Date Analyzed:	04/04/06 21:51
Lab Samp ID:	C251-08T	Dilution Factor:	10
Lab File ID:	RDE060	Matrix :	WATER
Ext Btch ID:	VOD3D05	% Moisture :	NA
Calib. Ref.:	RCE527	Instrument ID :	T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	11 R	5	2
ETHYLBENZENE	ND	10	2
M/P-XYLENES	ND	20	5
MTBE	310	10	2
O-XYLENE	ND R	10	2
TOLUENE	ND	10	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	115	63-143
4-BROMOFLUOROBENZENE	96	63-143
TOLUENE-D8	105	63-143

5/9/06

2020

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/04/06 23:03
Sample ID:	BSW-14-4	Date Analyzed:	04/04/06 23:03
Lab Samp ID:	C251-07R	Dilution Factor:	1
Lab File ID:	RDE062	Matrix :	WATER
Ext Btch ID:	VOD3D05	% Moisture :	NA
Calib. Ref.:	RCE527	Instrument ID :	T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	130E ~~J~~ R	.5	.2
ETHYLBENZENE	95E ~~J~~ R	1	.2
M/P-XYLENES	77	2	.5
MTBE	280E ~~J~~ R	1	.2
O-XYLENE	31	1	.2
TOLUENE	220E ~~J~~ R	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	121	63-143
4-BROMOFLUOROBENZENE	115	63-143
TOLUENE-D8	106	63-143

R 5/9/06

2017

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/06/06 14:26
Sample ID:	BSW-14-4DL	Date Analyzed:	04/06/06 14:26
Lab Samp ID:	C251-07I	Dilution Factor:	100
Lab File ID:	RDE098	Matrix :	WATER
Ext Btch ID:	VOD3D09	% Moisture :	NA
Calib. Ref.:	RCE527	Instrument ID :	T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	3000	50	20
ETHYLBENZENE	91J R	100	20
M/P-XYLENES	74J R	200	50
MTBE	580	100	20
O-XYLENE	28J R	100	20
TOLUENE	200	100	20

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	95	63-143
4-BROMOFLUOROBENZENE	85	63-143
TOLUENE-D8	107	63-143

f 5/9/06

2018

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/04/06 19:27
Sample ID:	BSW-14-5	Date Analyzed:	04/04/06 19:27
Lab Samp ID:	C251-02R	Dilution Factor:	1
Lab File ID:	RDE056	Matrix :	WATER
Ext Btch ID:	VOD3D05	% Moisture :	NA
Calib. Ref.:	RCE527	Instrument ID :	T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	.31J	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	109	63-143
4-BROMOFLUOROBENZENE	93	63-143
TOLUENE-D8	107	63-143

5/9/06

2012

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/04/06 05:08
Sample ID:	BSW-14-6	Date Analyzed:	04/04/06 05:08
Lab Samp ID:	C251-01	Dilution Factor:	1
Lab File ID:	RDE033	Matrix :	WATER
Ext Btch ID:	VOD3D03	% Moisture :	NA
Calib. Ref.:	RCE527	Instrument ID :	T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	117	63-143
4-BROMOFLUOROBENZENE	101	63-143
TOLUENE-D8	109	63-143

5/9/06

2011

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/06/06 15:02
Sample ID:	BSW-14-7	Date Analyzed:	04/06/06 15:02
Lab Samp ID:	C251-03N	Dilution Factor:	1
Lab File ID:	RDE099	Matrix :	WATER
Ext Btch ID:	VOD3D09	% Moisture :	NA
Calib. Ref.:	RCE527	Instrument ID :	T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	.27J	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	87	63-143
4-BROMOFLUOROBENZENE	89	63-143
TOLUENE-D8	112	63-143

5/9/06

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/27/06
Batch No.	: 06C245	Date Extracted:	04/04/06 16:27
Sample ID:	BSW-14-08	Date Analyzed:	04/04/06 16:27
Lab Samp ID:	C245-01	Dilution Factor:	1
Lab File ID:	RDE051	Matrix :	WATER
Ext Btch ID:	VOD3D05	% Moisture :	NA
Calib. Ref.:	RCE527	Instrument ID :	T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	2.2	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	96	63-143
4-BROMOFLUOROBENZENE	86	63-143
TOLUENE-D8	106	63-143

5/9/06

2004

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/27/06
Batch No.	: 06C245	Date Extracted:	04/04/06 17:39
Sample ID:	DUPLICATE (BSW-14-8)	Date Analyzed:	04/04/06 17:39
Lab Samp ID:	C245-03	Dilution Factor:	1
Lab File ID:	RDE053	Matrix :	WATER
Ext Btch ID:	VOD3D05	% Moisture :	NA
Calib. Ref.:	RCE527	Instrument ID :	T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	1.3	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	100	63-143
4-BROMOFLUOROBENZENE	93	63-143
TOLUENE-D8	106	63-143

5/9/06

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/27/06
Batch No.	: 06C245	Date Extracted:	04/04/06 17:03
Sample ID:	BSW-14-09	Date Analyzed:	04/04/06 17:03
Lab Samp ID:	C245-02	Dilution Factor:	1
Lab File ID:	RDE052	Matrix :	WATER
Ext Btch ID:	VOD3D05	% Moisture :	NA
Calib. Ref.:	RCE527	Instrument ID :	T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	96	63-143
4-BROMOFLUOROBENZENE	86	63-143
TOLUENE-D8	105	63-143

5/9/06

2008

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	04/06/06 01:16
Sample ID:	MW-05-01	Date Analyzed:	04/06/06 01:16
Lab Samp ID:	C268-01R	Dilution Factor:	1
Lab File ID:	RDQ094	Matrix :	WATER
Ext Btch ID:	VO05D08	% Moisture :	NA
Calib. Ref.:	RCQ337	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	280E R	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	97	63-143
4-BROMOFLUOROBENZENE	108	63-143
TOLUENE-D8	111	63-143

hmo5150b

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	04/05/06 22:50
Sample ID	: MW-05-01DL	Date Analyzed:	04/05/06 22:50
Lab Samp ID	: C268-01T	Dilution Factor:	10
Lab File ID	: RDQ090	Matrix	: WATER
Ext Btch ID	: VO05D08	% Moisture	: NA
Calib. Ref.	: RCQ337	Instrument ID	: T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND R	5	2
ETHYLBENZENE	ND	10	2
M/P-XYLENES	ND	20	5
MTBE	290	10	2
O-XYLENE	ND R	10	2
TOLUENE	ND	10	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	99	63-143
4-BROMOFLUOROBENZENE	108	63-143
TOLUENE-D8	111	63-143

MW051506

2008

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	04/05/06 09:24
Sample ID:	IRP SITE14-T MW-1	Date Analyzed:	04/05/06 09:24
Lab Samp ID:	C268-04	Dilution Factor:	1
Lab File ID:	RDQ068	Matrix :	WATER
Ext Btch ID:	VO05D07	% Moisture :	NA
Calib. Ref.:	RCQ337	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	92	63-143
4-BROMOFLUOROBENZENE	111	63-143
TOLUENE-D8	111	63-143

14H051506

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	04/05/06 10:01
Sample ID:	IRP SITE14-T MW-2	Date Analyzed:	04/05/06 10:01
Lab Samp ID:	C268-05	Dilution Factor:	1
Lab File ID:	RDQ069	Matrix :	WATER
Ext Btch ID:	VO05D07	% Moisture :	NA
Calib. Ref.:	RCQ337	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	94	63-143
4-BROMOFLUOROBENZENE	108	63-143
TOLUENE-D8	111	63-143

44051506

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	04/05/06 10:37
Sample ID:	IRP SITE14-T MW-3	Date Analyzed:	04/05/06 10:37
Lab Samp ID:	C268-06	Dilution Factor:	1
Lab File ID:	RDQ070	Matrix :	WATER
Ext Btch ID:	VO05D07	% Moisture :	NA
Calib. Ref.:	RCQ337	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	1.3	1	.2
M/P-XYLENES	.67J	2	.5
MTBE	5.6	1	.2
O-XYLENE	.22J	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	104	63-143
4-BROMOFLUOROBENZENE	105	63-143
TOLUENE-D8	115	63-143

4/05/06

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	04/05/06 21:00
Sample ID:	IRP SITE14-T MW-4	Date Analyzed:	04/05/06 21:00
Lab Samp ID:	C268-02R	Dilution Factor:	1
Lab File ID:	RDQ087	Matrix :	WATER
Ext Btch ID:	VO05D08	% Moisture :	NA
Calib. Ref.:	RCQ337	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	94	63-143
4-BROMOFLUOROBENZENE	108	63-143
TOLUENE-D8	111	63-143

4/05/06

2012

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	04/05/06 08:47
Sample ID:	IRP SITE14-T MW-5	Date Analyzed:	04/05/06 08:47
Lab Samp ID:	C268-03	Dilution Factor:	1
Lab File ID:	RDQ067	Matrix :	WATER
Ext Btch ID:	V005D07	% Moisture :	NA
Calib. Ref.:	RCQ337	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	92	63-143
4-BROMOFLUOROBENZENE	106	63-143
TOLUENE-D8	112	63-143

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2013

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	04/05/06 06:59
Sample ID:	IRP SITE14-T MW-6	Date Analyzed:	04/05/06 06:59
Lab Samp ID:	C268-07	Dilution Factor:	1
Lab File ID:	RDQ064	Matrix :	WATER
Ext Btch ID:	VO05D07	% Moisture :	NA
Calib. Ref.:	RCQ337	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	69E R	.5	.2
ETHYLBENZENE	18	1	.2
M/P-XYLENES	52	2	.5
MTBE	390E R	1	.2
O-XYLENE	23	1	.2
TOLUENE	25	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	102	63-143
4-BROMOFLUOROBENZENE	96	63-143
TOLUENE-D8	114	63-143

4/05/06

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	04/05/06 22:13
Sample ID:	IRP SITE14-T ~~MW-DL~~ MW-6 DL	Date Analyzed:	04/05/06 22:13
Lab Samp ID:	C268-07T	Dilution Factor:	100
Lab File ID:	RDQ089	Matrix :	WATER
Ext Btch ID:	VO05D08	% Moisture :	NA
Calib. Ref.:	RCQ337	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	340	50	20
ETHYLBENZENE	ND R	100	20
M/P-XYLENES	66J ↓	200	50
MTBE	510	100	20
O-XYLENE	28J R	100	20
TOLUENE	32J ↓	100	20

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	93	63-143
4-BROMOFLUOROBENZENE	108	63-143
TOLUENE-D8	111	63-143

MW-5/5-6

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	04/07/06 01:38
Sample ID:	DUPLICATE IRPSite14 T-MW-6	Date Analyzed:	04/07/06 01:38
Lab Samp ID:	C268-08R	Dilution Factor:	1
Lab File ID:	RDQ134	Matrix :	WATER
Ext Btch ID:	V005D11	% Moisture :	NA
Calib. Ref.:	RCQ337	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	75E R	.5	.2
ETHYLBENZENE	18	1	.2
M/P-XYLENES	62	2	.5
MTBE	550E R	1	.2
O-XYLENE	27	1	.2
TOLUENE	30	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	105	63-143
4-BROMOFLUOROBENZENE	96	63-143
TOLUENE-D8	112	63-143

4/07/06

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	04/06/06 19:33
Sample ID:	DUPLICATEDL IRP Site14-T MW-6	Date Analyzed:	04/06/06 19:33
Lab Samp ID:	C268-08T	Dilution Factor:	50
Lab File ID:	RDQ124	Matrix :	WATER
Ext Btch ID:	VOO5D11	% Moisture :	NA
Calib. Ref.:	RCQ337	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	320	25	10
ETHYLBENZENE	18J R	50	10
M/P-XYLENES	60J ↓	100	25
MTBE	500	50	10
O-XYLENE	26J R	50	10
TOLUENE	30J ↓	50	10

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	96	63-143
4-BROMOFLUOROBENZENE	106	63-143
TOLUENE-D8	111	63-143

MW051506

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/04/06 04:32
Sample ID:	SB	Date Analyzed:	04/04/06 04:32
Lab Samp ID:	C251-06	Dilution Factor:	1
Lab File ID:	RDE032	Matrix :	WATER
Ext Btch ID:	VOD3D03	% Moisture :	NA
Calib. Ref.:	RCE527	Instrument ID :	T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	106	63-143
4-BROMOFLUOROBENZENE	97	63-143
TOLUENE-D8	109	63-143

5/9/06

2016

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/04/06 03:56
Sample ID:	ER	Date Analyzed:	04/04/06 03:56
Lab Samp ID:	C251-05	Dilution Factor:	1
Lab File ID:	RDE031	Matrix :	WATER
Ext Btch ID:	VOD3D03	% Moisture :	NA
Calib. Ref.:	RCE527	Instrument ID :	T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	98	63-143
4-BROMOFLUOROBENZENE	92	63-143
TOLUENE-D8	109	63-143

5/9/06

2015

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

Client : MARRS SERVICES, INC.	Date Collected: 03/29/06
Project : SEAL BEACH	Date Received: 03/29/06
Batch No. : 06C268	Date Extracted: 04/05/06 05:46
Sample ID: ER	Date Analyzed: 04/05/06 05:46
Lab Samp ID: C268-09	Dilution Factor: 1
Lab File ID: RDQ062	Matrix : WATER
Ext Btch ID: VO05D07	% Moisture : NA
Calib. Ref.: RCQ337	Instrument ID : T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	103	63-143
4-BROMOFLUOROBENZENE	109	63-143
TOLUENE-D8	111	63-143

14405 1506

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

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/04/06 03:20
Sample ID:	TRIP BLANK	Date Analyzed:	04/04/06 03:20
Lab Samp ID:	C251-04	Dilution Factor:	1
Lab File ID:	RDE030	Matrix :	WATER
Ext Btch ID:	VOD3D03	% Moisture :	NA
Calib. Ref.:	RCE527	Instrument ID :	T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	93	63-143
4-BROMOFLUOROBENZENE	89	63-143
TOLUENE-D8	107	63-143

5/9/06

2014

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

Client : MARRS SERVICES, INC.	Date Collected: 03/27/06
Project : SEAL BEACH	Date Received: 03/27/06
Batch No. : 06C245	Date Extracted: 04/04/06 15:51
Sample ID: TRIP BLANK	Date Analyzed: 04/04/06 15:51
Lab Samp ID: C245-04	Dilution Factor: 1
Lab File ID: RDE050	Matrix : WATER
Ext Btch ID: VOD3D05	% Moisture : NA
Calib. Ref.: RCE527	Instrument ID : T-OD3

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	97	63-143
4-BROMOFLUOROBENZENE	87	63-143
TOLUENE-D8	106	63-143

5/9/06

2010

LABORATORY ANALYTICAL RESULTS

TOTAL PETROLEUM HYDROCARBONS as GASOLINE (TPHg)

MARCH 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/01/06 10:53
Sample ID:	BSW-14-1	Date Analyzed:	04/01/06 10:53
Lab Samp ID:	C251-10	Dilution Factor:	1
Lab File ID:	EC30072A	Matrix :	WATER
Ext Btch ID:	VA39C21	% Moisture :	NA
Calib. Ref.:	EC30062A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	98	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

5/9/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : MARRS SERVICES, INC.	Date Collected: 03/28/06
Project : SEAL BEACH	Date Received: 03/28/06
Batch No. : 06C245	Date Extracted: 04/01/06 10:15
Sample ID: BSW-14-2	Date Analyzed: 04/01/06 10:15
Lab Samp ID: C251-09	Dilution Factor: 1
Lab File ID: EC30071A	Matrix : WATER
Ext Btch ID: VA39C21	% Moisture : NA
Calib. Ref.: EC30062A	Instrument ID : GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	.67	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	126	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample *	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

J 4/9/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/01/06 09:37
Sample ID:	BSW-14-3	Date Analyzed:	04/01/06 09:37
Lab Samp ID:	C251-08	Dilution Factor:	1
Lab File ID:	EC30070A	Matrix :	WATER
Ext Btch ID:	VA39C21	% Moisture :	NA
Calib. Ref.:	EC30062A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	.033J	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	98	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

5/9/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : MARRS SERVICES, INC.	Date Collected: 03/28/06
Project : SEAL BEACH	Date Received: 03/28/06
Batch No. : 06C245	Date Extracted: 04/01/06 08:59
Sample ID: BSW-14-4	Date Analyzed: 04/01/06 08:59
Lab Samp ID: C251-07T	Dilution Factor: 10
Lab File ID: EC30069A	Matrix : WATER
Ext Btch ID: VA39C21	% Moisture : NA
Calib. Ref.: EC30062A	Instrument ID : GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	2	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	99	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

5/9/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/01/06 05:49
Sample ID:	BSW-14-5	Date Analyzed:	04/01/06 05:49
Lab Samp ID:	C251-02	Dilution Factor:	1
Lab File ID:	EC30064A	Matrix :	WATER
Ext Btch ID:	VA39C21	% Moisture :	NA
Calib. Ref.:	EC30062A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	94	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

5/9/06

4010

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/01/06 02:38
Sample ID:	BSW-14-6	Date Analyzed:	04/01/06 02:38
Lab Samp ID:	C251-01	Dilution Factor:	1
Lab File ID:	EC30059A	Matrix :	WATER
Ext Btch ID:	VA39C21	% Moisture :	NA
Calib. Ref.:	EC30050A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	96	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

5/9/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/01/06 06:27
Sample ID:	BSW-14-7	Date Analyzed:	04/01/06 06:27
Lab Samp ID:	C251-03	Dilution Factor:	1
Lab File ID:	EC30065A	Matrix	: WATER
Ext Btch ID:	VA39C21	% Moisture	: NA
Calib. Ref.:	EC30062A	Instrument ID	: GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	96	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

5/9/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/27/06
Batch No.	: 06C245	Date Extracted:	04/01/06 13:25
Sample ID:	BSW-14-08	Date Analyzed:	04/01/06 13:25
Lab Samp ID:	C245-01	Dilution Factor:	1
Lab File ID:	EC30076A	Matrix :	WATER
Ext Btch ID:	VA39C21	% Moisture :	NA
Calib. Ref.:	EC30074A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	95	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

8/9/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/27/06
Batch No.	: 06C245	Date Extracted:	04/01/06 14:41
Sample ID:	DUPLICATE BSU-14-8	Date Analyzed:	04/01/06 14:41
Lab Samp ID:	C245-03	Dilution Factor:	1
Lab File ID:	EC30078A	Matrix	: WATER
Ext Btch ID:	VA39C21	% Moisture	: NA
Calib. Ref.:	EC30074A	Instrument ID	: GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	90	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

4/9/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/27/06
Batch No.	: 06C245	Date Extracted:	04/01/06 14:03
Sample ID:	BSW-14-09	Date Analyzed:	04/01/06 14:03
Lab Samp ID:	C245-02	Dilution Factor:	1
Lab File ID:	EC30077A	Matrix	: WATER
Ext Btch ID:	VA39C21	% Moisture	: NA
Calib. Ref.:	EC30074A	Instrument ID	: GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	93	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

4/5/9/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	03/31/06 17:08
Sample ID:	MW-05-01	Date Analyzed:	03/31/06 17:08
Lab Samp ID:	C268-01	Dilution Factor:	1
Lab File ID:	EC30044A	Matrix :	WATER
Ext Btch ID:	VA39C20	% Moisture :	NA
Calib. Ref.:	EC30039A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	98	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

6/4/06 1306

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	03/31/06 19:02
Sample ID:	IRP SITE14-T MW-1	Date Analyzed:	03/31/06 19:02
Lab Samp ID:	C268-04	Dilution Factor:	1
Lab File ID:	EC30047A	Matrix :	WATER
Ext Btch ID:	VA39C20	% Moisture :	NA
Calib. Ref.:	EC30039A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	99	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

4405806

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	03/31/06 19:41
Sample ID:	IRP SITE14-T MW-2	Date Analyzed:	03/31/06 19:41
Lab Samp ID:	C268-05	Dilution Factor:	1
Lab File ID:	EC30048A	Matrix :	WATER
Ext Btch ID:	VA39C20	% Moisture :	NA
Calib. Ref.:	EC30039A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	97	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

4/4/05/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	04/07/06 07:59
Sample ID:	IRP SITE14-T MW-3	Date Analyzed:	04/07/06 07:59
Lab Samp ID:	C268-06T	Dilution Factor:	2
Lab File ID:	ED06035A	Matrix :	WATER
Ext Btch ID:	VA39D05	% Moisture :	NA
Calib. Ref.:	ED06026A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	.76	.2	.04

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	135	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

4/4/06/506

4010

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	03/31/06 17:46
Sample ID:	IRP SITE14-T MW-4	Date Analyzed:	03/31/06 17:46
Lab Samp ID:	C268-02	Dilution Factor:	1
Lab File ID:	EC30045A	Matrix :	WATER
Ext Btch ID:	VA39C20	% Moisture :	NA
Calib. Ref.:	EC30039A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	98	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

4/10/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	03/31/06 18:24
Sample ID:	IRP SITE14-T MW-5	Date Analyzed:	03/31/06 18:24
Lab Samp ID:	C268-03	Dilution Factor:	1
Lab File ID:	EC30046A	Matrix :	WATER
Ext Btch ID:	VA39C20	% Moisture :	NA
Calib. Ref.:	EC30039A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	99	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

4405 1506

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	04/07/06 15:40
Sample ID:	IRP SITE14-T MW-6	Date Analyzed:	04/07/06 15:40
Lab Samp ID:	C268-07T	Dilution Factor:	5
Lab File ID:	ED06047A	Matrix :	WATER
Ext Btch ID:	VA39D05	% Moisture :	NA
Calib. Ref.:	ED06041A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	.79	.5	.1

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	106	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

4/4/06 1506

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	04/07/06 09:15
Sample ID:	DUPLICATE IRP Site 14 - T-MW-6	Date Analyzed:	04/07/06 09:15
Lab Samp ID:	C268-08	Dilution Factor:	1
Lab File ID:	ED06037A	Matrix :	WATER
Ext Btch ID:	VA39D05	% Moisture :	NA
Calib. Ref.:	ED06026A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	.73	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	115	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

4/05/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/01/06 08:21
Sample ID:	SB	Date Analyzed:	04/01/06 08:21
Lab Samp ID:	C251-06	Dilution Factor:	1
Lab File ID:	EC30068A	Matrix	: WATER
Ext Btch ID:	VA39C21	% Moisture	: NA
Calib. Ref.:	EC30062A	Instrument ID	: GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	91	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

S/J 9/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/01/06 07:42
Sample ID:	ER	Date Analyzed:	04/01/06 07:42
Lab Samp ID:	C251-05	Dilution Factor:	1
Lab File ID:	EC30067A	Matrix :	WATER
Ext Btch ID:	VA39C21	% Moisture :	NA
Calib. Ref.:	EC30062A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	93	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

5/9/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	03/31/06 23:29
Sample ID:	ER	Date Analyzed:	03/31/06 23:29
Lab Samp ID:	C268-09	Dilution Factor:	1
Lab File ID:	EC30054A	Matrix :	WATER
Ext Btch ID:	VA39C20	% Moisture :	NA
Calib. Ref.:	EC30050A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	96	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

4405506

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : MARRS SERVICES, INC.	Date Collected: 03/27/06
Project : SEAL BEACH	Date Received: 03/27/06
Batch No. : 06C245	Date Extracted: 04/01/06 15:19
Sample ID: TRIP BLANK	Date Analyzed: 04/01/06 15:19
Lab Samp ID: C245-04	Dilution Factor: 1
Lab File ID: EC30079A	Matrix : WATER
Ext Btch ID: VA39C21	% Moisture : NA
Calib. Ref.: EC30074A	Instrument ID : GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	92	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

5/9/06

4008

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	04/01/06 07:04
Sample ID:	TRIP BLANK	Date Analyzed:	04/01/06 07:04
Lab Samp ID:	C251-04	Dilution Factor:	1
Lab File ID:	EC30066A	Matrix :	WATER
Ext Btch ID:	VA39C21	% Moisture :	NA
Calib. Ref.:	EC30062A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	97	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

5/9/06

LABORATORY ANALYTICAL RESULTS

METHANE, ETHANE, & ETHENE
(MEE)

MARCH 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

RSK-175
DISSOLVED GASES

Client : MARRS SERVICES, INC.	Date Collected: 03/28/06
Project : SEAL BEACH	Date Received: 03/28/06
Batch No. : 06C245	Date Extracted: 03/30/06 10:00
Sample ID: BSW-14-1	Date Analyzed: 03/30/06 15:56
Lab Samp ID: C251-10	Dilution Factor: 1
Lab File ID: FC30019A	Matrix : WATER
Ext Btch ID: DG10C14	% Moisture : NA
Calib. Ref.: FC30013A	Instrument ID : GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	120E J R	1.2	.6

RL: Reporting Limit

E: Exceeded the calibration range

3/29/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	BSW-14-1DL	Date Analyzed:	03/30/06 16:15
Lab Samp ID:	C251-10T	Dilution Factor:	20
Lab File ID:	FC30020A	Matrix :	WATER
Ext Btch ID:	DG10C14	% Moisture :	NA
Calib. Ref.:	FC30013A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND R	30	12
ETHENE	ND R	30	12
METHANE	300	24	12

RL: Reporting Limit

5/9/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	BSW-14-2	Date Analyzed:	03/30/06 15:44
Lab Samp ID:	C251-09	Dilution Factor:	1
Lab File ID:	FC30018A	Matrix :	WATER
Ext Btch ID:	DG10C14	% Moisture :	NA
Calib. Ref.:	FC30013A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	190E ~~J~~ R	1.2	.6

RL: Reporting Limit

E : Exceeded the calibration range

5/9/06

U070

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	BSW-14-2DL	Date Analyzed:	03/30/06 16:41
Lab Samp ID:	C251-09T	Dilution Factor:	50
Lab File ID:	FC30022A	Matrix :	WATER
Ext Btch ID:	DG10C14	% Moisture :	NA
Calib. Ref.:	FC30013A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND R	75	30
ETHENE	ND R	75	30
METHANE	760	60	30

RL: Reporting Limit

4/9/06

RSK-175
DISSOLVED GASES

Client : MARRS SERVICES, INC.	Date Collected: 03/28/06
Project : SEAL BEACH	Date Received: 03/28/06
Batch No. : 06C245	Date Extracted: 03/30/06 10:00
Sample ID: BSW-14-3	Date Analyzed: 03/30/06 15:03
Lab Samp ID: C251-08	Dilution Factor: 1
Lab File ID: FC30016A	Matrix : WATER
Ext Btch ID: DG10C14	% Moisture : NA
Calib. Ref.: FC30013A	Instrument ID : GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	130E ~~J~~ R	1.2	.6

RL: Reporting Limit

E : Exceeded the calibration range

8/5/06

RSK-175
DISSOLVED GASES

Client : MARRS SERVICES, INC.	Date Collected: 03/28/06
Project : SEAL BEACH	Date Received: 03/28/06
Batch No. : 06C245	Date Extracted: 03/30/06 10:00
Sample ID: BSW-14-3DL	Date Analyzed: 03/30/06 15:23
Lab Samp ID: C251-08T	Dilution Factor: 20
Lab File ID: FC30017A	Matrix : WATER
Ext Btch ID: DG10C14	% Moisture : NA
Calib. Ref.: FC30013A	Instrument ID : GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND R	30	12
ETHENE	ND R	30	12
METHANE	350	24	12

RL: Reporting Limit

8/9/06

UA7R

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	BSW-14-4	Date Analyzed:	03/30/06 14:47
Lab Samp ID:	C251-07	Dilution Factor:	1
Lab File ID:	FC30015A	Matrix :	WATER
Ext Btch ID:	DG10C14	% Moisture :	NA
Calib. Ref.:	FC30013A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	240E JR	1.2	.6

RL: Reporting Limit

E : Exceeded the calibration range

5/9/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	BSW-14-4DL	Date Analyzed:	03/30/06 16:27
Lab Samp ID:	C251-07T	Dilution Factor:	100
Lab File ID:	FC30021A	Matrix :	WATER
Ext Btch ID:	DG10C14	% Moisture :	NA
Calib. Ref.:	FC30013A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND R	150	60
ETHENE	ND R	150	60
METHANE	1700	120	60

RL: Reporting Limit

5/9/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	BSW-14-5	Date Analyzed:	03/30/06 12:58
Lab Samp ID:	C251-02	Dilution Factor:	1
Lab File ID:	FC30009A	Matrix :	WATER
Ext Btch ID:	DG10C14	% Moisture :	NA
Calib. Ref.:	FC30002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	1.1J	1.2	.6

RL: Reporting Limit

3/29/06

4070

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	BSW-14-6	Date Analyzed:	03/30/06 12:16
Lab Samp ID:	C251-01	Dilution Factor:	1
Lab File ID:	FC30006A	Matrix :	WATER
Ext Btch ID:	DG10C14	% Moisture :	NA
Calib. Ref.:	FC30002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

5/9/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	BSW-14-7	Date Analyzed:	03/30/06 13:10
Lab Samp ID:	C251-03	Dilution Factor:	1
Lab File ID:	FC30010A	Matrix :	WATER
Ext Btch ID:	DG10C14	% Moisture :	NA
Calib. Ref.:	FC30002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

9/5/9/04

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/27/06
Batch No.	: 06C245	Date Extracted:	03/31/06 10:00
Sample ID:	BSW-14-08	Date Analyzed:	03/31/06 11:54
Lab Samp ID:	C245-01	Dilution Factor:	1
Lab File ID:	FC31006A	Matrix :	WATER
Ext Btch ID:	DG10C15	% Moisture :	NA
Calib. Ref.:	FC31002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

5/9/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/27/06
Batch No.	: 06C245	Date Extracted:	03/31/06 10:00
Sample ID:	DUPLICATE BSW-14-8	Date Analyzed:	03/31/06 12:20
Lab Samp ID:	C245-03	Dilution Factor:	1
Lab File ID:	FC31008A	Matrix :	WATER
Ext Btch ID:	DG10C15	% Moisture :	NA
Calib. Ref.:	FC31002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

9/19/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/27/06
Batch No.	: 06C245	Date Extracted:	03/31/06 10:00
Sample ID:	BSW-14-09	Date Analyzed:	03/31/06 12:07
Lab Samp ID:	C245-02	Dilution Factor:	1
Lab File ID:	FC31007A	Matrix :	WATER
Ext Btch ID:	DG10C15	% Moisture :	NA
Calib. Ref.:	FC31002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

3/31/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	03/31/06 10:00
Sample ID:	MW-05-01	Date Analyzed:	03/31/06 14:14
Lab Samp ID:	C268-01	Dilution Factor:	1
Lab File ID:	FC31016A	Matrix :	WATER
Ext Btch ID:	DG10C15	% Moisture :	NA
Calib. Ref.:	FC31013A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	93E R	1.2	.6

RL: Reporting Limit

E : Exceeded the calibration range

4/4/06

RSK-175
DISSOLVED GASES

Client : MARRS SERVICES, INC.	Date Collected: 03/28/06
Project : SEAL BEACH	Date Received: 03/29/06
Batch No. : 06C268	Date Extracted: 03/31/06 10:00
Sample ID: MW-05-01DL	Date Analyzed: 03/31/06 14:39
Lab Samp ID: C268-01T	Dilution Factor: 10
Lab File ID: FC31018A	Matrix : WATER
Ext Btch ID: DG10C15	% Moisture : NA
Calib. Ref.: FC31013A	Instrument ID : GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND R	15	6
ETHENE	ND	15	6
METHANE	150	12	6

RL: Reporting Limit

4405/506

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	SB	Date Analyzed:	03/30/06 14:34
Lab Samp ID:	C251-06	Dilution Factor:	1
Lab File ID:	FC30014A	Matrix :	WATER
Ext Btch ID:	DG10C14	% Moisture :	NA
Calib. Ref.:	FC30013A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

5/9/07

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	ER	Date Analyzed:	03/30/06 13:48
Lab Samp ID:	C251-05	Dilution Factor:	1
Lab File ID:	FC30012A	Matrix :	WATER
Ext Btch ID:	DG10C14	% Moisture :	NA
Calib. Ref.:	FC30002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

8/19/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	03/31/06 10:00
Sample ID:	ER	Date Analyzed:	03/31/06 14:27
Lab Samp ID:	C268-09	Dilution Factor:	1
Lab File ID:	FC31017A	Matrix :	WATER
Ext Btch ID:	DG10C15	% Moisture :	NA
Calib. Ref.:	FC31013A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

MW051506

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	TRIP BLANK	Date Analyzed:	03/30/06 13:34
Lab Samp ID:	C251-04	Dilution Factor:	1
Lab File ID:	FC30011A	Matrix :	WATER
Ext Btch ID:	DG10C14	% Moisture :	NA
Calib. Ref.:	FC30002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

9/5/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/27/06
Batch No.	: 06C245	Date Extracted:	03/31/06 10:00
Sample ID:	TRIP BLANK	Date Analyzed:	03/31/06 17:18
Lab Samp ID:	C245-04	Dilution Factor:	1
Lab File ID:	FC31021A	Matrix :	WATER
Ext Btch ID:	DG10C15	% Moisture :	NA
Calib. Ref.:	FC31019A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

4/5/9/06

LABORATORY ANALYTICAL RESULTS

WET CHEMISTRY

MARCH 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

METHOD 350.2
AMMONIA (NH3-N)

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C245

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	NHC011WB	ND	1	NA	.1	.03	03/28/0616:53	03/28/0610:15	NHC011W-14	NHC011W-10	NHC011W	NA	03/28/06
LCS1W	NHC011WL	.921	1	NA	.1	.03	03/28/0616:54	03/28/0610:15	NHC011W-15	NHC011W-10	NHC011W	NA	03/28/06
LCD1W	NHC011WC	.926	1	NA	.1	.03	03/28/0616:55	03/28/0610:15	NHC011W-16	NHC011W-10	NHC011W	NA	03/28/06
BSW-14-08	C245-01	.156 U	1	NA	.1	.03	03/28/0617:11	03/28/0610:15	NHC011W-32	NHC011W-22	NHC011W	03/27/06	03/27/06
BSW-14-09	C245-02	.210 U	1	NA	.1	.03	03/28/0617:12	03/28/0610:15	NHC011W-33	NHC011W-22	NHC011W	03/27/06	03/27/06
DUPLICATE BSW-14-8	C245-03	.122 U	1	NA	.1	.03	03/28/0617:15	03/28/0610:15	NHC011W-36	NHC011W-34	NHC011W	03/27/06	03/27/06
DUPLICATEDUP BSW-14-8	C245-03D	.127	1	NA	.1	.03	03/28/0617:16	03/28/0610:15	NHC011W-37	NHC011W-34	NHC011W	03/27/06	03/27/06
DUPLICATEMS BSW-14-8	C245-03M	1.03	1	NA	.1	.03	03/28/0617:17	03/28/0610:15	NHC011W-38	NHC011W-34	NHC011W	03/27/06	03/27/06
MBLK2W	NHD002WB	ND	1	NA	.1	.03	04/11/0615:13	04/11/0610:35	NHD002W-14	NHD002W-10	NHD002W	NA	03/28/06
LCS2W	NHD002WL	.958	1	NA	.1	.03	04/11/0615:14	04/11/0610:35	NHD002W-15	NHD002W-10	NHD002W	NA	03/28/06
LCD2W	NHD002WC	.958	1	NA	.1	.03	04/11/0615:15	04/11/0610:35	NHD002W-16	NHD002W-10	NHD002W	NA	03/28/06
BSW-14-6	C251-01	.142 U	1	NA	.1	.03	04/11/0615:16	04/11/0610:35	NHD002W-17	NHD002W-10	NHD002W	03/27/06	03/28/06
BSW-14-6DUP	C251-01D	.146	1	NA	.1	.03	04/11/0615:17	04/11/0610:35	NHD002W-18	NHD002W-10	NHD002W	03/27/06	03/28/06
BSW-14-6MS	C251-01M	1.05	1	NA	.1	.03	04/11/0615:18	04/11/0610:35	NHD002W-19	NHD002W-10	NHD002W	03/27/06	03/28/06
BSW-14-5	C251-02	.118 U	1	NA	.1	.03	04/11/0615:19	04/11/0610:35	NHD002W-20	NHD002W-10	NHD002W	03/27/06	03/28/06
BSW-14-7	C251-03	.189 U	1	NA	.1	.03	04/11/0615:20	04/11/0610:35	NHD002W-21	NHD002W-10	NHD002W	03/27/06	03/28/06
ER	C251-05	.137	1	NA	.1	.03	04/11/0615:23	04/11/0610:35	NHD002W-24	NHD002W-22	NHD002W	03/27/06	03/28/06
SB	C251-06	.094J	1	NA	.1	.03	04/11/0615:24	04/11/0610:35	NHD002W-25	NHD002W-22	NHD002W	03/27/06	03/28/06
BSW-14-4	C251-07	.104	1	NA	.1	.03	04/11/0615:25	04/11/0610:35	NHD002W-26	NHD002W-22	NHD002W	03/28/06	03/28/06
BSW-14-3	C251-08	.142	1	NA	.1	.03	04/11/0615:26	04/11/0610:35	NHD002W-27	NHD002W-22	NHD002W	03/28/06	03/28/06
BSW-14-2	C251-09	.137	1	NA	.1	.03	04/11/0615:27	04/11/0610:35	NHD002W-28	NHD002W-22	NHD002W	03/28/06	03/28/06
BSW-14-1	C251-10	.118	1	NA	.1	.03	04/11/0615:28	04/11/0610:35	NHD002W-29	NHD002W-22	NHD002W	03/28/06	03/28/06

8121

5/9/06

METHOD 350.2
AMMONIA (NH3-N)

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C268

Matrix : WATER
Instrument ID : 170

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	NHD001WB	ND	1	NA	.1	.03	04/06/0612:03	04/05/0616:00	NHD001W-14	NHD001W-10	NHD001W	NA	04/05/06
LCS1W	NHD001WL	.897	1	NA	.1	.03	04/06/0612:04	04/05/0616:00	NHD001W-15	NHD001W-10	NHD001W	NA	04/05/06
LCD1W	NHD001WC	.902	1	NA	.1	.03	04/06/0612:05	04/05/0616:00	NHD001W-16	NHD001W-10	NHD001W	NA	04/05/06
MW-05-01	C268-01	.100 u	1	NA	.1	.03	04/06/0612:10	04/05/0616:00	NHD001W-21	NHD001W-10	NHD001W	03/28/06	03/29/06
ER	C268-09	.125	1	NA	.1	.03	04/06/0612:13	04/05/0616:00	NHD001W-24	NHD001W-22	NHD001W	03/29/06	03/29/06
ERDUP	C268-09D	.135	1	NA	.1	.03	04/06/0612:14	04/05/0616:00	NHD001W-25	NHD001W-22	NHD001W	03/29/06	03/29/06
ERMS	C268-09M	1.07	1	NA	.1	.03	04/06/0612:15	04/05/0616:00	NHD001W-26	NHD001W-22	NHD001W	03/29/06	03/29/06

8079

4405/506

METHOD 300.0
CHLORIDE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C245

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	ICD002WB	ND	1	NA	.2	.1	04/04/0600:16	NA	AD03-33	AD03-25	ICD002W	NA	NA
LCS1W	ICD002WL	4.64	1	NA	.2	.1	04/04/0600:33	NA	AD03-34	AD03-25	ICD002W	NA	NA
LCD1W	ICD002WC	4.63	1	NA	.2	.1	04/04/0600:51	NA	AD03-35	AD03-25	ICD002W	NA	NA
BSW-14-08	C245-01	142	50	NA	10	5	04/04/0601:08	NA	AD03-36	AD03-25	ICD002W	03/27/06	03/27/06
BSW-14-09	C245-02	376	50	NA	10	5	04/04/0602:01	NA	AD03-39	AD03-37	ICD002W	03/27/06	03/27/06
DUPLICATE BSW-14-8	C245-03	145	50	NA	10	5	04/04/0602:19	NA	AD03-40	AD03-37	ICD002W	03/27/06	03/27/06
ER	C251-05	ND	1	NA	.2	.1	04/04/0602:54	NA	AD03-42	AD03-37	ICD002W	03/27/06	03/28/06
SB	C251-06	ND	1	NA	.2	.1	04/04/0603:11	NA	AD03-43	AD03-37	ICD002W	03/27/06	03/28/06
BSW-14-6	C251-01	262	50	NA	10	5	04/04/0603:29	NA	AD03-44	AD03-37	ICD002W	03/27/06	03/28/06
BSW-14-6DUP	C251-01D	262	50	NA	10	5	04/04/0603:46	NA	AD03-45	AD03-37	ICD002W	03/27/06	03/28/06
BSW-14-6MS	C251-01M	537	50	NA	10	5	04/04/0604:04	NA	AD03-46	AD03-37	ICD002W	03/27/06	03/28/06
BSW-14-5	C251-02	91.7	50	NA	10	5	04/04/0604:22	NA	AD03-47	AD03-37	ICD002W	03/27/06	03/28/06
BSW-14-7	C251-03	103	50	NA	10	5	04/04/0604:39	NA	AD03-48	AD03-37	ICD002W	03/27/06	03/28/06
BSW-14-4	C251-07	224	50	NA	10	5	04/04/0605:49	NA	AD03-52	AD03-49	ICD002W	03/28/06	03/28/06
BSW-14-3	C251-08	226	50	NA	10	5	04/04/0606:07	NA	AD03-53	AD03-49	ICD002W	03/28/06	03/28/06
BSW-14-1	C251-10	260	50	NA	10	5	04/04/0606:42	NA	AD03-55	AD03-49	ICD002W	03/28/06	03/28/06
MBLK2W	ICD015WB	ND	1	NA	.2	.1	04/10/0619:20	NA	AD10-32	AD10-25	ICD015W	NA	NA
LCS2W	ICD015WL	4.65	1	NA	.2	.1	04/10/0619:38	NA	AD10-33	AD10-25	ICD015W	NA	NA
LCD2W	ICD015WC	4.65	1	NA	.2	.1	04/10/0619:55	NA	AD10-34	AD10-25	ICD015W	NA	NA
BSW-14-2	C251-09	7.83	5	NA	1	.5	04/10/0621:58	NA	AD10-41	AD10-37	ICD015W	03/28/06	03/28/06

8028

5/9/06

METHOD 300.0
CHLORIDE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C268

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	ICD002WB	ND	1	NA	.2	.1	04/04/0600:16	NA	AD03-33	AD03-25	ICD002W	NA	NA
LCS1W	ICD002WL	4.64	1	NA	.2	.1	04/04/0600:33	NA	AD03-34	AD03-25	ICD002W	NA	NA
LCD1W	ICD002WC	4.63	1	NA	.2	.1	04/04/0600:51	NA	AD03-35	AD03-25	ICD002W	NA	NA
MW-05-01	C268-01	234	50	NA	10	5	04/04/0607:00	NA	AD03-56	AD03-49	ICD002W	03/28/06	03/29/06
MBLK2W	ICD019WB	ND	1	NA	.2	.1	04/12/0610:28	NA	AD11-70	AD11-61	ICD019W	NA	NA
LCS2W	ICD019WL	4.66	1	NA	.2	.1	04/12/0610:46	NA	AD11-71	AD11-61	ICD019W	NA	NA
LCD2W	ICD019WC	4.67	1	NA	.2	.1	04/12/0611:03	NA	AD11-72	AD11-61	ICD019W	NA	NA
ER	C268-09	ND	1	NA	.2	.1	04/12/0613:42	NA	AD11-81	AD11-73	ICD019W	03/29/06	03/29/06

00114

14005506

METHOD 365.2
ORTHOPHOSPHATE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C245

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	POC013WB	ND	1	NA	.1	.02	03/28/0611:09	NA	POC013W-10	POC013W-08	POC013W	NA	NA
LCS1W	POC013WL	.497	1	NA	.1	.02	03/28/0611:10	NA	POC013W-11	POC013W-08	POC013W	NA	NA
BSW-14-08	C245-01	.100	1	NA	.1	.02	03/28/0611:11	NA	POC013W-12	POC013W-08	POC013W	03/27/06	03/27/06
BSW-14-08DUP	C245-01D	.100	1	NA	.1	.02	03/28/0611:12	NA	POC013W-13	POC013W-08	POC013W	03/27/06	03/27/06
BSW-14-08MS	C245-01M	.586	1	NA	.1	.02	03/28/0611:13	NA	POC013W-14	POC013W-08	POC013W	03/27/06	03/27/06
BSW-14-09	C245-02	ND	1	NA	.1	.02	03/28/0611:14	NA	POC013W-15	POC013W-08	POC013W	03/27/06	03/27/06
DUPLICATE BSW-14-8	C245-03	.104	1	NA	.1	.02	03/28/0611:15	NA	POC013W-16	POC013W-08	POC013W	03/27/06	03/27/06
MBLK2W	POC014WB	ND	1	NA	.1	.02	03/28/0618:39	NA	POC014W-10	POC014W-08	POC014W	NA	NA
LCS2W	POC014WL	.511	1	NA	.1	.02	03/28/0618:40	NA	POC014W-11	POC014W-08	POC014W	NA	NA
BSW-14-6	C251-01	ND	1	NA	.1	.02	03/28/0618:41	NA	POC014W-12	POC014W-08	POC014W	03/27/06	03/28/06
BSW-14-6DUP	C251-01D	ND	1	NA	.1	.02	03/28/0618:42	NA	POC014W-13	POC014W-08	POC014W	03/27/06	03/28/06
BSW-14-6MS	C251-01M	.529	1	NA	.1	.02	03/28/0618:43	NA	POC014W-14	POC014W-08	POC014W	03/27/06	03/28/06
BSW-14-5	C251-02	ND	1	NA	.1	.02	03/28/0618:44	NA	POC014W-15	POC014W-08	POC014W	03/27/06	03/28/06
BSW-14-7	C251-03	ND	1	NA	.1	.02	03/28/0618:45	NA	POC014W-16	POC014W-08	POC014W	03/27/06	03/28/06
ER	C251-05	ND	1	NA	.1	.02	03/28/0618:46	NA	POC014W-17	POC014W-08	POC014W	03/27/06	03/28/06
SB	C251-06	ND	1	NA	.1	.02	03/28/0618:47	NA	POC014W-18	POC014W-08	POC014W	03/27/06	03/28/06
BSW-14-4	C251-07	.461	1	NA	.1	.02	03/28/0618:48	NA	POC014W-19	POC014W-08	POC014W	03/28/06	03/28/06
BSW-14-3	C251-08	.123	1	NA	.1	.02	03/28/0618:51	NA	POC014W-22	POC014W-20	POC014W	03/28/06	03/28/06
BSW-14-2	C251-09	ND	1	NA	.1	.02	03/28/0618:52	NA	POC014W-23	POC014W-20	POC014W	03/28/06	03/28/06
BSW-14-1	C251-10	ND	1	NA	.1	.02	03/28/0618:53	NA	POC014W-24	POC014W-20	POC014W	03/28/06	03/28/06

5/9/06

METHOD 365.2
ORTHOPHOSPHATE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C268

Matrix : WATER
Instrument ID : 170

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	POC015WB	ND	1	NA	.1	.02	03/30/0611:54	NA	POC015W-10	POC015W-08	POC015W	NA	NA
LCS1W	POC015WL	.500	1	NA	.1	.02	03/30/0611:55	NA	POC015W-11	POC015W-08	POC015W	NA	NA
MW-05-01	C268-01	ND	1	NA	.1	.02	03/30/0611:58	NA	POC015W-14	POC015W-08	POC015W	03/28/06	03/29/06
ER	C268-09	ND	1	NA	.1	.02	03/30/0611:59	NA	POC015W-15	POC015W-08	POC015W	03/29/06	03/29/06
ERDUP	C268-09D	ND	1	NA	.1	.02	03/30/0612:00	NA	POC015W-16	POC015W-08	POC015W	03/29/06	03/29/06
ERMS	C268-09M	.493	1	NA	.1	.02	03/30/0612:01	NA	POC015W-17	POC015W-08	POC015W	03/29/06	03/29/06

8995

MM051506

METHOD 150.1
PH

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C245

Matrix : WATER
Instrument ID : I53

SAMPLE ID	EMAX SAMPLE ID	RESULTS (pHUnit)	DLF	MOIST	RL (pHUnit)	MDL (pHUnit)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
BSW-14-08	C245-01	7.44	1	NA	NA	NA	03/27/0617:37	NA	PHC020W-02	NA	PHC020W	03/27/06	03/27/06
BSW-14-09	C245-02	6.99	1	NA	NA	NA	03/27/0617:39	NA	PHC020W-03	NA	PHC020W	03/27/06	03/27/06
DUPLICATE BSW-14-8	C245-03	7.48	1	NA	NA	NA	03/27/0617:41	NA	PHC020W-04	NA	PHC020W	03/27/06	03/27/06
DUPLICATEDUP BSW-14-8	C245-03D	7.48	1	NA	NA	NA	03/27/0617:43	NA	PHC020W-05	NA	PHC020W	03/27/06	03/27/06
BSW-14-6	C251-01	7.19	1	NA	NA	NA	03/28/0617:51	NA	PHC021W-04	NA	PHC021W	03/27/06	03/28/06
BSW-14-5	C251-02	7.25	1	NA	NA	NA	03/28/0617:53	NA	PHC021W-05	NA	PHC021W	03/27/06	03/28/06
BSW-14-7	C251-03	7.48	1	NA	NA	NA	03/28/0617:55	NA	PHC021W-06	NA	PHC021W	03/27/06	03/28/06
ER	C251-05	6.67	1	NA	NA	NA	03/28/0617:57	NA	PHC021W-07	NA	PHC021W	03/27/06	03/28/06
SB	C251-06	5.80	1	NA	NA	NA	03/28/0617:59	NA	PHC021W-08	NA	PHC021W	03/27/06	03/28/06
BSW-14-4	C251-07	7.02	1	NA	NA	NA	03/28/0618:01	NA	PHC021W-09	NA	PHC021W	03/28/06	03/28/06
BSW-14-3	C251-08	7.19	1	NA	NA	NA	03/28/0618:03	NA	PHC021W-10	NA	PHC021W	03/28/06	03/28/06
BSW-14-2	C251-09	7.27	1	NA	NA	NA	03/28/0618:05	NA	PHC021W-11	NA	PHC021W	03/28/06	03/28/06
BSW-14-1	C251-10	7.02	1	NA	NA	NA	03/28/0618:07	NA	PHC021W-12	NA	PHC021W	03/28/06	03/28/06
BSW-14-1DUP	C251-10D	7.02	1	NA	NA	NA	03/28/0618:09	NA	PHC021W-13	NA	PHC021W	03/28/06	03/28/06

J 9/06

METHOD 150.1
PH

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C268

Matrix : WATER
Instrument ID : I53

SAMPLE ID	EMAX SAMPLE ID	RESULTS (pHUnit)	DLF	MOIST	RL (pHUnit)	MDL (pHUnit)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MW-05-01	C268-01	7.36	1	NA	NA	NA	03/29/0616:25	NA	PHC022W-06	NA	PHC022W	03/28/06	03/29/06
ER	C268-09	6.80	1	NA	NA	NA	03/29/0616:27	NA	PHC022W-07	NA	PHC022W	03/29/06	03/29/06

3592

14051506

METHOD 300.0
SULFATE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C245

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	ICD002WB	ND	1	NA	.5	.25	04/04/0600:16	NA	AD03-33	AD03-25	ICD002W	NA	NA
LCS1W	ICD002WL	4.52	1	NA	.5	.25	04/04/0600:33	NA	AD03-34	AD03-25	ICD002W	NA	NA
LCD1W	ICD002WC	4.54	1	NA	.5	.25	04/04/0600:51	NA	AD03-35	AD03-25	ICD002W	NA	NA
BSW-14-08	C245-01	210	50	NA	25	12.5	04/04/0601:08	NA	AD03-36	AD03-25	ICD002W	03/27/06	03/27/06
BSW-14-09	C245-02	111	50	NA	25	12.5	04/04/0602:01	NA	AD03-39	AD03-37	ICD002W	03/27/06	03/27/06
DUPLICATE BSW-14-8	C245-03	215	50	NA	25	12.5	04/04/0602:19	NA	AD03-40	AD03-37	ICD002W	03/27/06	03/27/06
ER	C251-05	ND	1	NA	.5	.25	04/04/0602:54	NA	AD03-42	AD03-37	ICD002W	03/27/06	03/28/06
SB	C251-06	ND	1	NA	.5	.25	04/04/0603:11	NA	AD03-43	AD03-37	ICD002W	03/27/06	03/28/06
BSW-14-6	C251-01	80.6	50	NA	25	12.5	04/04/0603:29	NA	AD03-44	AD03-37	ICD002W	03/27/06	03/28/06
BSW-14-6DUP	C251-01D	80.8	50	NA	25	12.5	04/04/0603:46	NA	AD03-45	AD03-37	ICD002W	03/27/06	03/28/06
BSW-14-6MS	C251-01M	313	50	NA	25	12.5	04/04/0604:04	NA	AD03-46	AD03-37	ICD002W	03/27/06	03/28/06
BSW-14-5	C251-02	70.2	50	NA	25	12.5	04/04/0604:22	NA	AD03-47	AD03-37	ICD002W	03/27/06	03/28/06
BSW-14-7	C251-03	61.2	50	NA	25	12.5	04/04/0604:39	NA	AD03-48	AD03-37	ICD002W	03/27/06	03/28/06
MBLK2W	ICD015WB	ND	1	NA	.5	.25	04/10/0619:20	NA	AD10-32	AD10-25	ICD015W	NA	NA
LCS2W	ICD015WL	4.58	1	NA	.5	.25	04/10/0619:38	NA	AD10-33	AD10-25	ICD015W	NA	NA
LCD2W	ICD015WC	4.57	1	NA	.5	.25	04/10/0619:55	NA	AD10-34	AD10-25	ICD015W	NA	NA
BSW-14-4	C251-07	27.2	5	NA	2.5	1.25	04/10/0621:23	NA	AD10-39	AD10-37	ICD015W	03/28/06	03/28/06
BSW-14-3	C251-08	51.1	5	NA	2.5	1.25	04/10/0621:41	NA	AD10-40	AD10-37	ICD015W	03/28/06	03/28/06
BSW-14-2	C251-09	13.4	5	NA	2.5	1.25	04/10/0621:58	NA	AD10-41	AD10-37	ICD015W	03/28/06	03/28/06
BSW-14-1	C251-10	62.3	5	NA	2.5	1.25	04/10/0622:16	NA	AD10-42	AD10-37	ICD015W	03/28/06	03/28/06

6229

5/9/06

METHOD 300.0
SULFATE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C268

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	ICD002WB	ND	1	NA	.5	.25	04/04/0600:16	NA	AD03-33	AD03-25	ICD002W	NA	NA
LCS1W	ICD002WL	4.52	1	NA	.5	.25	04/04/0600:33	NA	AD03-34	AD03-25	ICD002W	NA	NA
LCD1W	ICD002WC	4.54	1	NA	.5	.25	04/04/0600:51	NA	AD03-35	AD03-25	ICD002W	NA	NA
MW-05-01	C268-01	128	50	NA	25	12.5	04/04/0607:00	NA	AD03-56	AD03-49	ICD002W	03/28/06	03/29/06
MBLK2W	ICD019WB	ND	1	NA	.5	.25	04/12/0610:28	NA	AD11-70	AD11-61	ICD019W	NA	NA
LCS2W	ICD019WL	4.6	1	NA	.5	.25	04/12/0610:46	NA	AD11-71	AD11-61	ICD019W	NA	NA
LCD2W	ICD019WC	4.61	1	NA	.5	.25	04/12/0611:03	NA	AD11-72	AD11-61	ICD019W	NA	NA
ER	C268-09	ND	1	NA	.5	.25	04/12/0613:42	NA	AD11-81	AD11-73	ICD019W	03/29/06	03/29/06

1440 5/506

METHOD 310.1
TOTAL ALKALINITY

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C245

Matrix : WATER
Instrument ID : I53

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	ALD001WB	ND	1	NA	5	1	04/03/0611:05	NA	ALD001W-01	NA	ALD001W	NA	NA
LCS1W	ALD001WL	82.3	1	NA	5	1	04/03/0611:08	NA	ALD001W-02	NA	ALD001W	NA	NA
LCD1W	ALD001WC	82.3	1	NA	5	1	04/03/0611:11	NA	ALD001W-03	NA	ALD001W	NA	NA
BSW-14-08	C245-01	379	1	NA	5	1	04/03/0611:33	NA	ALD001W-06	NA	ALD001W	03/27/06	03/27/06
BSW-14-09	C245-02	491	1	NA	5	1	04/03/0611:42	NA	ALD001W-07	NA	ALD001W	03/27/06	03/27/06
BSW-14-6	C251-01	334	1	NA	5	1	04/03/0611:48	NA	ALD001W-08	NA	ALD001W	03/27/06	03/28/06
BSW-14-6DUP	C251-01D	332	1	NA	5	1	04/03/0611:51	NA	ALD001W-09	NA	ALD001W	03/27/06	03/28/06
BSW-14-5	C251-02	324	1	NA	5	1	04/03/0611:54	NA	ALD001W-10	NA	ALD001W	03/27/06	03/28/06
BSW-14-7	C251-03	289	1	NA	5	1	04/03/0612:00	NA	ALD001W-11	NA	ALD001W	03/27/06	03/28/06
ER	C251-05	ND	1	NA	5	1	04/03/0612:06	NA	ALD001W-12	NA	ALD001W	03/27/06	03/28/06
SB	C251-06	ND	1	NA	5	1	04/03/0612:08	NA	ALD001W-13	NA	ALD001W	03/27/06	03/28/06
BSW-14-4	C251-07	416	1	NA	5	1	04/03/0612:14	NA	ALD001W-14	NA	ALD001W	03/28/06	03/28/06
BSW-14-3	C251-08	327	1	NA	5	1	04/03/0612:20	NA	ALD001W-15	NA	ALD001W	03/28/06	03/28/06
BSW-14-2	C251-09	29.9	1	NA	5	1	04/03/0612:24	NA	ALD001W-16	NA	ALD001W	03/28/06	03/28/06
BSW-14-1	C251-10	339	1	NA	5	1	04/03/0612:30	NA	ALD001W-17	NA	ALD001W	03/28/06	03/28/06
MBLK2W	ALD006WB	ND	1	NA	5	1	04/12/0610:16	NA	ALD006W-01	NA	ALD006W	NA	NA
LCS2W	ALD006WL	76.9	1	NA	5	1	04/12/0610:30	NA	ALD006W-02	NA	ALD006W	NA	NA
LCD2W	ALD006WC	82.4	1	NA	5	1	04/12/0610:52	NA	ALD006W-03	NA	ALD006W	NA	NA
DUPLICATE BSW-14-8	C245-03	373 J	1	NA	5	1	04/12/0611:03	NA	ALD006W-04	NA	ALD006W	03/27/06	03/27/06

5/9/06

0118

METHOD 310.1
TOTAL ALKALINITY

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C268

Matrix : WATER
Instrument ID : I53

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	ALD002WB	ND	1	NA	5	1	04/04/0615:43	NA	ALD002W-01	NA	ALD002W	NA	NA
LCS1W	ALD002WL	84.8	1	NA	5	1	04/04/0615:45	NA	ALD002W-02	NA	ALD002W	NA	NA
LCD1W	ALD002WC	84.8	1	NA	5	1	04/04/0615:46	NA	ALD002W-03	NA	ALD002W	NA	NA
MW-05-01	C268-01	399	1	NA	5	1	04/04/0616:28	NA	ALD002W-12	NA	ALD002W	03/28/06	03/29/06
ER	C268-09	ND	1	NA	5	1	04/04/0616:34	NA	ALD002W-13	NA	ALD002W	03/29/06	03/29/06

8073

44.5/506

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C245

Matrix : WATER
Instrument ID : I40706360

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	TDC011WB	ND	1	NA	10	5	03/31/0614:27	03/30/0618:55	TDC011W-01	NA	TDC011W	NA	03/30/06
LCS1W	TDC011WL	475	1	NA	10	5	03/31/0614:28	03/30/0618:55	TDC011W-02	NA	TDC011W	NA	03/30/06
LCD1W	TDC011WC	475	1	NA	10	5	03/31/0614:28	03/30/0618:55	TDC011W-03	NA	TDC011W	NA	03/30/06
BSW-14-08	C245-01	1030	1	NA	10	5	03/31/0614:29	03/30/0618:55	TDC011W-06	NA	TDC011W	03/27/06	03/27/06
BSW-14-09	C245-02	1340	1	NA	10	5	03/31/0614:29	03/30/0618:55	TDC011W-07	NA	TDC011W	03/27/06	03/27/06
BSW-14-5	C251-02	605	1	NA	10	5	03/31/0614:29	03/30/0618:55	TDC011W-09	NA	TDC011W	03/27/06	03/28/06
BSW-14-7	C251-03	590	1	NA	10	5	03/31/0614:29	03/30/0618:55	TDC011W-10	NA	TDC011W	03/27/06	03/28/06
ER	C251-05	ND	1	NA	10	5	03/31/0614:29	03/30/0618:55	TDC011W-11	NA	TDC011W	03/27/06	03/28/06
SB	C251-06	ND	1	NA	10	5	03/31/0614:30	03/30/0618:55	TDC011W-12	NA	TDC011W	03/27/06	03/28/06
BSW-14-4	C251-07	785	1	NA	10	5	03/31/0614:30	03/30/0618:55	TDC011W-13	NA	TDC011W	03/28/06	03/28/06
BSW-14-3	C251-08	805	1	NA	10	5	03/31/0614:30	03/30/0618:55	TDC011W-14	NA	TDC011W	03/28/06	03/28/06
BSW-14-2	C251-09	105	1	NA	10	5	03/31/0614:30	03/30/0618:55	TDC011W-15	NA	TDC011W	03/28/06	03/28/06
BSW-14-1	C251-10	890	1	NA	10	5	03/31/0614:30	03/30/0618:55	TDC011W-16	NA	TDC011W	03/28/06	03/28/06
MBLK2W	TDD001WB	ND	1	NA	10	5	04/04/0613:56	04/03/0614:13	TDD001W-01	NA	TDD001W	NA	03/30/06
LCS2W	TDD001WL	300	1	NA	10	5	04/04/0613:57	04/03/0614:13	TDD001W-02	NA	TDD001W	NA	03/30/06
LCD2W	TDD001WC	270	1	NA	10	5	04/04/0613:57	04/03/0614:13	TDD001W-03	NA	TDD001W	NA	03/30/06
BSW-14-6	C251-01	850	1	NA	10	5	04/04/0614:02	04/03/0614:13	TDD001W-22	NA	TDD001W	03/27/06	03/28/06
BSW-14-6DUP	C251-01D	885	1	NA	10	5	04/04/0614:02	04/03/0614:13	TDD001W-23	NA	TDD001W	03/27/06	03/28/06
MBLK3W	TDD004WB	ND	1	NA	10	5	04/11/0615:38	04/10/0614:10	TDD004W-01	NA	TDD004W	NA	03/30/06
LCS3W	TDD004WL	235	1	NA	10	5	04/11/0615:38	04/10/0614:10	TDD004W-02	NA	TDD004W	NA	03/30/06
LCD3W	TDD004WC	235	1	NA	10	5	04/11/0615:38	04/10/0614:10	TDD004W-03	NA	TDD004W	NA	03/30/06
DUPLICATE BSW-14-8	C245-03	1000 J	1	NA	10	5	04/11/0615:42	04/10/0614:10	TDD004W-22	NA	TDD004W	03/27/06	03/27/06

8/5/9/06

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C268

Matrix : WATER
Instrument ID : I40706360

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	TDD001WB	ND	1	NA	10	5	04/04/0613:56	04/03/0614:13	TDD001W-01	NA	TDD001W	NA	04/03/06
LCS1W	TDD001WL	300	1	NA	10	5	04/04/0613:57	04/03/0614:13	TDD001W-02	NA	TDD001W	NA	04/03/06
LCD1W	TDD001WC	270	1	NA	10	5	04/04/0613:57	04/03/0614:13	TDD001W-03	NA	TDD001W	NA	04/03/06
MW-05-01	C268-01	970	1	NA	10	5	04/04/0613:57	04/03/0614:13	TDD001W-04	NA	TDD001W	03/28/06	03/29/06
ER	C268-09	ND	1	NA	10	5	04/04/0613:57	04/03/0614:13	TDD001W-05	NA	TDD001W	03/29/06	03/29/06

3005

4/05/06

METHOD 351.3
TKN

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C245

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	KNC005WB	ND	1	NA	.1	.035	03/28/0617:30	03/28/0615:30	KNC005W-11	KNC005W-09	KNC005W	NA	03/28/06
LCS1W	KNC005WL	.925	1	NA	.1	.035	03/28/0617:31	03/28/0615:30	KNC005W-12	KNC005W-09	KNC005W	NA	03/28/06
LCD1W	KNC005WC	.925	1	NA	.1	.035	03/28/0617:32	03/28/0615:30	KNC005W-13	KNC005W-09	KNC005W	NA	03/28/06
BSW-14-08	C245-01	.221 U	1	NA	.1	.035	03/28/0617:34	03/28/0615:30	KNC005W-15	KNC005W-09	KNC005W	03/27/06	03/27/06
BSW-14-09	C245-02	1.80	1	NA	.1	.035	03/28/0617:35	03/28/0615:30	KNC005W-16	KNC005W-09	KNC005W	03/27/06	03/27/06
DUPLICATE BSW-14-8	C245-03	.127 U	1	NA	.1	.035	03/28/0617:36	03/28/0615:30	KNC005W-17	KNC005W-09	KNC005W	03/27/06	03/27/06
DUPLICATEDUP BSW-14-8	C245-03D	.132	1	NA	.1	.035	03/28/0617:37	03/28/0615:30	KNC005W-18	KNC005W-09	KNC005W	03/27/06	03/27/06
DUPLICATEMS BSW-14-8	C245-03M	1.13	1	NA	.1	.035	03/28/0617:38	03/28/0615:30	KNC005W-19	KNC005W-09	KNC005W	03/27/06	03/27/06
MBLK2W	KND002WB	ND	1	NA	.1	.035	04/12/0614:05	04/11/0612:10	KND002W-11	KND002W-09	KND002W	NA	03/28/06
LCS2W	KND002WL	.899	1	NA	.1	.035	04/12/0614:05	04/11/0612:10	KND002W-12	KND002W-09	KND002W	NA	03/28/06
LCD2W	KND002WC	.903	1	NA	.1	.035	04/12/0614:06	04/11/0612:10	KND002W-13	KND002W-09	KND002W	NA	03/28/06
BSW-14-6	C251-01	.208 U	1	NA	.1	.035	04/12/0614:07	04/11/0612:10	KND002W-14	KND002W-09	KND002W	03/27/06	03/28/06
BSW-14-6DUP	C251-01D	.208	1	NA	.1	.035	04/12/0614:08	04/11/0612:10	KND002W-15	KND002W-09	KND002W	03/27/06	03/28/06
BSW-14-6MS	C251-01M	1.09	1	NA	.1	.035	04/12/0614:08	04/11/0612:10	KND002W-16	KND002W-09	KND002W	03/27/06	03/28/06
BSW-14-5	C251-02	.208 U	1	NA	.1	.035	04/12/0614:08	04/11/0612:10	KND002W-17	KND002W-09	KND002W	03/27/06	03/28/06
BSW-14-7	C251-03	.425 U	1	NA	.1	.035	04/12/0614:08	04/11/0612:10	KND002W-18	KND002W-09	KND002W	03/27/06	03/28/06
ER	C251-05	.198	1	NA	.1	.035	04/12/0614:08	04/11/0612:10	KND002W-19	KND002W-09	KND002W	03/27/06	03/28/06
SB	C251-06	.217	1	NA	.1	.035	04/12/0614:08	04/11/0612:10	KND002W-20	KND002W-09	KND002W	03/27/06	03/28/06
BSW-14-4	C251-07	.269	1	NA	.1	.035	04/12/0614:09	04/11/0612:10	KND002W-23	KND002W-21	KND002W	03/28/06	03/28/06
BSW-14-3	C251-08	.307	1	NA	.1	.035	04/12/0614:09	04/11/0612:10	KND002W-24	KND002W-21	KND002W	03/28/06	03/28/06
BSW-14-2	C251-09	.511	1	NA	.1	.035	04/12/0614:09	04/11/0612:10	KND002W-25	KND002W-21	KND002W	03/28/06	03/28/06
BSW-14-1	C251-10	.165	1	NA	.1	.035	04/12/0614:09	04/11/0612:10	KND002W-26	KND002W-21	KND002W	03/28/06	03/28/06

7 of 8

J 19/06

METHOD 351.3
TKN

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C268

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	KND001WB	ND	1	NA	.1	.035	04/06/0612:35	04/06/0609:30	KND001W-11	KND001W-09	KND001W	NA	04/06/06
LCS1W	KND001WL	0.9	1	NA	.1	.035	04/06/0612:35	04/06/0609:30	KND001W-12	KND001W-09	KND001W	NA	04/06/06
LCD1W	KND001WC	0.9	1	NA	.1	.035	04/06/0612:35	04/06/0609:30	KND001W-13	KND001W-09	KND001W	NA	04/06/06
MW-05-01	C268-01	.219 u	1	NA	.1	.035	04/06/0612:36	04/06/0609:30	KND001W-17	KND001W-09	KND001W	03/28/06	03/29/06
ER	C268-09	.133	1	NA	.1	.035	04/06/0612:37	04/06/0609:30	KND001W-18	KND001W-09	KND001W	03/29/06	03/29/06
ERDUP	C268-09D	.133	1	NA	.1	.035	04/06/0612:37	04/06/0609:30	KND001W-19	KND001W-09	KND001W	03/29/06	03/29/06
ERMS	C268-09M	1.17	1	NA	.1	.035	04/06/0612:37	04/06/0609:30	KND001W-20	KND001W-09	KND001W	03/29/06	03/29/06

6087

4/05/06

METHOD 365.2
TOTAL PHOSPHORUS

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C245

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	POD002WB	ND	1	NA	.1	.02	04/04/0618:51	04/04/0611:45	POD002W-12	POD002W-08	POD002W	NA	04/04/06
LCS1W	POD002WL	.518	1	NA	.1	.02	04/04/0618:52	04/04/0611:45	POD002W-13	POD002W-08	POD002W	NA	04/04/06
LCD1W	POD002WC	.513	1	NA	.1	.02	04/04/0618:53	04/04/0611:45	POD002W-14	POD002W-08	POD002W	NA	04/04/06
BSW-14-08	C245-01	.146	1	NA	.1	.02	04/04/0618:54	04/04/0611:45	POD002W-15	POD002W-08	POD002W	03/27/06	03/27/06
BSW-14-09	C245-02	ND	1	NA	.1	.02	04/04/0618:55	04/04/0611:45	POD002W-16	POD002W-08	POD002W	03/27/06	03/27/06
DUPLICATE BSW-14-8	C245-03	.121	1	NA	.1	.02	04/04/0618:56	04/04/0611:45	POD002W-17	POD002W-08	POD002W	03/27/06	03/27/06
BSW-14-6	C251-01	ND	1	NA	.1	.02	04/04/0618:57	04/04/0611:45	POD002W-18	POD002W-08	POD002W	03/27/06	03/28/06
BSW-14-6DUP	C251-01D	ND	1	NA	.1	.02	04/04/0619:58	04/04/0611:45	POD002W-19	POD002W-08	POD002W	03/27/06	03/28/06
BSW-14-6MS	C251-01M	.589	1	NA	.1	.02	04/04/0619:01	04/04/0611:45	POD002W-22	POD002W-20	POD002W	03/27/06	03/28/06
BSW-14-5	C251-02	ND	1	NA	.1	.02	04/04/0619:02	04/04/0611:45	POD002W-23	POD002W-20	POD002W	03/27/06	03/28/06
BSW-14-7	C251-03	.100	1	NA	.1	.02	04/04/0619:03	04/04/0611:45	POD002W-24	POD002W-20	POD002W	03/27/06	03/28/06
ER	C251-05	ND	1	NA	.1	.02	04/04/0619:04	04/04/0611:45	POD002W-25	POD002W-20	POD002W	03/27/06	03/28/06
SB	C251-06	ND	1	NA	.1	.02	04/04/0619:05	04/04/0611:45	POD002W-26	POD002W-20	POD002W	03/27/06	03/28/06
BSW-14-4	C251-07	.465	1	NA	.1	.02	04/04/0619:06	04/04/0611:45	POD002W-27	POD002W-20	POD002W	03/28/06	03/28/06
BSW-14-3	C251-08	.135	1	NA	.1	.02	04/04/0619:07	04/04/0611:45	POD002W-28	POD002W-20	POD002W	03/28/06	03/28/06
BSW-14-2	C251-09	ND	1	NA	.1	.02	04/04/0619:08	04/04/0611:45	POD002W-29	POD002W-20	POD002W	03/28/06	03/28/06
BSW-14-1	C251-10	ND	1	NA	.1	.02	04/04/0619:09	04/04/0611:45	POD002W-30	POD002W-20	POD002W	03/28/06	03/28/06

8162

5/9/06

METHOD 365.2
TOTAL PHOSPHORUS

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06C268

Matrix : WATER
Instrument ID : 170

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	POD006WB	ND	1	NA	.1	.02	04/10/0618:11	04/10/0611:30	POD006W-12	POD006W-08	POD006W	NA	04/10/06
LCS1W	POD006WL	.499	1	NA	.1	.02	04/10/0618:12	04/10/0611:30	POD006W-13	POD006W-08	POD006W	NA	04/10/06
MW-05-01	C268-01	ND	1	NA	.1	.02	04/10/0618:13	04/10/0611:30	POD006W-14	POD006W-08	POD006W	03/28/06	03/29/06
MW-05-01DUP	C268-01D	ND	1	NA	.1	.02	04/10/0618:14	04/10/0611:30	POD006W-15	POD006W-08	POD006W	03/28/06	03/29/06
MW-05-01MS	C268-01M	.520	1	NA	.1	.02	04/10/0618:15	04/10/0611:30	POD006W-16	POD006W-08	POD006W	03/28/06	03/29/06
ER	C268-09	ND	1	NA	.1	.02	04/10/0618:16	04/10/0611:30	POD006W-17	POD006W-08	POD006W	03/29/06	03/29/06

8192

Lm051506

LABORATORY ANALYTICAL RESULTS

CARBON DIOXIDE

MARCH 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

RSK-175 MODIFIED
CARBON DIOXIDE

Client : MARRS SERVICES, INC.	Date Collected: 03/28/06
Project : SEAL BEACH	Date Received: 03/28/06
Batch No. : 06C245	Date Extracted: 03/30/06 10:00
Sample ID: BSW-14-1	Date Analyzed: 03/30/06 18:06
Lab Samp ID: C251-10T	Dilution Factor: 10
Lab File ID: CSC118	Matrix : WATER
Ext Btch ID: CA13C07	% Moisture : NA
Calib. Ref.: CSC115	Instrument ID : GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	73000	12000	6000

RL : Reporting Limit

5/9/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	BSW-14-2	Date Analyzed:	03/30/06 17:54
Lab Samp ID:	C251-09	Dilution Factor:	1
Lab File ID:	CSC117	Matrix :	WATER
Ext Btch ID:	CA13C07	% Moisture :	NA
Calib. Ref.:	CSC115	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	4200	1200	600

RL : Reporting Limit

8/9/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	BSW-14-3	Date Analyzed:	03/30/06 16:25
Lab Samp ID:	C251-08T	Dilution Factor:	10
Lab File ID:	CSC111	Matrix :	WATER
Ext Btch ID:	CA13C07	% Moisture :	NA
Calib. Ref.:	CSC094	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	47000	12000	6000

RL : Reporting Limit

5/9/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	BSW-14-4	Date Analyzed:	03/30/06 16:46
Lab Samp ID:	C251-07T	Dilution Factor:	10
Lab File ID:	CSC112	Matrix :	WATER
Ext Btch ID:	CA13C07	% Moisture :	NA
Calib. Ref.:	CSC094	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	81000	12000	6000

RL : Reporting Limit

4/9/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	BSW-14-5	Date Analyzed:	03/30/06 14:31
Lab Samp ID:	C251-02T	Dilution Factor:	10
Lab File ID:	CSC104	Matrix :	WATER
Ext Btch ID:	CA13C07	% Moisture :	NA
Calib. Ref.:	CSC094	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	49000	12000	6000

RL : Reporting Limit

Sjlatoc

RSK-175 MODIFIED
CARBON DIOXIDE

Client : MARRS SERVICES, INC.	Date Collected: 03/27/06
Project : SEAL BEACH	Date Received: 03/28/06
Batch No. : 06C245	Date Extracted: 03/30/06 10:00
Sample ID: BSW-14-6	Date Analyzed: 03/30/06 13:34
Lab Samp ID: C251-01T	Dilution Factor: 5
Lab File ID: CSC101	Matrix : WATER
Ext Btch ID: CA13C07	% Moisture : NA
Calib. Ref.: CSC094	Instrument ID : GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	26000	6000	3000

RL : Reporting Limit

5/9/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client : MARRS SERVICES, INC.	Date Collected: 03/27/06
Project : SEAL BEACH	Date Received: 03/28/06
Batch No. : 06C245	Date Extracted: 03/30/06 10:00
Sample ID: BSW-14-7	Date Analyzed: 03/30/06 15:13
Lab Samp ID: C251-03T	Dilution Factor: 2
Lab File ID: CSC107	Matrix : WATER
Ext Btch ID: CA13C07	% Moisture : NA
Calib. Ref.: CSC094	Instrument ID : GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	20000	2400	1200

RL : Reporting Limit

5/9/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/27/06
Batch No.	: 06C245	Date Extracted:	03/31/06 10:00
Sample ID:	BSW-14-08	Date Analyzed:	03/31/06 15:29
Lab Samp ID:	C245-01T	Dilution Factor:	2
Lab File ID:	CSC140	Matrix :	WATER
Ext Btch ID:	CA13C09	% Moisture :	NA
Calib. Ref.:	CSC131	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	26000	2400	1200

RL : Reporting Limit

5/9/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/27/06
Batch No.	: 06C245	Date Extracted:	03/31/06 10:00
Sample ID:	DUPLICATE BSW-14-8	Date Analyzed:	03/31/06 16:34
Lab Samp ID:	C245-03T	Dilution Factor:	2
Lab File ID:	CSC143	Matrix :	WATER
Ext Btch ID:	CA13C09	% Moisture :	NA
Calib. Ref.:	CSC142	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	25000	2400	1200

RL : Reporting Limit

8/5/9/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/27/06
Batch No.	: 06C245	Date Extracted:	03/31/06 10:00
Sample ID:	BSW-14-09	Date Analyzed:	03/31/06 12:46
Lab Samp ID:	C245-02I	Dilution Factor:	10
Lab File ID:	CSC128	Matrix :	WATER
Ext Btch ID:	CA13C09	% Moisture :	NA
Calib. Ref.:	CSC121	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	97000	12000	6000

RL : Reporting Limit

5/9/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	03/28/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	03/31/06 10:00
Sample ID:	MW-05-01	Date Analyzed:	03/31/06 16:54
Lab Samp ID:	C268-01T	Dilution Factor:	2
Lab File ID:	CSC144	Matrix :	WATER
Ext Btch ID:	CA13C09	% Moisture :	NA
Calib. Ref.:	CSC142	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	28000	2400	1200

RL : Reporting Limit

4405150b

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	03/27/06
Project	: SEAL BEACH	Date Received:	03/28/06
Batch No.	: 06C245	Date Extracted:	03/30/06 10:00
Sample ID:	SB	Date Analyzed:	03/30/06 17:01
Lab Samp ID:	C251-06W	Dilution Factor:	1
Lab File ID:	CSC113	Matrix :	WATER
Ext Btch ID:	CA13C07	% Moisture :	NA
Calib. Ref.:	CSC094	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	770J	1200	600

RL : Reporting Limit

5/9/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client : MARRS SERVICES, INC.	Date Collected: 03/27/06
Project : SEAL BEACH	Date Received: 03/28/06
Batch No. : 06C245	Date Extracted: 03/30/06 10:00
Sample ID: ER	Date Analyzed: 03/30/06 15:32
Lab Samp ID: C251-05	Dilution Factor: 1
Lab File ID: CSC108	Matrix : WATER
Ext Btch ID: CA13C07	% Moisture : NA
Calib. Ref.: CSC094	Instrument ID : GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	690J	1200	600

RL : Reporting Limit

8/5/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	03/29/06
Project	: SEAL BEACH	Date Received:	03/29/06
Batch No.	: 06C268	Date Extracted:	03/31/06 10:00
Sample ID:	ER	Date Analyzed:	03/31/06 15:13
Lab Samp ID:	C268-09	Dilution Factor:	1
Lab File ID:	CSC139	Matrix :	WATER
Ext Btch ID:	CA13C09	% Moisture :	NA
Calib. Ref.:	CSC131	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	640J	1200	600

RL : Reporting Limit

4110

LABORATORY ANALYTICAL RESULTS

CHAIN-OF-CUSTODY

MARCH 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER: CA99064W021
SAMPLE STORAGE
EMAX CONTROL NO. * 06 C251
PROJECT CODE:

CLIENT: MAWS Services, Inc
PROJECT: NAVWPNSTA Seal Beach
COORDINATOR: Bob Broglio
TEL: (760) 233-1840 FAX: 205 EMAIL:
SEND REPORT TO: Same
COMPANY:
ADDRESS: 101 State Place, Suite O, Escondido, CA 92029
EMAX PM:

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: BTEX - MTBE - TPHgas; Methane, Ethane, Ethene; Carbon Dioxide; Orthophosphate; Ammonia, TKN; TDS; Alkalinity, pH; Chloride, Sulfate

TAT: ☐ Rush ____hrs. ☐ Rush ____days ☐ 7 days ☐ 14 days ☒ 21 days ☐ 30 days ☐ ____days ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	BTEX-MTBE-TPHgas	Methane, Ethane, Ethene	Carbon Dioxide	Orthophosphate	Ammonia, TKN	TDS	Alkalinity, pH	Chloride, Sulfate	COMMENTS
1	BSW-14-06		3/27/06	1410				GW		X	X	X	X	X	X	X	X	MS/MSD - 3 X volume provided for BTEX, MTBE, TPHgas, & MBE
2	BSW-14-05			1610						X	X	X	X	X	X	X	X	
3	BSW-14-7			1655						X	X	X	X	X	X	X	X	
4	Trip Blank									X	X							
5	ER			1800						X	X	X	X	X	X	X	X	
6	SB			1810						X	X	X	X	X	X	X	X	
7	BSW-14-04		3/28/06	0955						X	X	X	X	X	X	X	X	Strong Hydrocarbon Odor
8	BSW-14-03			1115						X	X	X	X	X	X	X	X	
9	BSW-14-02			1215						X	X	X	X	X	X	X	X	
10	BSW-14-1			1350						X	X	X	X	X	X	X	X	

Instructions: Geotracker EDF; NEDD-NINES EDD (no "0" in 06, 05, 04, 03, + 02)
13 bottles / Sample (10 VOA; 3 poly)

Cooler #	Temp. (°C)
1	2.8

Sample #s:

SAMPLER: BK

COURIER/AIRBILL:

RELINQUISHED BY	Date	Time	RECEIVED BY
[signature]	3/28/06	1415	[signature]
[signature]	3/28/06	1445	[signature]

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

~~Trip Blank 5 VOAs~~

1005

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER: CA19064/W021
SAMPLE STORAGE: 10/WW01-10
EMAX CONTROL NO. *: 06C245
PROJECT ~~CODE~~:

CLIENT: Mars Services Inc
PROJECT: NAVWPN Sta Seal Beach
COORDINATOR: Ross Oreglio
TEL: (760) 233-1810 ext 205 FAX: EMAIL:
SEND REPORT TO: Same
COMPANY:
ADDRESS: 101 State Place, Suite O, Escondido, CA 92029
EMAX PM:

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

TAT: ☐ Rush ____hrs. ☐ Rush ____days ☐ 7 days ☐ 14 days ☐ 21 days ☐ 30 days ☐ ____days ☐ — Normal

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	BTEX, MTBE, TPHg	Ethane, Ethene, Methane	Orthophosphate	Ammonia, TKN	Carbon Dioxide	TDS	Alkalinity, pH	Anions (Chloride, Sulfate)	COMMENTS
1	BSW-14-08		3/27/06	1117						X	X	X	X	X	X	X	X	
2	BSW-14-09		↓	1305						X	X	X	X	X	X	X	X	
3	Duplicate		↓	//						X	X	X	X	X	X	X	X	
4	Trip Blank		↓	//						X	X							
5										X	X							
6																		
7																		
8																		
9																		
0																		

Instructions: Geotracker EDF; NEDD NINIS EDD; 13 bottles / sample; 10 VOAs - 3 poly

Cooler #	Temp. (°C)	Sample #s
1	3.9	

SAMPLER: Breglio, Glen

COURIER/AIRBILL:

RELINQUISHED BY	Date	Time	RECEIVED BY
[signature]	3/27/06	1420	[signature]
[signature]	3/27/06	1450	[signature]

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

1006

E3

VW01-52, 46

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER: CA9906 4W021

SAMPLE STORAGE

EMAX CONTROL NO. * 06C268

PROJECT CODE:

CLIENT: MAWS Services, Inc
PROJECT: NAVWPNSTA Seal Beach Site 14
COORDINATOR: Bob Breglio
TEL: (760) 233-1848 x 205 FAX: EMAIL:
SEND REPORT TO: Same
COMPANY:
ADDRESS: 101 State Place, Suite O, Escondido, CA 92029
EMAX PM:

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

TAT: ☐ Rush ____hrs. ☐ Rush ____days ☐ 7 days ☐ 14 days ☐ 21 days ☐ 30 days ☐ ____days ☐ Normal

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	BTEX MTBE	TPH gas	Methane Ethane Ethene	Carbon Dioxide	Orthophosphate	Ammonia	TDS	Alkalinity	Chloride, Sulfate	COMMENTS
1	MW-05-01		3/28/06	1510						X	X	X	X	X	X	X	X	X	
	IRP Site 14-T MW-4		3/29/06	0840						X	X								
	IRP Site 14-T MW-5			0850						X	X								
	IRP Site 14-T MW-1			0915						X	X								
	IRP Site 14-T MW-2			0945						X	X								
	IRP Site 14-T MW-3			1010						X	X								
	IRP Site 14-T MW-6			1100						X	X								
8	Duplicate									X	X								
9	EFR			1200						X	X	X	X	X	X	X	X	X	
0																			

Instructions: Geotracker EDF
NFDD MRS EDD

Cooler #	Temp. (°C)	Sample #s
1	3.6	

SAMPLER: Breglio

COURIER/AIRBILL:

RELINQUISHED BY	Date	Time	RECEIVED BY
RAS	3/29/06	1325	Phil Hall
Phil Hall	32906	1400	
	32906	1400	

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

1002

LABORATORY ANALYTICAL RESULTS

VOLATILE ORGANIC COMPOUNDS (VOCs)

AUGUST 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/08/06 17:35
Sample ID:	BSW-14-01	Date Analyzed:	08/08/06 17:35
Lab Samp ID:	H027-01	Dilution Factor:	1
Lab File ID:	RHD168	Matrix :	WATER
Ext Btch ID:	V094H15	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	.44J	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	100	63-143
4-BROMOFLUOROBENZENE	126	63-143
TOLUENE-D8	121	63-143

9/18/06

2004

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/08/06 21:30
Sample ID:	BSW-14-02	Date Analyzed:	08/08/06 21:30
Lab Samp ID:	H027-05	Dilution Factor:	1
Lab File ID:	RHD174	Matrix :	WATER
Ext Btch ID:	VO94H15	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	76E R	.5	.2
ETHYLBENZENE	3.4	1	.2
M/P-XYLENES	2.3	2	.5
MTBE	35	1	.2
O-XYLENE	1.5	1	.2
TOLUENE	2.2	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	110	63-143
4-BROMOFLUOROBENZENE	115	63-143
TOLUENE-D8	117	63-143

9/18/06

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/09/06 20:39
Sample ID:	BSW-14-02DL	Date Analyzed:	08/09/06 20:39
Lab Samp ID:	H027-05T	Dilution Factor:	500
Lab File ID:	RHD205	Matrix :	WATER
Ext Btch ID:	V094H19	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	1300	250	100
ETHYLBENZENE	ND R	500	100
M/P-XYLENES	ND	1000	250
MTBE	ND	500	100
O-XYLENE	ND	500	100
TOLUENE	ND	500	100

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	90	63-143
4-BROMOFLUOROBENZENE	114	63-143
TOLUENE-D8	106	63-143

9/18/06

2014

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/08/06 18:17
Sample ID:	BSW-14-03	Date Analyzed:	08/08/06 18:17
Lab Samp ID:	H027-02	Dilution Factor:	1
Lab File ID:	RHD169	Matrix :	WATER
Ext Btch ID:	V094H15	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	5.7	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	270E R	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	90	63-143
4-BROMOFLUOROBENZENE	115	63-143
TOLUENE-D8	119	63-143

9/18/06

2099

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/09/06 21:56
Sample ID:	BSW-14-03DL	Date Analyzed:	08/09/06 21:56
Lab Samp ID:	H027-02T	Dilution Factor:	25
Lab File ID:	RHD207	Matrix :	WATER
Ext Btch ID:	V094H19	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND R	12	5
ETHYLBENZENE	ND	25	5
M/P-XYLENES	ND	50	12
MTBE	330	25	5
O-XYLENE	ND R	25	5
TOLUENE	ND	25	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	91	63-143
4-BROMOFLUOROBENZENE	115	63-143
TOLUENE-D8	106	63-143

9/18/06

2016

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/08/06 20:12
Sample ID:	BSW-14-04	Date Analyzed:	08/08/06 20:12
Lab Samp ID:	H027-06	Dilution Factor:	1
Lab File ID:	RHD172	Matrix :	WATER
Ext Btch ID:	VO94H15	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	54E R	.5	.2
ETHYLBENZENE	8.8	1	.2
M/P-XYLENES	61	2	.5
MTBE	320E R	1	.2
O-XYLENE	6.8	1	.2
TOLUENE	26	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	108	63-143
4-BROMOFLUOROBENZENE	118	63-143
TOLUENE-D8	115	63-143

9/18/06

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/09/06 21:17
Sample ID:	BSW-14-04DL	Date Analyzed:	08/09/06 21:17
Lab Samp ID:	H027-06T	Dilution Factor:	50
Lab File ID:	RHD206	Matrix :	WATER
Ext Btch ID:	VO94H19	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	1800	25	10
ETHYLBENZENE	11J R	50	10
M/P-XYLENES	67J ↓	100	25
MTBE	420	50	10
O-XYLENE	ND R	50	10
TOLUENE	31J ↓	50	10

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	90	63-143
4-BROMOFLUOROBENZENE	110	63-143
TOLUENE-D8	105	63-143

9/18/06

2015

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/11/06 09:54
Sample ID:	BSW-14-05	Date Analyzed:	08/11/06 09:54
Lab Samp ID:	H019-01	Dilution Factor:	1
Lab File ID:	RHD255	Matrix :	WATER
Ext Btch ID:	VO94H23	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	94	63-143
4-BROMOFLUOROBENZENE	116	63-143
TOLUENE-D8	107	63-143

9/18/06

2004

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/11/06 08:36
Sample ID:	DUPLICATE BSW-14-5	Date Analyzed:	08/11/06 08:36
Lab Samp ID:	H019-02	Dilution Factor:	1
Lab File ID:	RHD253	Matrix :	WATER
Ext Btch ID:	V094H23	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	90	63-143
4-BROMOFLUOROBENZENE	118	63-143
TOLUENE-D8	108	63-143

9/18/06

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/11/06 07:58
Sample ID:	BSW-14-06	Date Analyzed:	08/11/06 07:58
Lab Samp ID:	H019-03	Dilution Factor:	1
Lab File ID:	RHD252	Matrix :	WATER
Ext Btch ID:	V094H23	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	95	63-143
4-BROMOFLUOROBENZENE	114	63-143
TOLUENE-D8	106	63-143

9/18/06

2066

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/08/06 19:33
Sample ID:	BSW-14-07	Date Analyzed:	08/08/06 19:33
Lab Samp ID:	H027-04	Dilution Factor:	1
Lab File ID:	RHD171	Matrix :	WATER
Ext Btch ID:	V094H15	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	99	63-143
4-BROMOFLUOROBENZENE	128	63-143
TOLUENE-D8	119	63-143

8/9/18 1052

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/09/06 23:14
Sample ID:	BSW-14-08	Date Analyzed:	08/09/06 23:14
Lab Samp ID:	H027-03R	Dilution Factor:	1
Lab File ID:	RHD209	Matrix :	WATER
Ext Btch ID:	V094H19	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	4.3	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	93	63-143
4-BROMOFLUOROBENZENE	114	63-143
TOLUENE-D8	107	63-143

9/18/06

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/11/06 07:18
Sample ID:	BSW-14-09	Date Analyzed:	08/11/06 07:18
Lab Samp ID:	H019-07	Dilution Factor:	1
Lab File ID:	RHD251	Matrix :	WATER
Ext Btch ID:	V094H23	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	95	63-143
4-BROMOFLUOROBENZENE	115	63-143
TOLUENE-D8	106	63-143

9/18/06

2011

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/07/06
Project	: SEAL BEACH	Date Received:	08/07/06
Batch No.	: 06H059	Date Extracted:	08/10/06 01:50
Sample ID:	BSW-14-10	Date Analyzed:	08/10/06 01:50
Lab Samp ID:	H059-02	Dilution Factor:	1
Lab File ID:	RHD213	Matrix :	WATER
Ext Btch ID:	VO94H19	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	25	.5	.2
ETHYLBENZENE	42	1	.2
M/P-XYLENES	ND	2	.5
MTBE	93E R	1	.2
O-XYLENE	1.7	1	.2
TOLUENE	.37J	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	100	63-143
4-BROMOFLUOROBENZENE	111	63-143
TOLUENE-D8	104	63-143

9/18/06

2005

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/07/06
Project	: SEAL BEACH	Date Received:	08/07/06
Batch No.	: 06H059	Date Extracted:	08/11/06 20:13
Sample ID:	BSW-14-10DL	Date Analyzed:	08/11/06 20:13
Lab Samp ID:	H059-02T	Dilution Factor:	10
Lab File ID:	RHD269	Matrix :	WATER
Ext Btch ID:	V094H24	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	26 R	5	2
ETHYLBENZENE	39	10	2
M/P-XYLENES	ND	20	5
MTBE	89	10	2
O-XYLENE	ND R	10	2
TOLUENE	ND	10	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	97	63-143
4-BROMOFLUOROBENZENE	107	63-143
TOLUENE-D8	102	63-143

9/18/06

2007

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/07/06
Project	: SEAL BEACH	Date Received:	08/07/06
Batch No.	: 06H059	Date Extracted:	08/10/06 01:11
Sample ID:	BSW-14-11	Date Analyzed:	08/10/06 01:11
Lab Samp ID:	H059-01	Dilution Factor:	1
Lab File ID:	RHD212	Matrix :	WATER
Ext Btch ID:	V094H19	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	160E R	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	109	63-143
4-BROMOFLUOROBENZENE	127	63-143
TOLUENE-D8	108	63-143

9/18/06

2004

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/07/06
Project	: SEAL BEACH	Date Received:	08/07/06
Batch No.	: 06H059	Date Extracted:	08/11/06 19:34
Sample ID:	BSW-14-11DL	Date Analyzed:	08/11/06 19:34
Lab Samp ID:	H059-01T	Dilution Factor:	25
Lab File ID:	RHD268	Matrix :	WATER
Ext Btch ID:	VO94H24	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND R	12	5
ETHYLBENZENE	ND	25	5
M/P-XYLENES	ND	50	12
MTBE	650	25	5
O-XYLENE	ND R	25	5
TOLUENE	ND	25	5

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	91	63-143
4-BROMOFLUOROBENZENE	113	63-143
TOLUENE-D8	105	63-143

9/18/07

2005

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/09/06 23:53
Sample ID:	MW-05-01	Date Analyzed:	08/09/06 23:53
Lab Samp ID:	H027-07R	Dilution Factor:	1
Lab File ID:	RHD210	Matrix :	WATER
Ext Btch ID:	V094H19	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	250E R	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	90	63-143
4-BROMOFLUOROBENZENE	115	63-143
TOLUENE-D8	107	63-143

9/18/06

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/09/06 22:35
Sample ID:	MW-05-01DL	Date Analyzed:	08/09/06 22:35
Lab Samp ID:	H027-07T	Dilution Factor:	10
Lab File ID:	RHD208	Matrix :	WATER
Ext Btch ID:	V094H19	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND R	5	2
ETHYLBENZENE	ND	10	2
M/P-XYLENES	ND	20	5
MTBE	290	10	2
O-XYLENE	ND R	10	2
TOLUENE	ND	10	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	95	63-143
4-BROMOFLUOROBENZENE	116	63-143
TOLUENE-D8	107	63-143

9/18/06

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H020	Date Extracted:	08/10/06 19:31
Sample ID:	IRP-SITE 14-TMW-07	Date Analyzed:	08/10/06 19:31
Lab Samp ID:	H020-01	Dilution Factor:	1
Lab File ID:	RHD233	Matrix :	WATER
Ext Btch ID:	V094H21	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	.34J	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	.51J	2	.5
MTBE	ND	1	.2
O-XYLENE	.21J	1	.2
TOLUENE	.44J 1U	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	85	63-143
4-BROMOFLUOROBENZENE	111	63-143
TOLUENE-D8	106	63-143

9/18/06

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H020	Date Extracted:	08/14/06 17:44
Sample ID:	IRP-SITE 14-TMW-08	Date Analyzed:	08/14/06 17:44
Lab Samp ID:	H020-02R	Dilution Factor:	1
Lab File ID:	RHD333	Matrix :	WATER
Ext Btch ID:	V094H30	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	.44J 14	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	93	63-143
4-BROMOFLUOROBENZENE	112	63-143
TOLUENE-D8	103	63-143

9/18/06

2995

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H020	Date Extracted:	08/11/06 20:52
Sample ID:	IRP-SITE 14-TMW-09	Date Analyzed:	08/11/06 20:52
Lab Samp ID:	H020-03R	Dilution Factor:	1
Lab File ID:	RHD270	Matrix :	WATER
Ext Btch ID:	VO94H24	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	.5	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	.55J 14	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	94	63-143
4-BROMOFLUOROBENZENE	111	63-143
TOLUENE-D8	104	63-143

9/18/06

2006

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H020	Date Extracted:	08/10/06 21:29
Sample ID:	IRP-SITE 14-TMW-10	Date Analyzed:	08/10/06 21:29
Lab Samp ID:	H020-04	Dilution Factor:	1
Lab File ID:	RHD236	Matrix :	WATER
Ext Btch ID:	V094H21	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	.33J	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	.33J 1U	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	91	63-143
4-BROMOFLUOROBENZENE	115	63-143
TOLUENE-D8	108	63-143

9/18/06

2007

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/11/06 06:00
Sample ID:	SOURCE BLANK	Date Analyzed:	08/11/06 06:00
Lab Samp ID:	H019-05	Dilution Factor:	1
Lab File ID:	RHD249	Matrix :	WATER
Ext Btch ID:	VO94H23	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	.2J	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	89	63-143
4-BROMOFLUOROBENZENE	115	63-143
TOLUENE-D8	107	63-143

9/18/06

2012

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/11/06 06:39
Sample ID:	EQUIPMENT RINSATE #1	Date Analyzed:	08/11/06 06:39
Lab Samp ID:	H019-04	Dilution Factor:	1
Lab File ID:	RHD250	Matrix :	WATER
Ext Btch ID:	V094H23	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	.23J	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	91	63-143
4-BROMOFLUOROBENZENE	116	63-143
TOLUENE-D8	107	63-143

9/18/06

2011

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/08/06 16:56
Sample ID:	EQUIPMENT RINSATE #2	Date Analyzed:	08/08/06 16:56
Lab Samp ID:	H027-08	Dilution Factor:	1
Lab File ID:	RHD167	Matrix :	WATER
Ext Btch ID:	V094H15	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	1.1	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	.24J	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	100	63-143
4-BROMOFLUOROBENZENE	124	63-143
TOLUENE-D8	120	63-143

9/18/06

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/07/06
Project	: SEAL BEACH	Date Received:	08/07/06
Batch No.	: 06H059	Date Extracted:	08/11/06 18:54
Sample ID:	EQUIPMENT RINSATE	Date Analyzed:	08/11/06 18:54
Lab Samp ID:	H059-03R	Dilution Factor:	1
Lab File ID:	RHD267	Matrix :	WATER
Ext Btch ID:	VO94H24	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	90	63-143
4-BROMOFLUOROBENZENE	116	63-143
TOLUENE-D8	104	63-143

9/18/06

2008

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/11/06 05:20
Sample ID:	TRIP BLANK	Date Analyzed:	08/11/06 05:20
Lab Samp ID:	H019-06	Dilution Factor:	1
Lab File ID:	RHD248	Matrix :	WATER
Ext Btch ID:	V094H23	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	94	63-143
4-BROMOFLUOROBENZENE	116	63-143
TOLUENE-D8	106	63-143

9/18/06

2013

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/08/06 16:17
Sample ID:	TRIP BLANK	Date Analyzed:	08/08/06 16:17
Lab Samp ID:	H027-09	Dilution Factor:	1
Lab File ID:	RHD166	Matrix :	WATER
Ext Btch ID:	VO94H15	% Moisture :	NA
Calib. Ref.:	RFD135	Instrument ID :	T-094

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	.5	.2
ETHYLBENZENE	ND	1	.2
M/P-XYLENES	ND	2	.5
MTBE	ND	1	.2
O-XYLENE	ND	1	.2
TOLUENE	ND	1	.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	95	63-143
4-BROMOFLUOROBENZENE	126	63-143
TOLUENE-D8	121	63-143

9/18/06

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

Client	: MARRS SERVICES, INC.	Date Collected:	08/07/06
Project	: SEAL BEACH	Date Received:	08/07/06
Batch No.	: 06H059	Date Extracted:	08/19/06 03:47
Sample ID:	TRIP BLANK	Date Analyzed:	08/19/06 03:47
Lab Samp ID:	H059-04R	Dilution Factor:	1
Lab File ID:	RHW473	Matrix :	WATER
Ext Btch ID:	VO06H36	% Moisture :	NA
Calib. Ref.:	RGW442	Instrument ID :	T-006

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	0.50	0.20
ETHYLBENZENE	ND	1	0.20
M/P-XYLENES	ND	2	0.50
MTBE	ND	1	0.20
O-XYLENE	ND	1	0.20
TOLUENE	ND	1	0.20

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	115	63-143
4-BROMOFLUOROBENZENE	102	63-143
TOLUENE-D8	106	63-143

9/18/06

2009

LABORATORY ANALYTICAL RESULTS

TOTAL PETROLEUM HYDROCARBONS as GASOLINE (TPHg)

AUGUST 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/07/06 19:25
Sample ID:	BSW-14-01	Date Analyzed:	08/07/06 19:25
Lab Samp ID:	H027-01	Dilution Factor:	1
Lab File ID:	EH07013A	Matrix :	WATER
Ext Btch ID:	VA39H05	% Moisture :	NA
Calib. Ref.:	EH07011A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	94	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/08/06 21:35
Sample ID:	BSW-14-02	Date Analyzed:	08/08/06 21:35
Lab Samp ID:	H027-05	Dilution Factor:	1
Lab File ID:	EH07053A	Matrix :	WATER
Ext Btch ID:	VA39H06	% Moisture :	NA
Calib. Ref.:	EH07047A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	1	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	89	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/8/06

1089

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/07/06 21:21
Sample ID:	BSW-14-03	Date Analyzed:	08/07/06 21:21
Lab Samp ID:	H027-02	Dilution Factor:	1
Lab File ID:	EH07016A	Matrix :	WATER
Ext Btch ID:	VA39H05	% Moisture :	NA
Calib. Ref.:	EH07011A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	93	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

7/18/06

4006

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/08/06 22:13
Sample ID:	BSW-14-04	Date Analyzed:	08/08/06 22:13
Lab Samp ID:	H027-06	Dilution Factor:	1
Lab File ID:	EH07054A	Matrix :	WATER
Ext Btch ID:	VA39H06	% Moisture :	NA
Calib. Ref.:	EH07047A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	.83 J	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	161*	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

* : Out of QC limits due to matrix interference.

9/18/06

4819

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/04/06 21:13
Sample ID:	BSW-14-05	Date Analyzed:	08/04/06 21:13
Lab Samp ID:	H019-01	Dilution Factor:	1
Lab File ID:	EH04016A	Matrix :	WATER
Ext Btch ID:	VA39H04	% Moisture :	NA
Calib. Ref.:	EH04013A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	93	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/04/06 23:08
Sample ID:	DUPLICATE BSW-14-5	Date Analyzed:	08/04/06 23:08
Lab Samp ID:	H019-02	Dilution Factor:	1
Lab File ID:	EH04019A	Matrix :	WATER
Ext Btch ID:	VA39H04	% Moisture :	NA
Calib. Ref.:	EH04013A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	96	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/04/06 23:47
Sample ID:	BSW-14-06	Date Analyzed:	08/04/06 23:47
Lab Samp ID:	H019-03	Dilution Factor:	1
Lab File ID:	EH04020A	Matrix :	WATER
Ext Btch ID:	VA39H04	% Moisture :	NA
Calib. Ref.:	EH04013A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	96	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

1128

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/07/06 22:38
Sample ID:	BSW-14-07	Date Analyzed:	08/07/06 22:38
Lab Samp ID:	H027-04	Dilution Factor:	1
Lab File ID:	EH07018A	Matrix :	WATER
Ext Btch ID:	VA39H05	% Moisture :	NA
Calib. Ref.:	EH07011A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	92	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/07/06 22:00
Sample ID:	BSW-14-08	Date Analyzed:	08/07/06 22:00
Lab Samp ID:	H027-03	Dilution Factor:	1
Lab File ID:	EH07017A	Matrix :	WATER
Ext Btch ID:	VA39H05	% Moisture :	NA
Calib. Ref.:	EH07011A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	93	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

4007

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/05/06 02:20
Sample ID:	BSW-14-09	Date Analyzed:	08/05/06 02:20
Lab Samp ID:	H019-07	Dilution Factor:	1
Lab File ID:	EH04024A	Matrix :	WATER
Ext Btch ID:	VA39H04	% Moisture :	NA
Calib. Ref.:	EH04013A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	96	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/07/06
Project	: SEAL BEACH	Date Received:	08/07/06
Batch No.	: 06H059	Date Extracted:	08/09/06 03:21
Sample ID:	BSW-14-10	Date Analyzed:	08/09/06 03:21
Lab Samp ID:	H059-02	Dilution Factor:	1
Lab File ID:	EH07062A	Matrix :	WATER
Ext Btch ID:	VA39H07	% Moisture :	NA
Calib. Ref.:	EH07058A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	.24	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	124	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/07/06
Project	: SEAL BEACH	Date Received:	08/07/06
Batch No.	: 06H059	Date Extracted:	08/09/06 02:43
Sample ID:	BSW-14-11	Date Analyzed:	08/09/06 02:43
Lab Samp ID:	H059-01	Dilution Factor:	1
Lab File ID:	EH07061A	Matrix :	WATER
Ext Btch ID:	VA39H07	% Moisture :	NA
Calib. Ref.:	EH07058A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	.3	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	124	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

1004

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/08/06 00:34
Sample ID:	MW-05-01	Date Analyzed:	08/08/06 00:34
Lab Samp ID:	H027-07	Dilution Factor:	1
Lab File ID:	EH07021A	Matrix	: WATER
Ext Btch ID:	VA39H05	% Moisture	: NA
Calib. Ref.:	EH07011A	Instrument ID	: GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	91	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H020	Date Extracted:	08/05/06 04:15
Sample ID:	IRP-SITE 14-TMW-07	Date Analyzed:	08/05/06 04:15
Lab Samp ID:	H020-01	Dilution Factor:	1
Lab File ID:	EH04027A	Matrix :	WATER
Ext Btch ID:	VA39H04	% Moisture :	NA
Calib. Ref.:	EH04025A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	93	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H020	Date Extracted:	08/05/06 04:53
Sample ID:	IRP-SITE 14-TMW-08	Date Analyzed:	08/05/06 04:53
Lab Samp ID:	H020-02	Dilution Factor:	1
Lab File ID:	EH04028A	Matrix :	WATER
Ext Btch ID:	VA39H04	% Moisture :	NA
Calib. Ref.:	EH04025A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	96	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H020	Date Extracted:	08/05/06 05:32
Sample ID:	IRP-SITE 14-TMW-09	Date Analyzed:	08/05/06 05:32
Lab Samp ID:	H020-03	Dilution Factor:	1
Lab File ID:	EH04029A	Matrix :	WATER
Ext Btch ID:	VA39H04	% Moisture :	NA
Calib. Ref.:	EH04025A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	95	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

1006

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : MARRS SERVICES, INC.	Date Collected: 08/02/06
Project : SEAL BEACH	Date Received: 08/02/06
Batch No. : 06H020	Date Extracted: 08/05/06 06:10
Sample ID: IRP-SITE 14-TMW-10	Date Analyzed: 08/05/06 06:10
Lab Samp ID: H020-04	Dilution Factor: 1
Lab File ID: EH04030A	Matrix : WATER
Ext Btch ID: VA39H04	% Moisture : NA
Calib. Ref.: EH04025A	Instrument ID : GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	95	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/05/06 01:04
Sample ID:	SOURCE BLANK	Date Analyzed:	08/05/06 01:04
Lab Samp ID:	H019-05	Dilution Factor:	1
Lab File ID:	EH04022A	Matrix :	WATER
Ext Btch ID:	VA39H04	% Moisture :	NA
Calib. Ref.:	EH04013A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	94	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

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1129

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/05/06 00:25
Sample ID:	EQUIPMENT RINSATE #1	Date Analyzed:	08/05/06 00:25
Lab Samp ID:	H019-04	Dilution Factor:	1
Lab File ID:	EH04021A	Matrix :	WATER
Ext Btch ID:	VA39H04	% Moisture :	NA
Calib. Ref.:	EH04013A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	93	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/08/06 02:29
Sample ID:	EQUIPMENT RINSATE #2	Date Analyzed:	08/08/06 02:29
Lab Samp ID:	H027-08	Dilution Factor:	1
Lab File ID:	EH07024A	Matrix :	WATER
Ext Btch ID:	VA39H05	% Moisture :	NA
Calib. Ref.:	EH07022A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	91	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

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4812

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/07/06
Project	: SEAL BEACH	Date Received:	08/07/06
Batch No.	: 06H059	Date Extracted:	08/09/06 04:00
Sample ID:	EQUIPMENT RINSATE	Date Analyzed:	08/09/06 04:00
Lab Samp ID:	H059-03	Dilution Factor:	1
Lab File ID:	EH07063A	Matrix :	WATER
Ext Btch ID:	VA39H07	% Moisture :	NA
Calib. Ref.:	EH07058A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	93	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/05/06 01:42
Sample ID:	TRIP BLANK	Date Analyzed:	08/05/06 01:42
Lab Samp ID:	H019-06	Dilution Factor:	1
Lab File ID:	EH04023A	Matrix :	WATER
Ext Btch ID:	VA39H04	% Moisture :	NA
Calib. Ref.:	EH04013A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	96	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/08/06 03:08
Sample ID:	TRIP BLANK	Date Analyzed:	08/08/06 03:08
Lab Samp ID:	H027-09	Dilution Factor:	1
Lab File ID:	EH07025A	Matrix :	WATER
Ext Btch ID:	VA39H05	% Moisture :	NA
Calib. Ref.:	EH07022A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	89	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

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1013

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : MARRS SERVICES, INC.	Date Collected: 08/07/06
Project : SEAL BEACH	Date Received: 08/07/06
Batch No. : 06H059	Date Extracted: 08/09/06 04:38
Sample ID: TRIP BLANK	Date Analyzed: 08/09/06 04:38
Lab Samp ID: H059-04	Dilution Factor: 1
Lab File ID: EH07064A	Matrix : WATER
Ext Btch ID: VA39H07	% Moisture : NA
Calib. Ref.: EH07058A	Instrument ID : GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	95	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/18/06

1007

LABORATORY ANALYTICAL RESULTS

METHANE, ETHANE, & ETHENE
(MEE)

AUGUST 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/07/06 09:40
Sample ID:	BSW-14-01	Date Analyzed:	08/07/06 13:53
Lab Samp ID:	H027-01	Dilution Factor:	1
Lab File ID:	FH07016A	Matrix :	WATER
Ext Btch ID:	DG10H05	% Moisture :	NA
Calib. Ref.:	FH07014A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	3.1	1.2	.6

RL: Reporting Limit

9/18/06

4065

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/07/06 09:40
Sample ID:	BSW-14-02	Date Analyzed:	08/07/06 15:14
Lab Samp ID:	H027-05	Dilution Factor:	1
Lab File ID:	FH07020A	Matrix :	WATER
Ext Btch ID:	DG10H05	% Moisture :	NA
Calib. Ref.:	FH07014A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	320E R	1.2	.6

RL: Reporting Limit

9/18/06

1871

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/07/06 09:40
Sample ID:	BSW-14-02DL	Date Analyzed:	08/07/06 16:10
Lab Samp ID:	H027-05T	Dilution Factor:	200
Lab File ID:	FH07024A	Matrix :	WATER
Ext Btch ID:	DG10H05	% Moisture :	NA
Calib. Ref.:	FH07014A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND R	300	120
ETHENE	ND R	300	120
METHANE	3300	240	120

RL: Reporting Limit

9/18/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/07/06 09:40
Sample ID:	BSW-14-03	Date Analyzed:	08/07/06 14:06
Lab Samp ID:	H027-02	Dilution Factor:	1
Lab File ID:	FH07017A	Matrix :	WATER
Ext Btch ID:	DG10H05	% Moisture :	NA
Calib. Ref.:	FH07014A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	180E R	1.2	.6

RL: Reporting Limit

9/18/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/07/06 09:40
Sample ID:	BSW-14-03DL	Date Analyzed:	08/07/06 15:56
Lab Samp ID:	H027-02T	Dilution Factor:	50
Lab File ID:	FH07023A	Matrix :	WATER
Ext Btch ID:	DG10H05	% Moisture :	NA
Calib. Ref.:	FH07014A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND R	75	30
ETHENE	ND	75	30
METHANE	520	60	30

RL: Reporting Limit

9/18/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/07/06 09:40
Sample ID:	BSW-14-04	Date Analyzed:	08/07/06 15:27
Lab Samp ID:	H027-06	Dilution Factor:	1
Lab File ID:	FH07021A	Matrix :	WATER
Ext Btch ID:	DG10H05	% Moisture :	NA
Calib. Ref.:	FH07014A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	.69J	1.5	.6
ETHENE	ND	1.5	.6
METHANE	250E R	1.2	.6

RL: Reporting Limit

9/18/06

1872

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/07/06 09:40
Sample ID:	BSW-14-04DL	Date Analyzed:	08/07/06 16:26
Lab Samp ID:	H027-06T	Dilution Factor:	100
Lab File ID:	FH07025A	Matrix :	WATER
Ext Btch ID:	DG10H05	% Moisture :	NA
Calib. Ref.:	FH07014A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND B	150	60
ETHENE	ND R	150	60
METHANE	1900	120	60

RL: Reporting Limit

9/18/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/07/06 09:40
Sample ID:	BSW-14-05	Date Analyzed:	08/07/06 12:06
Lab Samp ID:	H019-01	Dilution Factor:	1
Lab File ID:	FH07008A	Matrix :	WATER
Ext Btch ID:	DG10H05	% Moisture :	NA
Calib. Ref.:	FH07002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

9/18/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/07/06 09:40
Sample ID:	DUPLICATE BSW-14-5	Date Analyzed:	08/07/06 12:58
Lab Samp ID:	H019-02	Dilution Factor:	1
Lab File ID:	FH07012A	Matrix :	WATER
Ext Btch ID:	DG10H05	% Moisture :	NA
Calib. Ref.:	FH07002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

9/18/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/07/06 09:40
Sample ID:	BSW-14-06	Date Analyzed:	08/07/06 13:13
Lab Samp ID:	H019-03	Dilution Factor:	1
Lab File ID:	FH07013A	Matrix :	WATER
Ext Btch ID:	DG10H05	% Moisture :	NA
Calib. Ref.:	FH07002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

9/18/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/07/06 09:40
Sample ID:	BSW-14-07	Date Analyzed:	08/07/06 14:59
Lab Samp ID:	H027-04	Dilution Factor:	1
Lab File ID:	FH07019A	Matrix :	WATER
Ext Btch ID:	DG10H05	% Moisture :	NA
Calib. Ref.:	FH07014A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

9/18/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/07/06 09:40
Sample ID:	BSW-14-08	Date Analyzed:	08/07/06 14:43
Lab Samp ID:	H027-03	Dilution Factor:	1
Lab File ID:	FH07018A	Matrix :	WATER
Ext Btch ID:	DG10H05	% Moisture :	NA
Calib. Ref.:	FH07014A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

9/18/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/07/06 09:40
Sample ID:	BSW-14-09	Date Analyzed:	08/07/06 13:41
Lab Samp ID:	H019-07	Dilution Factor:	1
Lab File ID:	FH07015A	Matrix :	WATER
Ext Btch ID:	DG10H05	% Moisture :	NA
Calib. Ref.:	FH07014A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	ND	1.2	.6

RL: Reporting Limit

9/18/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/07/06
Project	: SEAL BEACH	Date Received:	08/07/06
Batch No.	: 06H059	Date Extracted:	08/09/06 10:00
Sample ID:	BSW-14-10	Date Analyzed:	08/09/06 12:21
Lab Samp ID:	H059-02	Dilution Factor:	1
Lab File ID:	FH09008A	Matrix :	WATER
Ext Btch ID:	DG10H07	% Moisture :	NA
Calib. Ref.:	FH09003A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	.95J	1.5	.6
METHANE	98E R	1.2	.6

RL: Reporting Limit

Fallbar

1029

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/07/06
Project	: SEAL BEACH	Date Received:	08/07/06
Batch No.	: 06H059	Date Extracted:	08/09/06 10:00
Sample ID:	BSW-14-10DL	Date Analyzed:	08/09/06 12:40
Lab Samp ID:	H059-02T	Dilution Factor:	10
Lab File ID:	FH09009A	Matrix :	WATER
Ext Btch ID:	DG10H07	% Moisture :	NA
Calib. Ref.:	FH09003A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND R	15	6
ETHENE	ND R	15	6
METHANE	160	12	6

RL: Reporting Limit

9/18/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/07/06
Project	: SEAL BEACH	Date Received:	08/07/06
Batch No.	: 06H059	Date Extracted:	08/09/06 10:00
Sample ID:	BSW-14-11	Date Analyzed:	08/09/06 12:06
Lab Samp ID:	H059-01	Dilution Factor:	1
Lab File ID:	FH09007A	Matrix :	WATER
Ext Btch ID:	DG10H07	% Moisture :	NA
Calib. Ref.:	FH09003A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	1.1J	1.5	.6
METHANE	14	1.2	.6

RL: Reporting Limit

9/18/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/07/06 09:40
Sample ID:	MW-05-01	Date Analyzed:	08/07/06 15:40
Lab Samp ID:	H027-07	Dilution Factor:	1
Lab File ID:	FH07022A	Matrix :	WATER
Ext Btch ID:	DG10H05	% Moisture :	NA
Calib. Ref.:	FH07014A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	.6
ETHENE	ND	1.5	.6
METHANE	3.8	1.2	.6

RL: Reporting Limit

9/18/06

LABORATORY ANALYTICAL RESULTS

WET CHEMISTRY

AUGUST 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

METHOD 350.2
AMMONIA (NH3-N)

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H027

Matrix : WATER
Instrument ID : 170

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	NHH002WB	ND	1	NA	.1	.03	08/09/0619:14	08/09/0610:00	NHH002-05	NHH002-01	NHH002W	NA	08/09/06
LCS1W	NHH002WL	.969	1	NA	.1	.03	08/09/0619:14	08/09/0610:00	NHH002-06	NHH002-01	NHH002W	NA	08/09/06
LCD1W	NHH002WC	1.03	1	NA	.1	.03	08/09/0619:14	08/09/0610:00	NHH002-07	NHH002-01	NHH002W	NA	08/09/06
BSW-14-01	H027-01	.0972J	1	NA	.1	.03	08/09/0619:18	08/09/0610:00	NHH002-12	NHH002-01	NHH002W	08/03/06	08/03/06
BSW-14-03	H027-02	.259	1	NA	.1	.03	08/09/0619:18	08/09/0610:00	NHH002-15	NHH002-13	NHH002W	08/03/06	08/03/06
BSW-14-08	H027-03	.0876J	1	NA	.1	.03	08/09/0619:18	08/09/0610:00	NHH002-16	NHH002-13	NHH002W	08/02/06	08/03/06
BSW-14-07	H027-04	.145	1	NA	.1	.03	08/09/0619:19	08/09/0610:00	NHH002-17	NHH002-13	NHH002W	08/02/06	08/03/06
BSW-14-02	H027-05	.135	1	NA	.1	.03	08/09/0619:19	08/09/0610:00	NHH002-18	NHH002-13	NHH002W	08/03/06	08/03/06
BSW-14-04	H027-06	.354	1	NA	.1	.03	08/09/0619:19	08/09/0610:00	NHH002-19	NHH002-13	NHH002W	08/03/06	08/03/06
MW-05-01	H027-07	.121	1	NA	.1	.03	08/09/0619:19	08/09/0610:00	NHH002-20	NHH002-13	NHH002W	08/03/06	08/03/06

9/18/06

METHOD 350.2
AMMONIA (NH3-N)

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H019

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	NHH001WB	ND	1	NA	.1	.03	08/04/0616:19	08/04/0609:30	NHH001-05	NHH001-01	NHH001W	NA	08/04/06
LCS1W	NHH001WL	1.02	1	NA	.1	.03	08/04/0616:19	08/04/0609:30	NHH001-06	NHH001-01	NHH001W	NA	08/04/06
LCD1W	NHH001WC	1.01	1	NA	.1	.03	08/04/0616:19	08/04/0609:30	NHH001-07	NHH001-01	NHH001W	NA	08/04/06
BSW-14-05	H019-01	ND	1	NA	.1	.03	08/04/0616:20	08/04/0609:30	NHH001-08	NHH001-01	NHH001W	08/02/06	08/02/06
BSW-14-05DUP	H019-01D	ND	1	NA	.1	.03	08/04/0616:20	08/04/0609:30	NHH001-09	NHH001-01	NHH001W	08/02/06	08/02/06
BSW-14-05MS	H019-01M	1.02	1	NA	.1	.03	08/04/0616:20	08/04/0609:30	NHH001-10	NHH001-01	NHH001W	08/02/06	08/02/06
DUPLICATE BSW-14-05	H019-02	.0405J	1	NA	.1	.03	08/04/0616:21	08/04/0609:30	NHH001-11	NHH001-01	NHH001W	08/02/06	08/02/06
BSW-14-06	H019-03	ND	1	NA	.1	.03	08/04/0616:21	08/04/0609:30	NHH001-12	NHH001-01	NHH001W	08/02/06	08/02/06
BSW-14-09	H019-07	.0405J	1	NA	.1	.03	08/04/0616:22	08/04/0609:30	NHH001-15	NHH001-13	NHH001W	08/02/06	08/02/06

9/18/06

METHOD 350.2
AMMONIA (NH3-N)

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H059

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	NHH002WB	ND	1	NA	.1	.03	08/09/0619:14	08/09/0610:00	NHH002-05	NHH002-01	NHH002W	NA	08/09/06
LCS1W	NHH002WL	.969	1	NA	.1	.03	08/09/0619:14	08/09/0610:00	NHH002-06	NHH002-01	NHH002W	NA	08/09/06
LCD1W	NHH002WC	1.03	1	NA	.1	.03	08/09/0619:14	08/09/0610:00	NHH002-07	NHH002-01	NHH002W	NA	08/09/06
BSW-14-11	H059-01	.131	1	NA	.1	.03	08/09/0619:17	08/09/0610:00	NHH002-08	NHH002-01	NHH002W	08/07/06	08/07/06
BSW-14-11DUP	H059-01D	.135	1	NA	.1	.03	08/09/0619:17	08/09/0610:00	NHH002-09	NHH002-01	NHH002W	08/07/06	08/07/06
BSW-14-11MS	H059-01M	1.35	1	NA	.1	.03	08/09/0619:17	08/09/0610:00	NHH002-10	NHH002-01	NHH002W	08/07/06	08/07/06
BSW-14-10	H059-02	.207	1	NA	.1	.03	08/09/0619:18	08/09/0610:00	NHH002-11	NHH002-01	NHH002W	08/07/06	08/07/06

9/18/06

METHOD 300.0
CHLORIDE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H027

Matrix : WATER
Instrument ID : I100

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	ICH029WB	ND	1	NA	0.200	0.100	08/16/0614:52	NA	AH16-03	AH16-01	ICH029W	NA	NA
LCS1W	ICH029WL	4.92	1	NA	0.200	0.100	08/16/0615:17	NA	AH16-04	AH16-01	ICH029W	NA	NA
LCD1W	ICH029WC	4.92	1	NA	0.200	0.100	08/16/0615:42	NA	AH16-05	AH16-01	ICH029W	NA	NA
BSW-14-01	H027-01	287	40	NA	8	4	08/16/0623:06	NA	AH16-29	AH16-19	ICH029W	08/03/06	08/03/06
BSW-14-03	H027-02	250	40	NA	8	4	08/16/0623:23	NA	AH16-30	AH16-19	ICH029W	08/03/06	08/03/06
BSW-14-08	H027-03	154	20	NA	4	2	08/17/0600:13	NA	AH16-33	AH16-31	ICH029W	08/02/06	08/03/06
BSW-14-07	H027-04	171	20	NA	4	2	08/17/0600:29	NA	AH16-34	AH16-31	ICH029W	08/02/06	08/03/06
BSW-14-02	H027-05	212	40	NA	8	4	08/17/0600:46	NA	AH16-35	AH16-31	ICH029W	08/03/06	08/03/06
BSW-14-04	H027-06	232	40	NA	8	4	08/17/0601:02	NA	AH16-36	AH16-31	ICH029W	08/03/06	08/03/06
MW-05-01	H027-07	278	40	NA	8	4	08/17/0601:19	NA	AH16-37	AH16-31	ICH029W	08/03/06	08/03/06

5134
20/8/06

METHOD 300.0
CHLORIDE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H019

Matrix : WATER
Instrument ID : I100

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	ICH030WB	ND	1	NA	0.200	0.100	08/17/0601:35	NA	AH16-38	AH16-31	ICH030W	NA	NA
LCS1W	ICH030WL	4.89	1	NA	0.200	0.100	08/17/0601:52	NA	AH16-39	AH16-31	ICH030W	NA	NA
LCD1W	ICH030WC	4.91	1	NA	0.200	0.100	08/17/0602:09	NA	AH16-40	AH16-31	ICH030W	NA	NA
DUPLICATE BSW-14-05	H019-02	100	20	NA	4	2	08/17/0603:48	NA	AH16-46	AH16-43	ICH030W	08/02/06	08/02/06
BSW-14-06	H019-03	271	40	NA	8	4	08/17/0604:04	NA	AH16-47	AH16-43	ICH030W	08/02/06	08/02/06
BSW-14-09	H019-07	377	50	NA	10	5	08/17/0604:21	NA	AH16-48	AH16-43	ICH030W	08/02/06	08/02/06
MBLK2W	ICH034WB	ND	1	NA	0.200	0.100	08/18/0612:50	NA	AH17-63	AH17-60	ICH034W	NA	NA
LCS2W	ICH034WL	4.90	1	NA	0.200	0.100	08/18/0613:07	NA	AH17-64	AH17-60	ICH034W	NA	NA
LCD2W	ICH034WC	4.88	1	NA	0.200	0.100	08/18/0613:23	NA	AH17-65	AH17-60	ICH034W	NA	NA
BSW-14-05	H019-01	100	20	NA	4	2	08/18/0613:40	NA	AH17-66	AH17-60	ICH034W	08/02/06	08/02/06
BSW-14-05DUP	H019-01D	101	20	NA	4	2	08/18/0613:56	NA	AH17-67	AH17-60	ICH034W	08/02/06	08/02/06
BSW-14-05MS	H019-01M	206	20	NA	4	2	08/18/0614:13	NA	AH17-68	AH17-60	ICH034W	08/02/06	08/02/06

8/18/06

METHOD 300.0
CHLORIDE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H059

Matrix : WATER
Instrument ID : I100

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	ICH032WB	0.175J	1	NA	0.200	0.100	08/17/0620:21	NA	AH17-33	AH17-24	ICH032W	NA	NA
LCS1W	ICH032WL	4.92	1	NA	0.200	0.100	08/17/0620:37	NA	AH17-34	AH17-24	ICH032W	NA	NA
LCD1W	ICH032WC	4.90	1	NA	0.200	0.100	08/17/0620:54	NA	AH17-35	AH17-24	ICH032W	NA	NA
BSW-14-11	H059-01	367	100	NA	20	10	08/18/0600:13	NA	AH17-47	AH17-36	ICH032W	08/07/06	08/07/06
BSW-14-10	H059-02	249	40	NA	8	4	08/18/0601:02	NA	AH17-50	AH17-48	ICH032W	08/07/06	08/07/06

9/18/06

METHOD 365.2
ORTHOPHOSPHATE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H027

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	POH003WB	ND	1	NA	.1	.02	08/03/0616:27	NA	POH003-10	POH003-08	POH003W	NA	NA
LCS1W	POH003WL	.492	1	NA	.1	.02	08/03/0616:27	NA	POH003-11	POH003-08	POH003W	NA	NA
LCD1W	POH003WC	.492	1	NA	.1	.02	08/03/0616:27	NA	POH003-12	POH003-08	POH003W	NA	NA
BSW-14-01	H027-01	ND	1	NA	.1	.02	08/03/0616:30	NA	POH003-22	POH003-20	POH003W	08/03/06	08/03/06
BSW-14-03	H027-02	.148	1	NA	.1	.02	08/03/0616:31	NA	POH003-23	POH003-20	POH003W	08/03/06	08/03/06
BSW-14-08	H027-03	.114	1	NA	.1	.02	08/03/0616:31	NA	POH003-24	POH003-20	POH003W	08/02/06	08/03/06
BSW-14-07	H027-04	ND	1	NA	.1	.02	08/03/0616:31	NA	POH003-25	POH003-20	POH003W	08/02/06	08/03/06
BSW-14-02	H027-05	.345	1	NA	.1	.02	08/03/0616:32	NA	POH003-26	POH003-20	POH003W	08/03/06	08/03/06
BSW-14-04	H027-06	.466	1	NA	.1	.02	08/03/0616:32	NA	POH003-27	POH003-20	POH003W	08/03/06	08/03/06
MW-05-01	H027-07	ND	1	NA	.1	.02	08/03/0616:32	NA	POH003-28	POH003-20	POH003W	08/03/06	08/03/06

08 1 06

METHOD 365.2
ORTHOPHOSPHATE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H019

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	POH003WB	ND	1	NA	.1	.02	08/03/0616:27	NA	POH003-10	POH003-08	POH003W	NA	NA
LCS1W	POH003WL	.492	1	NA	.1	.02	08/03/0616:27	NA	POH003-11	POH003-08	POH003W	NA	NA
LCD1W	POH003WC	.492	1	NA	.1	.02	08/03/0616:27	NA	POH003-12	POH003-08	POH003W	NA	NA
BSW-14-05	H019-01	ND	1	NA	.1	.02	08/03/0616:28	NA	POH003-13	POH003-08	POH003W	08/02/06	08/02/06
BSW-14-05DUP	H019-01D	ND	1	NA	.1	.02	08/03/0616:28	NA	POH003-14	POH003-08	POH003W	08/02/06	08/02/06
BSW-14-05MS	H019-01M	.483	1	NA	.1	.02	08/03/0616:28	NA	POH003-15	POH003-08	POH003W	08/02/06	08/02/06
DUPLICATE BSW-14-05	H019-02	ND	1	NA	.1	.02	08/03/0616:29	NA	POH003-17	POH003-08	POH003W	08/02/06	08/02/06
BSW-14-06	H019-03	ND	1	NA	.1	.02	08/03/0616:29	NA	POH003-18	POH003-08	POH003W	08/02/06	08/02/06
BSW-14-09	H019-07	ND	1	NA	.1	.02	08/03/0616:30	NA	POH003-19	POH003-08	POH003W	08/02/06	08/02/06

9/18/06

METHOD 365.2
ORTHOPHOSPHATE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H059

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	POH004WB	ND	1	NA	.1	.02	08/07/0616:54	NA	POH004-10	POH004-08	POH004W	NA	NA
LCS1W	POH004WL	.504	1	NA	.1	.02	08/07/0616:55	NA	POH004-11	POH004-08	POH004W	NA	NA
BSW-14-11	H059-01	ND	1	NA	.1	.02	08/07/0616:55	NA	POH004-12	POH004-08	POH004W	08/07/06	08/07/06
BSW-14-10	H059-02	ND	1	NA	.1	.02	08/07/0616:55	NA	POH004-13	POH004-08	POH004W	08/07/06	08/07/06
BSW-14-10DUP	H059-02D	ND	1	NA	.1	.02	08/07/0616:56	NA	POH004-14	POH004-08	POH004W	08/07/06	08/07/06
BSW-14-10MS	H059-02M	.538	1	NA	.1	.02	08/07/0616:56	NA	POH004-15	POH004-08	POH004W	08/07/06	08/07/06

9/18/02

METHOD 150.1
PH

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H027

Matrix : WATER
Instrument ID : 153

SAMPLE ID	EMAX SAMPLE ID	RESULTS (pHUnit)	DLF	MOIST	RL (pHUnit)	MDL (pHUnit)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
BSW-14-01	H027-01	7.07	1	NA	NA	NA	08/03/0616:55	NA	PHH003-02	PHH003-01	PHH003W	08/03/06	08/03/06
BSW-14-03	H027-02	7.00	1	NA	NA	NA	08/03/0616:55	NA	PHH003-03	PHH003-01	PHH003W	08/03/06	08/03/06
BSW-14-08	H027-03	7.39	1	NA	NA	NA	08/03/0617:00	NA	PHH003-04	PHH003-01	PHH003W	08/02/06	08/03/06
BSW-14-07	H027-04	7.40	1	NA	NA	NA	08/03/0617:02	NA	PHH003-05	PHH003-01	PHH003W	08/02/06	08/03/06
BSW-14-02	H027-05	6.86	1	NA	NA	NA	08/03/0617:05	NA	PHH003-06	PHH003-01	PHH003W	08/03/06	08/03/06
BSW-14-04	H027-06	7.00	1	NA	NA	NA	08/03/0617:07	NA	PHH003-07	PHH003-01	PHH003W	08/03/06	08/03/06
MW-05-01	H027-07	7.38	1	NA	NA	NA	08/03/0617:09	NA	PHH003-08	PHH003-01	PHH003W	08/03/06	08/03/06
MW-05-01DUP	H027-07D	7.39	1	NA	NA	NA	08/03/0617:11	NA	PHH003-09	PHH003-01	PHH003W	08/03/06	08/03/06

8/18/06

METHOD 150.1
PH

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H019

Matrix : WATER
Instrument ID : I053

SAMPLE ID	EMAX SAMPLE ID	RESULTS (pHUnit)	DLF	MOIST	RL (pHUnit)	MDL (pHUnit)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
BSW-14-05	H019-01	7.09	1	NA	NA	NA	08/02/0618:31	NA	PHH002-02	PHH002-01	PHH002W	08/02/06	08/02/06
BSW-14-05DUP	H019-01D	7.10	1	NA	NA	NA	08/02/0618:34	NA	PHH002-03	PHH002-01	PHH002W	08/02/06	08/02/06
DUPLICATE BSW-14-05	H019-02	7.14	1	NA	NA	NA	08/02/0618:35	NA	PHH002-04	PHH002-01	PHH002W	08/02/06	08/02/06
BSW-14-06	H019-03	7.13	1	NA	NA	NA	08/02/0618:37	NA	PHH002-05	PHH002-01	PHH002W	08/02/06	08/02/06
BSW-14-09	H019-07	6.83	1	NA	NA	NA	08/02/0618:39	NA	PHH002-06	PHH002-01	PHH002W	08/02/06	08/02/06

8/18/06

METHOD 150.1
PH

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H059

Matrix : WATER
Instrument ID : I53

SAMPLE ID	EMAX SAMPLE ID	RESULTS (pHUnit)	DLF	MOIST	RL (pHUnit)	MDL (pHUnit)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
BSW-14-11	H059-01	7.24	1	NA	NA	NA	08/07/0616:05	NA	PHH004-02	PHH004-01	PHH004W	08/07/06	08/07/06
BSW-14-10	H059-02	7.21	1	NA	NA	NA	08/07/0616:10	NA	PHH004-03	PHH004-01	PHH004W	08/07/06	08/07/06
BSW-14-10DUP	H059-02D	7.20	1	NA	NA	NA	08/07/0616:13	NA	PHH004-04	PHH004-01	PHH004W	08/07/06	08/07/06

9/18/06

METHOD 300.0
SULFATE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H027

Matrix : WATER
Instrument ID : I100

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	ICH015WB	ND	1	NA	0.500	0.250	08/08/0606:13	NA	AH07-31	AH07-25	ICH015W	NA	NA
LCS1W	ICH015WL	4.48	1	NA	0.500	0.250	08/08/0606:30	NA	AH07-32	AH07-25	ICH015W	NA	NA
LCD1W	ICH015WC	4.51	1	NA	0.500	0.250	08/08/0606:46	NA	AH07-33	AH07-25	ICH015W	NA	NA
BSW-14-01	H027-01	67.7	5	NA	2.50	1.25	08/08/0608:09	NA	AH07-38	AH07-36	ICH015W	08/03/06	08/03/06
BSW-14-03	H027-02	48	5	NA	2.50	1.25	08/08/0608:26	NA	AH07-39	AH07-36	ICH015W	08/03/06	08/03/06
BSW-14-07	H027-04	81.5	5	NA	2.50	1.25	08/08/0608:59	NA	AH07-41	AH07-36	ICH015W	08/02/06	08/03/06
BSW-14-02	H027-05	35.6	5	NA	2.50	1.25	08/08/0609:15	NA	AH07-42	AH07-36	ICH015W	08/03/06	08/03/06
BSW-14-04	H027-06	22.9	5	NA	2.50	1.25	08/08/0609:32	NA	AH07-43	AH07-36	ICH015W	08/03/06	08/03/06
MBLK2W	ICH029WB	ND	1	NA	0.500	0.250	08/16/0614:52	NA	AH16-03	AH16-01	ICH029W	NA	NA
LCS2W	ICH029WL	4.87	1	NA	0.500	0.250	08/16/0615:17	NA	AH16-04	AH16-01	ICH029W	NA	NA
LCD2W	ICH029WC	4.87	1	NA	0.500	0.250	08/16/0615:42	NA	AH16-05	AH16-01	ICH029W	NA	NA
BSW-14-08	H027-03	231	20	NA	10	5	08/17/0600:13	NA	AH16-33	AH16-31	ICH029W	08/02/06	08/03/06
MW-05-01	H027-07	135	40	NA	20	10	08/17/0601:19	NA	AH16-37	AH16-31	ICH029W	08/03/06	08/03/06

9/18/06

METHOD 300.0
SULFATE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H019

Matrix : WATER
Instrument ID : I100

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	ICH012WB	ND	1	NA	0.500	0.250	08/05/0619:21	NA	AH05-34	AH05-26	ICH012W	NA	NA
LCS1W	ICH012WL	4.70	1	NA	0.500	0.250	08/05/0619:38	NA	AH05-35	AH05-26	ICH012W	NA	NA
LCD1W	ICH012WC	4.72	1	NA	0.500	0.250	08/05/0619:54	NA	AH05-36	AH05-26	ICH012W	NA	NA
DUPLICATE BSW-14-05	H019-02	72.2	5	NA	2.50	1.25	08/06/0600:19	NA	AH05-52	AH05-50	ICH012W	08/02/06	08/02/06
BSW-14-06	H019-03	80.4	5	NA	2.50	1.25	08/06/0600:36	NA	AH05-53	AH05-50	ICH012W	08/02/06	08/02/06
MBLK2W	ICH030WB	ND	1	NA	0.500	0.250	08/17/0601:35	NA	AH16-38	AH16-31	ICH030W	NA	NA
LCS2W	ICH030WL	4.83	1	NA	0.500	0.250	08/17/0601:52	NA	AH16-39	AH16-31	ICH030W	NA	NA
LCD2W	ICH030WC	4.85	1	NA	0.500	0.250	08/17/0602:09	NA	AH16-40	AH16-31	ICH030W	NA	NA
BSW-14-09	H019-07	106	50	NA	25	12.5	08/17/0604:21	NA	AH16-48	AH16-43	ICH030W	08/02/06	08/02/06
MBLK3W	ICH034WB	ND	1	NA	0.500	0.250	08/18/0612:50	NA	AH17-63	AH17-60	ICH034W	NA	NA
LCS3W	ICH034WL	4.84	1	NA	0.500	0.250	08/18/0613:07	NA	AH17-64	AH17-60	ICH034W	NA	NA
LCD3W	ICH034WC	4.84	1	NA	0.500	0.250	08/18/0613:23	NA	AH17-65	AH17-60	ICH034W	NA	NA
BSW-14-05	H019-01	73.2	20	NA	10	5	08/18/0613:40	NA	AH17-66	AH17-60	ICH034W	08/02/06	08/02/06
BSW-14-05DUP	H019-01D	73.8	20	NA	10	5	08/18/0613:56	NA	AH17-67	AH17-60	ICH034W	08/02/06	08/02/06
BSW-14-05MS	H019-01M	170	20	NA	10	5	08/18/0614:13	NA	AH17-68	AH17-60	ICH034W	08/02/06	08/02/06

9/18/06

METHOD 300.0
SULFATE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H059

Matrix : WATER
Instrument ID : I100

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	ICH029WB	ND	1	NA	0.500	0.250	08/16/0614:52	NA	AH16-03	AH16-01	ICH029W	NA	NA
LCS1W	ICH029WL	4.87	1	NA	0.500	0.250	08/16/0615:17	NA	AH16-04	AH16-01	ICH029W	NA	NA
LCD1W	ICH029WC	4.87	1	NA	0.500	0.250	08/16/0615:42	NA	AH16-05	AH16-01	ICH029W	NA	NA
BSW-14-10	H059-02	71.8	5	NA	2.50	1.25	08/16/0622:50	NA	AH16-28	AH16-19	ICH029W	08/07/06	08/07/06
MBLK2W	ICH032WB	ND	1	NA	0.500	0.250	08/17/0620:21	NA	AH17-33	AH17-24	ICH032W	NA	NA
LCS2W	ICH032WL	4.86	1	NA	0.500	0.250	08/17/0620:37	NA	AH17-34	AH17-24	ICH032W	NA	NA
LCD2W	ICH032WC	4.85	1	NA	0.500	0.250	08/17/0620:54	NA	AH17-35	AH17-24	ICH032W	NA	NA
BSW-14-11	H059-01	111	10	NA	5	2.50	08/17/0623:56	NA	AH17-46	AH17-36	ICH032W	08/07/06	08/07/06

9/18/06

METHOD 310.1
TOTAL ALKALINITY

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H027

Matrix : WATER
Instrument ID : I53

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	ALH006WB	ND	1	NA	5	1	08/08/0614:27	NA	ALH006-01	NA	ALH006W	NA	NA
LCS1W	ALH006WL	114	1	NA	5	1	08/08/0614:31	NA	ALH006-02	NA	ALH006W	NA	NA
LCD1W	ALH008WC	111	1	NA	5	1	08/08/0614:34	NA	ALH006-03	NA	ALH006W	NA	NA
BSW-14-01	H027-01	283	1	NA	5	1	08/08/0615:27	NA	ALH006-09	NA	ALH006W	08/03/06	08/03/06
BSW-14-03	H027-02	355	1	NA	5	1	08/08/0615:40	NA	ALH006-10	NA	ALH006W	08/03/06	08/03/06
BSW-14-08	H027-03	336	1	NA	5	1	08/08/0615:46	NA	ALH006-11	NA	ALH006W	08/02/06	08/03/06
BSW-14-07	H027-04	267	1	NA	5	1	08/08/0615:50	NA	ALH006-12	NA	ALH006W	08/02/06	08/03/06
BSW-14-02	H027-05	384	1	NA	5	1	08/08/0615:56	NA	ALH006-13	NA	ALH006W	08/03/06	08/03/06
BSW-14-04	H027-06	381	1	NA	5	1	08/08/0615:59	NA	ALH006-14	NA	ALH006W	08/03/06	08/03/06
MW-05-01	H027-07	349	1	NA	5	1	08/08/0616:03	NA	ALH006-15	NA	ALH006W	08/03/06	08/03/06

8/8/06

METHOD 310.1
TOTAL ALKALINITY

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H019

Matrix : WATER
Instrument ID : 153

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	ALH005WB	ND	1	NA	5	1	08/07/0616:47	NA	ALH005-01	NA	ALH005W	NA	NA
LCS1W	ALH005WL	115	1	NA	5	1	08/07/0616:48	NA	ALH005-02	NA	ALH005W	NA	NA
LCD1W	ALH005WC	115	1	NA	5	1	08/07/0616:48	NA	ALH005-03	NA	ALH005W	NA	NA
BSW-14-05	H019-01	283	1	NA	5	1	08/07/0617:23	NA	ALH005-09	NA	ALH005W	08/02/06	08/02/06
BSW-14-05DUP	H019-01D	288	1	NA	5	1	08/07/0617:31	NA	ALH005-10	NA	ALH005W	08/02/06	08/02/06
DUPLICATE BSW-14-05	H019-02	288	1	NA	5	1	08/07/0617:39	NA	ALH005-11	NA	ALH005W	08/02/06	08/02/06
BSW-14-06	H019-03	208	1	NA	5	1	08/07/0617:48	NA	ALH005-12	NA	ALH005W	08/02/06	08/02/06
BSW-14-09	H019-07	491	1	NA	5	1	08/07/0617:55	NA	ALH005-13	NA	ALH005W	08/02/06	08/02/06

8/18/06

METHOD 310.1
TOTAL ALKALINITY

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H059

Matrix : WATER
Instrument ID : I53

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	ALH006WB	ND	1	NA	5	1	08/08/0614:27	NA	ALH006-01	NA	ALH006W	NA	NA
LCS1W	ALH006WL	114	1	NA	5	1	08/08/0614:31	NA	ALH006-02	NA	ALH006W	NA	NA
LCD1W	ALH006WC	111	1	NA	5	1	08/08/0614:34	NA	ALH006-03	NA	ALH006W	NA	NA
BSW-14-11	H059-01	355	1	NA	5	1	08/08/0616:08	NA	ALH006-16	NA	ALH006W	08/07/06	08/07/06
BSW-14-10	H059-02	326	1	NA	5	1	08/08/0616:14	NA	ALH006-17	NA	ALH006W	08/07/06	08/07/06

9/18/06

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H027

Matrix : WATER
Instrument ID : 40706360

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	TDH004WB	ND	1	NA	10	5	08/09/0617:05	08/08/0612:28	TDH004-01	NA	TDH004W	NA	08/08/06
LCS1W	TDH004WL	210	1	NA	10	5	08/09/0617:05	08/08/0612:28	TDH004-02	NA	TDH004W	NA	08/08/06
LCD1W	TDH004WC	205	1	NA	10	5	08/09/0617:05	08/08/0612:28	TDH004-03	NA	TDH004W	NA	08/08/06
BSW-14-01	H027-01	945	1	NA	10	5	08/09/0617:06	08/08/0612:28	TDH004-06	NA	TDH004W	08/03/06	08/03/06
BSW-14-03	H027-02	890	1	NA	10	5	08/09/0617:06	08/08/0612:28	TDH004-07	NA	TDH004W	08/03/06	08/03/06
BSW-14-08	H027-03	1070	1	NA	10	5	08/09/0617:07	08/08/0612:28	TDH004-08	NA	TDH004W	08/02/06	08/03/06
BSW-14-07	H027-04	770	1	NA	10	5	08/09/0617:07	08/08/0612:28	TDH004-09	NA	TDH004W	08/02/06	08/03/06
BSW-14-02	H027-05	855	1	NA	10	5	08/09/0617:07	08/08/0612:28	TDH004-10	NA	TDH004W	08/03/06	08/03/06
BSW-14-04	H027-06	840	1	NA	10	5	08/09/0617:08	08/08/0612:28	TDH004-11	NA	TDH004W	08/03/06	08/03/06
MW-05-01	H027-07	1080	1	NA	10	5	08/09/0617:08	08/08/0612:28	TDH004-12	NA	TDH004W	08/03/06	08/03/06

9/18/06

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H019

Matrix : WATER
Instrument ID : I40706360

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	TDH002WB	ND	1	NA	10	5	08/07/0614:38	08/04/0612:33	TDH002-01	NA	TDH002W	NA	08/04/06
LCS1W	TDH002WL	190	1	NA	10	5	08/07/0614:39	08/04/0612:33	TDH002-02	NA	TDH002W	NA	08/04/06
LCD1W	TDH002WC	200	1	NA	10	5	08/07/0614:39	08/04/0612:33	TDH002-03	NA	TDH002W	NA	08/04/06
BSW-14-05	H019-01	680	1	NA	10	5	08/07/0614:40	08/04/0612:33	TDH002-09	NA	TDH002W	08/02/06	08/02/06
BSW-14-05DUP	H019-01D	685	1	NA	10	5	08/07/0614:41	08/04/0612:33	TDH002-10	NA	TDH002W	08/02/06	08/02/06
DUPLICATE BSW-14-05	H019-02	650	1	NA	10	5	08/07/0614:42	08/04/0612:33	TDH002-11	NA	TDH002W	08/02/06	08/02/06
BSW-14-06	H019-03	870	1	NA	10	5	08/07/0614:42	08/04/0612:33	TDH002-12	NA	TDH002W	08/02/06	08/02/06
BSW-14-09	H019-07	1300	1	NA	10	5	08/07/0614:42	08/04/0612:33	TDH002-13	NA	TDH002W	08/02/06	08/02/06

8/18/06

0050

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H059

Matrix : WATER
Instrument ID : 140706360

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	TDH005WB	ND	1	NA	10	5	08/11/0616:12	08/10/0616:30	TDH005-01	NA	TDH005W	NA	08/10/06
LCS1W	TDH005WL	200	1	NA	10	5	08/11/0616:13	08/10/0616:30	TDH005-02	NA	TDH005W	NA	08/10/06
LCD1W	TDH005WC	190	1	NA	10	5	08/11/0616:13	08/10/0616:30	TDH005-03	NA	TDH005W	NA	08/10/06
BSW-14-11	H059-01	1160	1	NA	10	5	08/11/0616:13	08/10/0616:30	TDH005-04	NA	TDH005W	08/07/06	08/07/06
BSW-14-10	H059-02	880	1	NA	10	5	08/11/0616:14	08/10/0616:30	TDH005-05	NA	TDH005W	08/07/06	08/07/06
BSW-14-10DUP	H059-02D	875	1	NA	10	5	08/11/0616:14	08/10/0616:30	TDH005-06	NA	TDH005W	08/07/06	08/07/06

9/18/02

METHOD 351.3
TKN

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H027

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	KNH003WB	ND	1	NA	.1	.035	08/10/0616:04	08/10/0611:30	KNH003-13	KNH003-09	KNH003W	NA	08/10/06
LCS1W	KNH003WL	1.1	1	NA	.1	.035	08/10/0616:04	08/10/0611:30	KNH003-14	KNH003-09	KNH003W	NA	08/10/06
LCD1W	KNH003WC	1.12	1	NA	.1	.035	08/10/0616:04	08/10/0611:30	KNH003-15	KNH003-09	KNH003W	NA	08/10/06
BSW-14-01	H027-01	.28	1	NA	.1	.035	08/10/0616:05	08/10/0611:30	KNH003-20	KNH003-09	KNH003W	08/03/06	08/03/06
BSW-14-03	H027-02	.36	1	NA	.1	.035	08/10/0616:06	08/10/0611:30	KNH003-23	KNH003-21	KNH003W	08/03/06	08/03/06
BSW-14-08	H027-03	.37	1	NA	.1	.035	08/10/0616:06	08/10/0611:30	KNH003-24	KNH003-21	KNH003W	08/02/06	08/03/06
BSW-14-07	H027-04	.4	1	NA	.1	.035	08/10/0616:06	08/10/0611:30	KNH003-25	KNH003-21	KNH003W	08/02/06	08/03/06
BSW-14-02	H027-05	.34	1	NA	.1	.035	08/10/0616:06	08/10/0611:30	KNH003-26	KNH003-21	KNH003W	08/03/06	08/03/06
BSW-14-04	H027-06	.73	1	NA	.1	.035	08/10/0616:07	08/10/0611:30	KNH003-27	KNH003-21	KNH003W	08/03/06	08/03/06
MW-05-01	H027-07	.33	1	NA	.1	.035	08/10/0616:07	08/10/0611:30	KNH003-28	KNH003-21	KNH003W	08/03/06	08/03/06

9/18/06

METHOD 351.3
TKN

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H019

Matrix : WATER
Instrument ID : 170

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	KNH002WB	ND	1	NA	.1	.035	08/07/0618:45	08/07/0609:30	KNH002-13	KNH002-09	KNH002W	NA	08/07/06
LCS1W	KNH002WL	1.11	1	NA	.1	.035	08/07/0618:45	08/07/0609:30	KNH002-14	KNH002-09	KNH002W	NA	08/07/06
LCD1W	KNH002WC	1.15	1	NA	.1	.035	08/07/0618:46	08/07/0609:30	KNH002-15	KNH002-09	KNH002W	NA	08/07/06
BSW-14-05	H019-01	.35	1	NA	.1	.035	08/07/0618:46	08/07/0609:30	KNH002-16	KNH002-09	KNH002W	08/02/06	08/02/06
BSW-14-05DUP	H019-01D	.37	1	NA	.1	.035	08/07/0618:46	08/07/0609:30	KNH002-17	KNH002-09	KNH002W	08/02/06	08/02/06
BSW-14-05MS	H019-01M	1.33	1	NA	.1	.035	08/07/0618:46	08/07/0609:30	KNH002-18	KNH002-09	KNH002W	08/02/06	08/02/06
DUPLICATE BSW-14-05	H019-02	.54	1	NA	.1	.035	08/07/0618:47	08/07/0609:30	KNH002-19	KNH002-09	KNH002W	08/02/06	08/02/06
BSW-14-06	H019-03	.42	1	NA	.1	.035	08/07/0618:47	08/07/0609:30	KNH002-20	KNH002-09	KNH002W	08/02/06	08/02/06
BSW-14-09	H019-07	.31	1	NA	.1	.035	08/07/0618:49	08/07/0609:30	KNH002-23	KNH002-21	KNH002W	08/02/06	08/02/06

8/8/06

METHOD 351.3
TKN

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H059

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	KNH003WB	ND	1	NA	.1	.035	08/10/0616:04	08/10/0611:30	KNH003-13	KNH003-09	KNH003W	NA	08/10/06
LCS1W	KNH003WL	1.1	1	NA	.1	.035	08/10/0616:04	08/10/0611:30	KNH003-14	KNH003-09	KNH003W	NA	08/10/06
LCD1W	KNH003WC	1.12	1	NA	.1	.035	08/10/0616:04	08/10/0611:30	KNH003-15	KNH003-09	KNH003W	NA	08/10/06
BSW-14-11	H059-01	.32	1	NA	.1	.035	08/10/0616:04	08/10/0611:30	KNH003-16	KNH003-09	KNH003W	08/07/06	08/07/06
BSW-14-11DUP	H059-01D	.33	1	NA	.1	.035	08/10/0616:05	08/10/0611:30	KNH003-17	KNH003-09	KNH003W	08/07/06	08/07/06
BSW-14-11MS	H059-01M	1.31	1	NA	.1	.035	08/10/0616:05	08/10/0611:30	KNH003-18	KNH003-09	KNH003W	08/07/06	08/07/06
BSW-14-10	H059-02	.51	1	NA	.1	.035	08/10/0616:05	08/10/0611:30	KNH003-19	KNH003-09	KNH003W	08/07/06	08/07/06

9/18/06

METHOD 365.2
TOTAL PHOSPHORUS

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H027

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	POH006WB	ND	1	NA	.1	.02	08/16/0616:08	NA	POH006-12	POH006-08	POH006W	NA	NA
LCS1W	POH006WL	.503	1	NA	.1	.02	08/16/0616:08	NA	POH006-13	POH006-08	POH006W	NA	NA
LCD1W	POH006WC	.503	1	NA	.1	.02	08/16/0616:08	NA	POH006-14	POH006-08	POH006W	NA	NA
BSW-14-01	H027-01	ND	1	NA	.1	.02	08/16/0616:10	NA	POH006-23	POH006-20	POH006W	08/03/06	08/03/06
BSW-14-03	H027-02	.174	1	NA	.1	.02	08/16/0616:10	NA	POH006-24	POH006-20	POH006W	08/03/06	08/03/06
BSW-14-08	H027-03	.125	1	NA	.1	.02	08/16/0616:11	NA	POH006-25	POH006-20	POH006W	08/02/06	08/03/06
BSW-14-07	H027-04	ND	1	NA	.1	.02	08/16/0616:11	NA	POH006-26	POH006-20	POH006W	08/02/06	08/03/06
BSW-14-02	H027-05	.235	1	NA	.1	.02	08/16/0616:11	NA	POH006-27	POH006-20	POH006W	08/03/06	08/03/06
BSW-14-04	H027-06	.444	1	NA	.1	.02	08/16/0616:11	NA	POH006-28	POH006-20	POH006W	08/03/06	08/03/06
MW-05-01	H027-07	ND	1	NA	.1	.02	08/16/0616:11	NA	POH006-29	POH006-20	POH006W	08/03/06	08/03/06

9/18/06

METHOD 365.2
TOTAL PHOSPHORUS

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H019

Matrix : WATER
Instrument ID : 170

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	POH006WB	ND	1	NA	.1	.02	08/16/0616:08	NA	POH006-12	POH006-08	POH006W	NA	NA
LCS1W	POH006WL	.503	1	NA	.1	.02	08/16/0616:08	NA	POH006-13	POH006-08	POH006W	NA	NA
LCD1W	POH006WC	.503	1	NA	.1	.02	08/16/0616:08	NA	POH006-14	POH006-08	POH006W	NA	NA
BSW-14-05	H019-01	ND	1	NA	.1	.02	08/16/0616:09	NA	POH006-15	POH006-08	POH006W	08/02/06	08/02/06
BSW-14-05DUP	H019-01D	ND	1	NA	.1	.02	08/16/0616:09	NA	POH006-16	POH006-08	POH006W	08/02/06	08/02/06
BSW-14-05MS	H019-01M	.511	1	NA	.1	.02	08/16/0616:09	NA	POH006-17	POH006-08	POH006W	08/02/06	08/02/06
DUPLICATE BSW-14-05	H019-02	ND	1	NA	.1	.02	08/16/0616:09	NA	POH006-18	POH006-08	POH006W	08/02/06	08/02/06
BSW-14-06	H019-03	ND	1	NA	.1	.02	08/16/0616:09	NA	POH006-19	POH006-08	POH006W	08/02/06	08/02/06
BSW-14-09	H019-07	ND	1	NA	.1	.02	08/16/0616:10	NA	POH006-22	POH006-20	POH006W	08/02/06	08/02/06

9/12/06

METHOD 365.2
TOTAL PHOSPHORUS

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06H059

Matrix : WATER
Instrument ID : 170

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	POH006WB	ND	1	NA	.1	.02	08/16/0616:08	NA	POH006-12	POH006-08	POH006W	NA	NA
LCS1W	POH006WL	.503	1	NA	.1	.02	08/16/0616:08	NA	POH006-13	POH006-08	POH006W	NA	NA
LCD1W	POH006WC	.503	1	NA	.1	.02	08/16/0616:08	NA	POH006-14	POH006-08	POH006W	NA	NA
BSW-14-11	H059-01	ND	1	NA	.1	.02	08/16/0616:12	NA	POH006-30	POH006-20	POH006W	08/07/06	08/07/06
BSW-14-10	H059-02	ND	1	NA	.1	.02	08/16/0616:12	NA	POH006-31	POH006-20	POH006W	08/07/06	08/07/06

9/18/06

LABORATORY ANALYTICAL RESULTS

CARBON DIOXIDE

AUGUST 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/04/06 09:50
Sample ID:	BSW-14-01	Date Analyzed:	08/04/06 11:37
Lab Samp ID:	H027-01T	Dilution Factor:	5
Lab File ID:	CSH029	Matrix :	WATER
Ext Btch ID:	CA13H02	% Moisture :	NA
Calib. Ref.:	CSH025	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	66000	6000	3000

RL : Reporting Limit

9/18/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/04/06 09:50
Sample ID:	BSW-14-02	Date Analyzed:	08/04/06 13:27
Lab Samp ID:	H027-05I	Dilution Factor:	10
Lab File ID:	CSH041	Matrix :	WATER
Ext Btch ID:	CA13H02	% Moisture :	NA
Calib. Ref.:	CSH040	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	120000	12000	6000

RL : Reporting Limit

9/18/06

4128

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/04/06 09:50
Sample ID:	BSW-14-03	Date Analyzed:	08/04/06 11:51
Lab Samp ID:	H027-02T	Dilution Factor:	5
Lab File ID:	CSH030	Matrix :	WATER
Ext Btch ID:	CA13H02	% Moisture :	NA
Calib. Ref.:	CSH025	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	91000	6000	3000

RL : Reporting Limit

9/18/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	08/03/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/04/06 09:50
Sample ID:	BSW-14-04	Date Analyzed:	08/04/06 12:41
Lab Samp ID:	H027-06T	Dilution Factor:	5
Lab File ID:	CSH034	Matrix :	WATER
Ext Btch ID:	CA13H02	% Moisture :	NA
Calib. Ref.:	CSH025	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	84000	6000	3000

RL : Reporting Limit

9/18/06

A

RSK-175 MODIFIED
CARBON DIOXIDE

Client : MARRS SERVICES, INC.	Date Collected: 08/02/06
Project : SEAL BEACH	Date Received: 08/02/06
Batch No. : 06H019	Date Extracted: 08/03/06 10:00
Sample ID: BSW-14-05	Date Analyzed: 08/03/06 15:31
Lab Samp ID: H019-01T	Dilution Factor: 5
Lab File ID: CSH017	Matrix : WATER
Ext Btch ID: CA13H01	% Moisture : NA
Calib. Ref.: CSH013	Instrument ID : GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	37000	6000	3000

RL : Reporting Limit

9/18/12

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/03/06 10:00
Sample ID:	DUPLICATE BSW-14-05	Date Analyzed:	08/03/06 16:06
Lab Samp ID:	H019-02T	Dilution Factor:	5
Lab File ID:	CSH020	Matrix :	WATER
Ext Btch ID:	CA13H01	% Moisture :	NA
Calib. Ref.:	CSH013	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	37000	6000	3000

RL : Reporting Limit

9/18/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client : MARRS SERVICES, INC.	Date Collected: 08/02/06
Project : SEAL BEACH	Date Received: 08/02/06
Batch No. : 06H019	Date Extracted: 08/03/06 10:00
Sample ID: BSW-14-06	Date Analyzed: 08/03/06 16:18
Lab Samp ID: H019-03T	Dilution Factor: 2
Lab File ID: CSH021	Matrix : WATER
Ext Btch ID: CA13H01	% Moisture : NA
Calib. Ref.: CSH013	Instrument ID : GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	27000	2400	1200

RL : Reporting Limit

9/18/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/03/06
Batch No.	: 06H027	Date Extracted:	08/04/06 09:50
Sample ID:	BSW-14-07	Date Analyzed:	08/04/06 13:51
Lab Samp ID:	H027-04T	Dilution Factor:	2
Lab File ID:	CSH043	Matrix :	WATER
Ext Btch ID:	CA13H02	% Moisture :	NA
Calib. Ref.:	CSH040	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	26000	2400	1200

RL : Reporting Limit

9/18/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client : MARRS SERVICES, INC.	Date Collected: 08/02/06
Project : SEAL BEACH	Date Received: 08/03/06
Batch No. : 06H027	Date Extracted: 08/04/06 09:50
Sample ID: BSW-14-08	Date Analyzed: 08/04/06 13:39
Lab Samp ID: H027-03T	Dilution Factor: 2
Lab File ID: CSH042	Matrix : WATER
Ext Btch ID: CA13H02	% Moisture : NA
Calib. Ref.: CSH040	Instrument ID : GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	34000	2400	1200

RL : Reporting Limit

9/18/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	08/02/06
Project	: SEAL BEACH	Date Received:	08/02/06
Batch No.	: 06H019	Date Extracted:	08/03/06 10:00
Sample ID:	BSW-14-09	Date Analyzed:	08/03/06 16:30
Lab Samp ID:	H019-07I	Dilution Factor:	10
Lab File ID:	CSH022	Matrix :	WATER
Ext Btch ID:	CA13H01	% Moisture :	NA
Calib. Ref.:	CSH013	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	150000	12000	6000

RL : Reporting Limit

9/18/06

1955

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	08/07/06
Project	: SEAL BEACH	Date Received:	08/07/06
Batch No.	: 06H059	Date Extracted:	08/09/06 11:00
Sample ID:	BSW-14-10	Date Analyzed:	08/09/06 14:10
Lab Samp ID:	H059-02T	Dilution Factor:	2.5
Lab File ID:	CSH053	Matrix :	WATER
Ext Btch ID:	CA13H03	% Moisture :	NA
Calib. Ref.:	CSH047	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	38000	3000	1500

RL : Reporting Limit

9/18/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client : MARRS SERVICES, INC.	Date Collected: 08/07/06
Project : SEAL BEACH	Date Received: 08/07/06
Batch No. : 06H059	Date Extracted: 08/09/06 11:00
Sample ID: BSW-14-11	Date Analyzed: 08/09/06 14:22
Lab Samp ID: H059-01T	Dilution Factor: 2.5
Lab File ID: CSH054	Matrix : WATER
Ext Btch ID: CA13H03	% Moisture : NA
Calib. Ref.: CSH047	Instrument ID : GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	41000	3000	1500

RL : Reporting Limit

9/18/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client : MARRS SERVICES, INC.	Date Collected: 08/03/06
Project : SEAL BEACH	Date Received: 08/03/06
Batch No. : 06H027	Date Extracted: 08/04/06 09:50
Sample ID: MW-05-01	Date Analyzed: 08/04/06 12:55
Lab Samp ID: H027-07T	Dilution Factor: 5
Lab File ID: CSH035	Matrix : WATER
Ext Btch ID: CA13H02	% Moisture : NA
Calib. Ref.: CSH025	Instrument ID : GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	35000	6000	3000

RL : Reporting Limit

9/18/06

LABORATORY ANALYTICAL RESULTS

CHAIN-OF-CUSTODY

AUGUST 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH
AUGUST 2006

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER: CA99064 W021

SAMPLE STORAGE

EMAX CONTROL NO. * 06H027

PROJECT CODE:

CLIENT: MARRS Services, Inc
PROJECT: IR 14 Seal Beach NWS
COORDINATOR: Bob Breglio
TEL: 760-233-1840 FAX: EMAIL:
SEND REPORT TO: same
COMPANY:
ADDRESS: 101 State Place, Suite O, Escondido, CA 92029
EMAX PM:

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

TAT: ☐ Rush ____hrs. ☐ Rush ____days ☐ 7 days ☐ 14 days ☐ 21 days ☐ 30 days ☐ ____days ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	TPH as Gasoline 8015B	BTEX MTBE 8260B	TDS 160.1 Alka 310.1 chloride/sulfate 300 pH 9040	carbon dioxide RSK175	Ammonia 350.2 TKN 351.3	Methane, Ethane, Ethene RSK-175	orthophosphate 365.2		COMMENTS
1	BSW-14-01		8/3	0800				GW		X	X	X	X	X	X	X		13 bottles
2	BSW-14-03		8/3	0920						X	X	X	X	X	X	X		
3	BSW-14-06		8/2	1548						X	X	X	X	X	X	X		
4	BSW-14-07		8/2	1655						X	X	X	X	X	X	X		
5	BSW-14-02		8/3	1030						X	X	X	X	X	X	X		
6	BSW-14-04		8/3	1145						X	X	X	X	X	X	X		
7	MW-05-01		8/3	1225						X	X	X	X	X	X	X		
8	Equipment Rinsate #2		8/3	1325					✓	X	X							6 VOA ER-2 } NEDD
9	Trip Blank		8/3	1400					✓	X	X							3 VOA TR-2 }
0																		

Instructions

Cooler #	Temp. (°C)	Sample #s
1	2.4	
2	3.5	

SAMPLER

RELINQUISHED BY	Date	Time	RECEIVED BY
[signature]	8-3-06	1415	[signature]
[signature]	8-3-06	1445	[signature]

COURIER/AIRBILL

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:
SAMPLE STORAGE
EMAX CONTROL NO. * 06H019
PROJECT CODE:

CLIENT: MARRS Services Inc
PROJECT: IR 14 Seal Beach
COORDINATOR: Bob Breglio
TEL: 760 233-1840 FAX: x 205 EMAIL:
SEND REPORT TO: 101 State Place Suite O
COMPANY: same
ADDRESS:
EMAX PM:

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

TAT: ☐ Rush ____hrs. ☐ Rush ____days ☐ 7 days ☐ 14 days ☐ 21 days ☐ 30 days ☐ ____days ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	TPH as Gasoline 8015B	BTEX MTBE 8260B	TDS 160.1, Alk 310.1, Chloride/Sulfate 300, pH 9040	CO2 RSK175	Ammonia 350.2, TKN 351.3	Methane, Ethane, Ethene RSK175	ortho phosphate 365.2		COMMENTS
1	BSW-14-05	site 14	8/2	1005						X	X	X	X	X	X	X		13 bottles total
2	Duplicate		8/2	1015						X	X	X	X	X	X	X		
1	MS - BSW-14-05		8/2	1025						X	X	X	X	X	X	X		
	MSD - BSW-14-05		8/2	1035						X	X	X	X	X	X	X		
3	BSW-14-06		8/2	1200						X	X	X	X	X	X	X		
4	equipment rinsate #1		8/2	1255						X	X							6 VOA ER-1
5	source blank		8/2	1315						X	X							6 VOA SB-1 NEDD
6	Trip Blank		8/2	1320						X	X							3 VOA TB-1
7	BSW-14-09		8/2	1415						X	X	X	X	X	X	X		13 bottles
8																		

Instructions
Provide MRS EDF
Geotracker EDD
NEDD

Cooler #	Temp. (°C)
1	3.4

Sample #s

SAMPLER

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
[signature]	8/2/06	1545	[signature]
[signature]	8/2/06	1615	[signature]

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER: CA99064 W021
SAMPLE STORAGE

EMAX CONTROL NO. * 06H059
PROJECT CODE:

CLIENT: MARRS Service, Inc.
PROJECT: Seal Beach NWS IR14
COORDINATOR: Bob Breglio
TEL: 760-233-1840 FAX: X205 EMAIL:
SEND REPORT TO: same
COMPANY:
ADDRESS: 101 State Place, Suite O, Escondido, CA 92029
EMAX PM:

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

TAT: ☐ Rush ____hrs. ☐ Rush ____days ☐ 7 days ☐ 14 days ☐ 21 days ☐ 30 days ☐ ____days ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	TPH as Gasoline 8015B	BTEX MTBE 8260B	TDS 160.1, Alka 310.1, chloride/sulfate 300, pH 150.1	carbon dioxide RSK-175	ammonia 350.2, TKN 351.3	Methane, ethane, ethene RSK-175	orthophosphate 365.2	COMMENTS
1	BSW-14-11		8/7	910	13					X	X	X	X	X	X	X	13 bottles
2	BSW-14-10		8/7	1045	13					X	X	X	X	X	X	X	"
3	equipment rinsate		8/7	1135	6					X	X						6 VOA ER-3
4	Trip Blank		8/7	1230	3					X	X						3 VOA TR-3 } NEDD
5																	
6																	accidently labeled
7																	as 8/3, should be
8																	8/7
9																	
0																	

Instructions: provide MARRS EDF: Geotracker EDD & NEDD
10% Level IV (Lab to choose)

Cooler #	Temp. (°C)	Sample #s
1	3.8 C	

SAMPLER

RELINQUISHED BY	Date	Time	RECEIVED BY
[signature]	8/7	1400	[signature]
[signature]	8/7.06	1430	[signature]

COURIER/AIRBILL

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CHAIN OF CUSTODY

EMAX LABORATORIES, INC.

1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER: CA9906400021
SAMPLE STORAGE

EMAX CONTROL NO. * 06H020
PROJECT CODE:

CLIENT: Mars Services, Inc
PROJECT: IRP Site 14
COORDINATOR: Bob Breglio
TEL: 760 233-9840 x205 FAX: EMAIL:
SEND REPORT TO: Same
COMPANY:
ADDRESS: 101 State Place, Suite O, Escondido, CA 92029
EMAX PM:

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

ANALYSIS REQUIRED: VOCs (OTEX, MTBE) / TPH gasoline

TAT: ☐ Rush ____hrs. ☐ Rush ____days ☐ 7 days ☐ 14 days ☐ ~~21 days~~ ☐ 30 days ☐ ____days ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	PRESERVATIVE CODE HCl	HCl	COMMENTS
1	IRP-Site 14-TMW-07		8/2/06	1150	6	40ml		GW				
2	IRP-Site 14-TMW-08			1246	6							
3	IRP-Site 14-TMW-09			1415	~~5~~ 5							
4	IRP-Site 14-TMW-10			1440	4							
5												
6												
7												
8												
9												
0												

Instructions: Provide MARS EDF
Geotracker EDD
NEDD
10% Level IV QAQC - Lab Choice

Cooler #	Temp. (°C)	Sample #s
1	3.8	

SAMPLER

RELINQUISHED BY	Date	Time	RECEIVED BY
[signature]	8/2/06	1545	[signature]
[signature]	8-2-06	1615	[signature]

COURIER/AIRBILL

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

LABORATORY ANALYTICAL RESULTS

VOLATILE ORGANIC COMPOUNDS (VOCs)

OCTOBER 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

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

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/20/06 11:22
Sample ID	: BSW-14-01	Date Analyzed:	10/20/06 11:22
Lab Samp ID	: J140-07	Dilution Factor:	1
Lab File ID	: RJQ490	Matrix	: WATER
Ext Btch ID	: V005J40	% Moisture	: NA
Calib. Ref.	: RJQ124	Instrument ID	: T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	0.50	0.20
ETHYLBENZENE	ND	1.0	0.20
M/P-XYLENES	ND	2.0	0.50
MTBE	0.55J	1.0	0.20
O-XYLENE	ND	1.0	0.20
TOLUENE	ND	1.0	0.20

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	124	63-143
4-BROMOFLUOROBENZENE	107	63-143
TOLUENE-D8	102	63-143

11/07/06

2010

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

lient	: MARRS SERVICES, INC.	Date Collected:	10/17/06
roject	: SEAL BEACH	Date Received:	10/17/06
atch No.	: 06J140	Date Extracted:	10/20/06 22:41
ample ID:	BSW-14-02	Date Analyzed:	10/20/06 22:41
ab Samp ID:	J153-04	Dilution Factor:	1
ab File ID:	RJQ508	Matrix	: WATER
xt Btch ID:	VOO5J41	% Moisture	: NA
alib. Ref.:	RJQ124	Instrument ID	: T-005

ARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ENZENE	47E R	0.50	0.20
THYLBENZENE	17	1.0	0.20
/P-XYLENES	3.2	2.0	0.50
TBE	280E R	1.0	0.20
-XYLENE	3.9	1.0	0.20
OLUENE	4.8	1.0	0.20

URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	108	63-143
-BROMOFLUOROBENZENE	103	63-143
OLUENE-D8	104	63-143

esult of benzene was only an estimate due to mass ion saturation.

11/27/06

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

lient	: MARRS SERVICES, INC.	Date Collected:	10/17/06
roject	: SEAL BEACH	Date Received:	10/17/06
atch No.	: 06J140	Date Extracted:	10/21/06 00:33
ample ID:	BSW-14-02DL	Date Analyzed:	10/21/06 00:33
ab Samp ID:	J153-04T	Dilution Factor:	10
ab File ID:	RJQ511	Matrix :	WATER
xt Btch ID:	VO05J41	% Moisture :	NA
alib. Ref.:	RJQ124	Instrument ID :	T-005

ARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ENZENE	500	5.0	2.0
THYLBENZENE	16	10	2.0
/P-XYLENES	ND	20	5.0
TBE	290	10	2.0
-XYLENE	3.7J	10	2.0
OLUENE	5.1J	10	2.0

URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	103	63-143
-BROMOFLUOROBENZENE	101	63-143
OLUENE-D8	103	63-143

11/27/06

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

lient	: MARRS SERVICES, INC.	Date Collected:	10/17/06
roject	: SEAL BEACH	Date Received:	10/17/06
atch No.	: 06J140	Date Extracted:	10/20/06 21:26
ample ID	: BSW-14-03	Date Analyzed:	10/20/06 21:26
ab Samp ID	: J153-03	Dilution Factor:	1
ab File ID	: RJQ506	Matrix	: WATER
xt Btch ID	: VO05J41	% Moisture	: NA
alib. Ref.	: RJQ124	Instrument ID	: T-005

ARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ENZENE	5.1	0.50	0.20
THYLBENZENE	ND	1.0	0.20
/P-XYLENES	ND	2.0	0.50
TBE	230E R	1.0	0.20
-XYLENE	ND	1.0	0.20
OLUENE	ND	1.0	0.20

URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	104	63-143
-BROMOFLUOROBENZENE	102	63-143
OLUENE-D8	101	63-143

11/07/06

2022

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

:lient	: MARRS SERVICES, INC.	Date Collected:	10/17/06
'roject	: SEAL BEACH	Date Received:	10/17/06
latch No.	: 06J140	Date Extracted:	10/25/06 19:37
;ample ID:	BSW-14-03DL	Date Analyzed:	10/25/06 19:37
.ab Samp ID:	J153-03T	Dilution Factor:	10
.ab File ID:	RJQ675	Matrix :	WATER
:xt Btch ID:	VO05J52	% Moisture :	NA
:alib. Ref.:	RJQ124	Instrument ID :	T-005

'ARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
;ENZENE	5.3 R	5.0	2.0
:THYLBENZENE	ND	10	2.0
I/P-XYLENES	ND	20	5.0
ITBE	240	10	2.0
)-XYLENE	ND R	10	2.0
'OLUENE	ND	10	2.0

;URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	110	63-143
,-BROMOFLUOROBENZENE	100	63-143
'OLUENE-D8	97	63-143

11/07/06

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

lient	: MARRS SERVICES, INC.	Date Collected:	10/17/06
roject	: SEAL BEACH	Date Received:	10/17/06
atch No.	: 06J140	Date Extracted:	10/20/06 23:18
ample ID:	BSW-14-04	Date Analyzed:	10/20/06 23:18
ab Samp ID:	J153-05	Dilution Factor:	1
ab File ID:	RJQ509	Matrix :	WATER
xt Btch ID:	VO05J41	% Moisture :	NA
alib. Ref.:	RJQ124	Instrument ID :	T-005

ARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ENZENE	46E R	0.50	0.20
THYLBENZENE	8.1	1.0	0.20
/P-XYLENES	46	2.0	0.50
TBE	290E R	1.0	0.20
-XYLENE	6.9	1.0	0.20
OLUENE	11	1.0	0.20

URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	105	63-143
-BROMOFLUOROBENZENE	104	63-143
OLUENE-D8	103	63-143

esult of benzene was only an estimate due to mass ion saturation.

11/07/06

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

lient	: MARRS SERVICES, INC.	Date Collected:	10/17/06
roject	: SEAL BEACH	Date Received:	10/17/06
atch No.	: 06J140	Date Extracted:	10/25/06 20:15
ample ID:	BSW-14-04DL	Date Analyzed:	10/25/06 20:15
ab Samp ID:	J153-05I	Dilution Factor:	50
ab File ID:	RJQ676	Matrix :	WATER
xt Btch ID:	VO05J52	% Moisture :	NA
alib. Ref.:	RJQ124	Instrument ID :	T-005

ARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ENZENE	1400	25	10
THYLBENZENE	ND R	50	10
/P-XYLENES	40J	100	25
TBE	290	50	10
-XYLENE	ND R	50	10
OLUENE	ND	50	10

URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	119	63-143
-BROMOFLUOROBENZENE	101	63-143
OLUENE-D8	102	63-143

11/07/06

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

:lient	: MARRS SERVICES, INC.	Date Collected:	10/16/06
'roject	: SEAL BEACH	Date Received:	10/16/06
:atch No.	: 06J140	Date Extracted:	10/20/06 07:41
:ample ID:	BSW-14-05	Date Analyzed:	10/20/06 07:41
.ab Samp ID:	J140-01	Dilution Factor:	1
ab File ID:	RJQ484	Matrix :	WATER
xt Btch ID:	VO05J40	% Moisture :	NA
:alib. Ref.:	RJQ124	Instrument ID :	T-005

'ARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
:ENZENE	ND	0.50	0.20
:THYLBENZENE	ND	1.0	0.20
I/P-XYLENES	ND	2.0	0.50
ITBE	ND	1.0	0.20
)-XYLENE	ND	1.0	0.20
'OLUENE	ND	1.0	0.20

:URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	121	63-143
-BROMOFLUOROBENZENE	107	63-143
'OLUENE-D8	103	63-143

11/07/06

2001

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

lient	: MARRS SERVICES, INC.	Date Collected:	10/16/06
roject	: SEAL BEACH	Date Received:	10/16/06
atch No.	: 06J140	Date Extracted:	10/20/06 08:18
ample ID:	DUPLICATE BSW-14-05	Date Analyzed:	10/20/06 08:18
ab Samp ID:	J140-02	Dilution Factor:	1
ab File ID:	RJQ485	Matrix :	WATER
xt Btch ID:	V005J40	% Moisture :	NA
alib. Ref.:	RJQ124	Instrument ID :	T-005

ARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ENZENE	ND	0.50	0.20
THYLBENZENE	ND	1.0	0.20
/P-XYLENES	ND	2.0	0.50
TBE	ND	1.0	0.20
-XYLENE	ND	1.0	0.20
OLUENE	ND	1.0	0.20

URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	122	63-143
-BROMOFLUOROBENZENE	105	63-143
OLUENE-D8	105	63-143

11/27/06

2005

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

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/20/06 08:55
Sample ID	: BSW-14-06	Date Analyzed:	10/20/06 08:55
Lab Samp ID	: J140-03	Dilution Factor:	1
Lab File ID	: RJQ486	Matrix	: WATER
Ext Btch ID	: V005J40	% Moisture	: NA
Calib. Ref.	: RJQ124	Instrument ID	: T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	0.50	0.20
ETHYLBENZENE	ND	1.0	0.20
M/P-XYLENES	ND	2.0	0.50
MTBE	ND	1.0	0.20
O-XYLENE	ND	1.0	0.20
TOLUENE	ND	1.0	0.20

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	121	63-143
4-BROMOFLUOROBENZENE	107	63-143
TOLUENE-D8	105	63-143

11/07/06

2006

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

lient	: MARRS SERVICES, INC.	Date Collected:	10/16/06
roject	: SEAL BEACH	Date Received:	10/16/06
atch No.	: 06J140	Date Extracted:	10/20/06 10:45
ample ID:	BSW-14-07	Date Analyzed:	10/20/06 10:45
ab Samp ID:	J140-06	Dilution Factor:	1
ab File ID:	RJQ489	Matrix	: WATER
xt Btch ID:	VO05J40	% Moisture	: NA
alib. Ref.:	RJQ124	Instrument ID	: T-005

ARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ENZENE	ND	0.50	0.20
THYLBENZENE	ND	1.0	0.20
/P-XYLENES	ND	2.0	0.50
TBE	ND	1.0	0.20
-XYLENE	ND	1.0	0.20
OLUENE	ND	1.0	0.20

URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	126	63-143
-BROMOFLUOROBENZENE	106	63-143
OLUENE-D8	105	63-143

11/07/06

2000

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

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/20/06 10:08
Sample ID	: BSW-14-08	Date Analyzed:	10/20/06 10:08
Lab Samp ID	: J140-05	Dilution Factor:	1
Lab File ID	: RJQ488	Matrix	: WATER
Ext Btch ID	: VO05J40	% Moisture	: NA
Calib. Ref.	: RJQ124	Instrument ID	: T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	0.50	0.20
ETHYLBENZENE	ND	1.0	0.20
M/P-XYLENES	ND	2.0	0.50
MTBE	8.8	1.0	0.20
O-XYLENE	ND	1.0	0.20
TOLUENE	ND	1.0	0.20

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	125	63-143
4-BROMOFLUOROBENZENE	109	63-143
TOLUENE-D8	105	63-143

11/27/06

2008

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

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/20/06 09:32
Sample ID:	BSW-14-09	Date Analyzed:	10/20/06 09:32
Lab Samp ID:	J140-04	Dilution Factor:	1
Lab File ID:	RJQ487	Matrix :	WATER
Ext Btch ID:	VO05J40	% Moisture :	NA
Calib. Ref.:	RJQ124	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	0.50	0.20
ETHYLBENZENE	ND	1.0	0.20
M/P-XYLENES	ND	2.0	0.50
MTBE	ND	1.0	0.20
O-XYLENE	ND	1.0	0.20
TOLUENE	ND	1.0	0.20

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	126	63-143
4-BROMOFLUOROBENZENE	107	63-143
TOLUENE-D8	104	63-143

11/07/06

2907

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

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/20/06 20:48
Sample ID:	BSW-14-10	Date Analyzed:	10/20/06 20:48
Lab Samp ID:	J153-02	Dilution Factor:	1
Lab File ID:	RJQ505	Matrix :	WATER
Ext Btch ID:	VO05J41	% Moisture :	NA
Calib. Ref.:	RJQ124	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	34	0.50	0.20
ETHYLBENZENE	17	1.0	0.20
M/P-XYLENES	3.5	2.0	0.50
MTBE	71E R	1.0	0.20
O-XYLENE	0.21J	1.0	0.20
TOLUENE	0.20J	1.0	0.20

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	113	63-143
4-BROMOFLUOROBENZENE	105	63-143
TOLUENE-D8	101	63-143

Revised Report

2026

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

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/24/06 10:55
Sample ID:	BSW-14-10DL	Date Analyzed:	10/24/06 10:55
Lab Samp ID:	J153-02T	Dilution Factor:	5
Lab File ID:	RJQ595	Matrix :	WATER
Ext Btch ID:	VO05J48	% Moisture :	NA
Calib. Ref.:	RJQ124	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	38	2.5	1.0
ETHYLBENZENE	19	5.0	1.0
M/P-XYLENES	3.6J	10	2.5
MTBE	91	5.0	1.0
O-XYLENE	ND	5.0	1.0
TOLUENE	ND	5.0	1.0

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	122	63-143
4-BROMOFLUOROBENZENE	99	63-143
TOLUENE-D8	101	63-143

Revised Report

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

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/20/06 20:09
Sample ID:	BSW-14-11	Date Analyzed:	10/20/06 20:09
Lab Samp ID:	J153-01	Dilution Factor:	1
Lab File ID:	RJQ504	Matrix :	WATER
Ext Btch ID:	VO05J41	% Moisture :	NA
Calib. Ref.:	RJQ124	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	0.50	0.20
ETHYLBENZENE	ND	1.0	0.20
M/P-XYLENES	ND	2.0	0.50
MTBE	510E R	1.0	0.20
O-XYLENE	ND	1.0	0.20
TOLUENE	0.27J	1.0	0.20

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	125	63-143
4-BROMOFLUOROBENZENE	105	63-143
TOLUENE-D8	100	63-143

Revised Report

2015

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

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/24/06 03:30
Sample ID:	BSW-14-11DL	Date Analyzed:	10/24/06 03:30
Lab Samp ID:	J153-01T	Dilution Factor:	25
Lab File ID:	RJQ583	Matrix :	WATER
Ext Btch ID:	VO05J48	% Moisture :	NA
Calib. Ref.:	RJQ124	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	12	5.0
ETHYLBENZENE	ND	25	5.0
M/P-XYLENES	ND	50	12
MTBE	580	25	5.0
O-XYLENE	ND	25	5.0
TOLUENE	ND	25	5.0

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	120	63-143
4-BROMOFLUOROBENZENE	109	63-143
TOLUENE-D8	101	63-143

Revised Report

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

lient	: MARRS SERVICES, INC.	Date Collected:	10/17/06
roject	: SEAL BEACH	Date Received:	10/17/06
atch No.	: 06J140	Date Extracted:	10/20/06 22:04
ample ID:	MW-05-01	Date Analyzed:	10/20/06 22:04
ab Samp ID:	J153-06	Dilution Factor:	1
ab File ID:	RJQ507	Matrix :	WATER
xt Btch ID:	VO05J41	% Moisture :	NA
alib. Ref.:	RJQ124	Instrument ID :	T-005

ARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ENZENE	ND	0.50	0.20
THYLBENZENE	ND	1.0	0.20
/P-XYLENES	ND	2.0	0.50
TBE	190E R	1.0	0.20
-XYLENE	ND	1.0	0.20
OLUENE	ND	1.0	0.20

URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	103	63-143
-BROMOFLUOROBENZENE	103	63-143
OLUENE-D8	102	63-143

11/20/06

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

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/24/06 06:00
Sample ID:	MW-05-01DL	Date Analyzed:	10/24/06 06:00
Lab Samp ID:	J153-06T	Dilution Factor:	10
Lab File ID:	RJQ587	Matrix :	WATER
Ext Btch ID:	VO05J48	% Moisture :	NA
Calib. Ref.:	RJQ124	Instrument ID :	T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND R	5.0	2.0
ETHYLBENZENE	ND	10	2.0
M/P-XYLENES	ND	20	5.0
MTBE	230	10	2.0
O-XYLENE	ND R	10	2.0
TOLUENE	ND	10	2.0

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	119	63-143
4-BROMOFLUOROBENZENE	106	63-143
TOLUENE-D8	102	63-143

11/07/06

2029

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

lient	: MARRS SERVICES, INC.	Date Collected:	10/16/06
roject	: SEAL BEACH	Date Received:	10/16/06
atch No.	: 06J140	Date Extracted:	10/20/06 05:50
ample ID:	SOURCE BLANK	Date Analyzed:	10/20/06 05:50
ab Samp ID:	J140-08	Dilution Factor:	1
ab File ID:	RJQ481	Matrix	: WATER
xt Btch ID:	VO05J40	% Moisture	: NA
alib. Ref.:	RJQ124	Instrument ID	: T-005

ARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ENZENE	ND	0.50	0.20
THYLBENZENE	ND	1.0	0.20
/P-XYLENES	ND	2.0	0.50
TBE	ND	1.0	0.20
-XYLENE	ND	1.0	0.20
OLUENE	ND	1.0	0.20

URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	115	63-143
-BROMOFLUOROBENZENE	110	63-143
OLUENE-D8	106	63-143

11/07/06

2015

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

lient	: MARRS SERVICES, INC.	Date Collected:	10/16/06
roject	: SEAL BEACH	Date Received:	10/16/06
atch No.	: 06J140	Date Extracted:	10/20/06 06:27
ample ID:	EQUIPMENT RINSATE 1	Date Analyzed:	10/20/06 06:27
ab Samp ID:	J140-09	Dilution Factor:	1
ab File ID:	RJQ482	Matrix :	WATER
xt Btch ID:	VO05J40	% Moisture :	NA
alib. Ref.:	RJQ124	Instrument ID :	T-005

ARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ENZENE	ND	0.50	0.20
THYLBENZENE	ND	1.0	0.20
I/P-XYLENES	ND	2.0	0.50
ITBE	ND	1.0	0.20
-XYLENE	ND	1.0	0.20
OLUENE	ND	1.0	0.20

URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	121	63-143
-BROMOFLUOROBENZENE	106	63-143
OLUENE-D8	103	63-143

11/07/06

2916

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

lient	: MARRS SERVICES, INC.	Date Collected:	10/17/06
roject	: SEAL BEACH	Date Received:	10/17/06
atch No.	: 06J140	Date Extracted:	10/20/06 18:53
ample ID	: EQUIPMENT RINSATE 2	Date Analyzed:	10/20/06 18:53
ab Samp ID	: J153-07	Dilution Factor:	1
ab File ID	: RJQ502	Matrix :	WATER
xt Btch ID	: V005J41	% Moisture :	NA
alib. Ref.	: RJQ124	Instrument ID :	T-005

ARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ENZENE	ND	0.50	0.20
THYLBENZENE	ND	1.0	0.20
/P-XYLENES	ND	2.0	0.50
TBE	ND	1.0	0.20
-XYLENE	ND	1.0	0.20
OLUENE	ND	1.0	0.20

URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	118	63-143
-BROMOFLUOROBENZENE	107	63-143
OLUENE-D8	102	63-143

11/27/06

2000

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

lient	: MARRS SERVICES, INC.	Date Collected:	10/16/06
roject	: SEAL BEACH	Date Received:	10/16/06
atch No.	: 06J140	Date Extracted:	10/20/06 07:04
ample ID:	TRIP BLANK	Date Analyzed:	10/20/06 07:04
ab Samp ID:	J140-10	Dilution Factor:	1
ab File ID:	RJQ483	Matrix :	WATER
xt Btch ID:	VO05J40	% Moisture :	NA
alib. Ref.:	RJQ124	Instrument ID :	T-005

ARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ENZENE	ND	0.50	0.20
THYLBENZENE	ND	1.0	0.20
I/P-XYLENES	ND	2.0	0.50
ITBE	ND	1.0	0.20
-XYLENE	ND	1.0	0.20
OLUENE	ND	1.0	0.20

URROGATE PARAMETERS	% RECOVERY	QC LIMIT
,2-DICHLOROETHANE-D4	121	63-143
-BROMOFLUOROBENZENE	106	63-143
OLUENE-D8	105	63-143

11/07/06

2017

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

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/20/06 19:31
Sample ID	: TRIP BLANK	Date Analyzed:	10/20/06 19:31
Lab Samp ID	: J153-08	Dilution Factor:	1
Lab File ID	: RJQ503	Matrix	: WATER
Ext Btch ID	: V005J41	% Moisture	: NA
Calib. Ref.	: RJQ124	Instrument ID	: T-005

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
BENZENE	ND	0.50	0.20
ETHYLBENZENE	ND	1.0	0.20
M/P-XYLENES	ND	2.0	0.50
MTBE	ND	1.0	0.20
O-XYLENE	ND	1.0	0.20
TOLUENE	ND	1.0	0.20

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	120	63-143
4-BROMOFLUOROBENZENE	106	63-143
TOLUENE-D8	104	63-143

11/8/06

LABORATORY ANALYTICAL RESULTS

TOTAL PETROLEUM HYDROCARBONS as GASOLINE (TPHg)

OCTOBER 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 18:48
Sample ID:	BSW-14-01	Date Analyzed:	10/17/06 18:48
Lab Samp ID:	J140-07	Dilution Factor:	1
Lab File ID:	EJ17015A	Matrix :	WATER
Ext Btch ID:	VA39J09	% Moisture :	NA
Calib. Ref.:	EJ17013A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.10	0.020

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	94	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

11/8/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 15:28
Sample ID:	BSW-14-02	Date Analyzed:	10/18/06 15:28
Lab Samp ID:	J153-04	Dilution Factor:	1
Lab File ID:	EJ18009A	Matrix :	WATER
Ext Btch ID:	VA39J11	% Moisture :	NA
Calib. Ref.:	EJ18002A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	0.60	0.10	0.020

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	88	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

11/07/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 14:50
Sample ID:	BSW-14-03	Date Analyzed:	10/18/06 14:50
Lab Samp ID:	J153-03	Dilution Factor:	1
Lab File ID:	EJ18008A	Matrix	: WATER
Ext Btch ID:	VA39J11	% Moisture	: NA
Calib. Ref.:	EJ18002A	Instrument ID	: GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.10	0.020

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	102	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

9/11/07 106

1192

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 16:07
Sample ID:	BSW-14-04	Date Analyzed:	10/18/06 16:07
Lab Samp ID:	J153-05	Dilution Factor:	1
Lab File ID:	EJ18010A	Matrix	: WATER
Ext Btch ID:	VA39J11	% Moisture	: NA
Calib. Ref.:	EJ18002A	Instrument ID	: GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	1.0	0.10	0.020

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	99	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

11/07/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 13:00
Sample ID:	BSW-14-05	Date Analyzed:	10/17/06 13:00
Lab Samp ID:	J140-01	Dilution Factor:	1
Lab File ID:	EJ17006A	Matrix	: WATER
Ext Btch ID:	VA39J09	% Moisture	: NA
Calib. Ref.:	EJ17002A	Instrument ID	: GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.10	0.020

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	91	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

11/07/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : MARRS SERVICES, INC.	Date Collected: 10/16/06
Project : SEAL BEACH	Date Received: 10/16/06
Batch No. : 06J140	Date Extracted: 10/17/06 14:56
Sample ID: DUPLICATE BSW-14-05	Date Analyzed: 10/17/06 14:56
Lab Samp ID: J140-02	Dilution Factor: 1
Lab File ID: EJ17009A	Matrix : WATER
Ext Btch ID: VA39J09	% Moisture : NA
Calib. Ref.: EJ17002A	Instrument ID : GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.10	0.020

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	95	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

11/07/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 15:35
Sample ID:	BSW-14-06	Date Analyzed:	10/17/06 15:35
Lab Samp ID:	J140-03	Dilution Factor:	1
Lab File ID:	EJ17010A	Matrix :	WATER
Ext Btch ID:	VA39J09	% Moisture :	NA
Calib. Ref.:	EJ17002A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.10	0.020

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	92	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

11/8/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 18:09
Sample ID:	BSW-14-07	Date Analyzed:	10/17/06 18:09
Lab Samp ID:	J140-06	Dilution Factor:	1
Lab File ID:	EJ17014A	Matrix	: WATER
Ext Btch ID:	VA39J09	% Moisture	: NA
Calib. Ref.:	EJ17013A	Instrument ID	: GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.10	0.020

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	95	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

11/07/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 16:52
Sample ID:	BSW-14-08	Date Analyzed:	10/17/06 16:52
Lab Samp ID:	J140-05	Dilution Factor:	1
Lab File ID:	EJ17012A	Matrix :	WATER
Ext Btch ID:	VA39J09	% Moisture :	NA
Calib. Ref.:	EJ17002A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.10	0.020

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	93	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

11/07/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 16:14
Sample ID:	BSW-14-09	Date Analyzed:	10/17/06 16:14
Lab Samp ID:	J140-04	Dilution Factor:	1
Lab File ID:	EJ17011A	Matrix	: WATER
Ext Btch ID:	VA39J09	% Moisture	: NA
Calib. Ref.:	EJ17002A	Instrument ID	: GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.10	0.020

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	92	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

11/07/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/19/06 03:41
Sample ID:	BSW-14-10	Date Analyzed:	10/19/06 03:41
Lab Samp ID:	J153-02T	Dilution Factor:	2
Lab File ID:	EJ18028A	Matrix :	WATER
Ext Btch ID:	VA39J11	% Moisture :	NA
Calib. Ref.:	EJ18025A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	0.23	0.20	0.040

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	111	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

Revised Report

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/19/06 04:19
Sample ID:	BSW-14-11	Date Analyzed:	10/19/06 04:19
Lab Samp ID:	J153-01T	Dilution Factor:	2
Lab File ID:	EJ18029A	Matrix	: WATER
Ext Btch ID:	VA39J11	% Moisture	: NA
Calib. Ref.:	EJ18025A	Instrument ID	: GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	0.22	0.20	0.040

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	109	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

Revised Report

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 16:46
Sample ID:	MW-05-01	Date Analyzed:	10/18/06 16:46
Lab Samp ID:	J153-06	Dilution Factor:	1
Lab File ID:	EJ18011A	Matrix	: WATER
Ext Btch ID:	VA39J11	% Moisture	: NA
Calib. Ref.:	EJ18002A	Instrument ID	: GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.10	0.020

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	98	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

11/8/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 19:27
Sample ID:	SOURCE BLANK	Date Analyzed:	10/17/06 19:27
Lab Samp ID:	J140-08	Dilution Factor:	1
Lab File ID:	EJ17016A	Matrix :	WATER
Ext Btch ID:	VA39J09	% Moisture :	NA
Calib. Ref.:	EJ17013A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.10	0.020

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	94	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

11/8/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 20:05
Sample ID:	EQUIPMENT RINSATE 1	Date Analyzed:	10/17/06 20:05
Lab Samp ID:	J140-09	Dilution Factor:	1
Lab File ID:	EJ17017A	Matrix	: WATER
Ext Btch ID:	VA39J09	% Moisture	: NA
Calib. Ref.:	EJ17013A	Instrument ID	: GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.10	0.020

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	91	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

11/8/06

4188

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : MARRS SERVICES, INC.	Date Collected: 10/17/06
Project : SEAL BEACH	Date Received: 10/17/06
Batch No. : 06J140	Date Extracted: 10/18/06 17:25
Sample ID: EQUIPMENT RINSATE 2	Date Analyzed: 10/18/06 17:25
Lab Samp ID: J153-07	Dilution Factor: 1
Lab File ID: EJ18012A	Matrix : WATER
Ext Btch ID: VA39J11	% Moisture : NA
Calib. Ref.: EJ18002A	Instrument ID : GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.10	0.020

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	97	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

11/07/06

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 20:44
Sample ID:	TRIP BLANK	Date Analyzed:	10/17/06 20:44
Lab Samp ID:	J140-10	Dilution Factor:	1
Lab File ID:	EJ17018A	Matrix :	WATER
Ext Btch ID:	VA39J09	% Moisture :	NA
Calib. Ref.:	EJ17013A	Instrument ID :	GCT039

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.10	0.020

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	95	60-140

RL : Reporting Limit

		Spike Conc	QC Limit Sample	QC Limit Blank & LCS
SURR : Bromofluorobenzene	Water	0.04 mg/L	60-140%	70-130%
	Soil	2 mg/kg	70-140%	70-140%

11/07/06

LABORATORY ANALYTICAL RESULTS

METHANE, ETHANE, & ETHENE
(MEE)

OCTOBER 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 10:00
Sample ID:	BSW-14-01	Date Analyzed:	10/17/06 15:03
Lab Samp ID:	J140-07	Dilution Factor:	1
Lab File ID:	FJ17016A	Matrix :	WATER
Ext Btch ID:	DG10J04	% Moisture :	NA
Calib. Ref.:	FJ17014A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	0.60
ETHENE	ND	1.5	0.60
METHANE	ND	1.2	0.60

RL: Reporting Limit

11/07/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/19/06 09:50
Sample ID:	BSW-14-02	Date Analyzed:	10/19/06 15:27
Lab Samp ID:	J153-04R	Dilution Factor:	1
Lab File ID:	FJ19021A	Matrix :	WATER
Ext Btch ID:	DG10J07	% Moisture :	NA
Calib. Ref.:	FJ19013A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	0.60
ETHENE	ND	1.5	0.60
METHANE	260E R	1.2	0.60

RL: Reporting Limit

E : Exceeded calibration

11/07/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/19/06 09:50
Sample ID:	BSW-14-02DL	Date Analyzed:	10/19/06 15:56
Lab Samp ID:	J153-04T	Dilution Factor:	200
Lab File ID:	FJ19023A	Matrix :	WATER
Ext Btch ID:	DG10J07	% Moisture :	NA
Calib. Ref.:	FJ19013A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND R	300	120
ETHENE	ND R	300	120
METHANE	2700	240	120

RL: Reporting Limit

11/07/06

1019

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 10:00
Sample ID:	BSW-14-03	Date Analyzed:	10/18/06 19:18
Lab Samp ID:	J153-03	Dilution Factor:	1
Lab File ID:	FJ18033A	Matrix :	WATER
Ext Btch ID:	DG10J06	% Moisture :	NA
Calib. Ref.:	FJ18026A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	0.60
ETHENE	ND	1.5	0.60
METHANE	130E R	1.2	0.60

RL: Reporting Limit

E : Exceeded calibration

11/07/06

1016

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 10:00
Sample ID:	BSW-14-03DL	Date Analyzed:	10/18/06 19:31
Lab Samp ID:	J153-03T	Dilution Factor:	20
Lab File ID:	FJ18034A	Matrix :	WATER
Ext Btch ID:	DG10J06	% Moisture :	NA
Calib. Ref.:	FJ18026A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND R	30	12
ETHENE	ND R	30	12
METHANE	280	24	12

RL: Reporting Limit

11/07/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/19/06 09:50
Sample ID:	BSW-14-04	Date Analyzed:	10/19/06 15:41
Lab Samp ID:	J153-05R	Dilution Factor:	1
Lab File ID:	FJ19022A	Matrix :	WATER
Ext Btch ID:	DG10J07	% Moisture :	NA
Calib. Ref.:	FJ19013A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	0.98J	1.5	0.60
ETHENE	ND	1.5	0.60
METHANE	260E R	1.2	0.60

RL: Reporting Limit

E : Exceeded calibration

11/07/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/19/06 09:50
Sample ID:	BSW-14-04DL	Date Analyzed:	10/19/06 16:09
Lab Samp ID:	J153-05T	Dilution Factor:	200
Lab File ID:	FJ19024A	Matrix :	WATER
Ext Btch ID:	DG10J07	% Moisture :	NA
Calib. Ref.:	FJ19013A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND R	300	120
ETHENE	ND R	300	120
METHANE	2600	240	120

RL: Reporting Limit

11/07/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 10:00
Sample ID:	BSW-14-05	Date Analyzed:	10/17/06 12:07
Lab Samp ID:	J140-01	Dilution Factor:	1
Lab File ID:	FJ17006A	Matrix :	WATER
Ext Btch ID:	DG10J04	% Moisture :	NA
Calib. Ref.:	FJ17002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	0.60
ETHENE	ND	1.5	0.60
METHANE	ND	1.2	0.60

RL: Reporting Limit

11/27/06

1001

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 10:00
Sample ID:	DUPLICATE BSW-14-05	Date Analyzed:	10/17/06 12:49
Lab Samp ID:	J140-02	Dilution Factor:	1
Lab File ID:	FJ17009A	Matrix :	WATER
Ext Btch ID:	DG10J04	% Moisture :	NA
Calib. Ref.:	FJ17002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	0.60
ETHENE	ND	1.5	0.60
METHANE	ND	1.2	0.60

RL: Reporting Limit

11/20/06

4005

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 10:00
Sample ID:	BSW-14-06	Date Analyzed:	10/17/06 13:03
Lab Samp ID:	J140-03	Dilution Factor:	1
Lab File ID:	FJ17010A	Matrix :	WATER
Ext Btch ID:	DG10J04	% Moisture :	NA
Calib. Ref.:	FJ17002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	0.60
ETHENE	ND	1.5	0.60
METHANE	ND	1.2	0.60

RL: Reporting Limit

11/07/06

1066

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 10:00
Sample ID:	BSW-14-07	Date Analyzed:	10/17/06 14:42
Lab Samp ID:	J140-06	Dilution Factor:	1
Lab File ID:	FJ17015A	Matrix :	WATER
Ext Btch ID:	DG10J04	% Moisture :	NA
Calib. Ref.:	FJ17014A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	0.60
ETHENE	ND	1.5	0.60
METHANE	ND	1.2	0.60

RL: Reporting Limit

11/07/06

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 10:00
Sample ID:	BSW-14-08	Date Analyzed:	10/17/06 13:31
Lab Samp ID:	J140-05	Dilution Factor:	1
Lab File ID:	FJ17012A	Matrix :	WATER
Ext Btch ID:	DG10J04	% Moisture :	NA
Calib. Ref.:	FJ17002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	0.60
ETHENE	ND	1.5	0.60
METHANE	ND	1.2	0.60

RL: Reporting Limit

11/17/06

1888

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 10:00
Sample ID:	BSW-14-09	Date Analyzed:	10/17/06 13:17
Lab Samp ID:	J140-04	Dilution Factor:	1
Lab File ID:	FJ17011A	Matrix :	WATER
Ext Btch ID:	DG10J04	% Moisture :	NA
Calib. Ref.:	FJ17002A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	0.60
ETHENE	ND	1.5	0.60
METHANE	ND	1.2	0.60

RL: Reporting Limit

11/07/06

1007

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 10:00
Sample ID:	BSW-14-10	Date Analyzed:	10/18/06 19:45
Lab Samp ID:	J153-02	Dilution Factor:	1
Lab File ID:	FJ18035A	Matrix :	WATER
Ext Btch ID:	DG10J06	% Moisture :	NA
Calib. Ref.:	FJ18026A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	0.60
ETHENE	1.4J	1.5	0.60
METHANE	160E R	1.2	0.60

RL: Reporting Limit

E : Exceeded calibration

Revised Report

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 10:00
Sample ID:	BSW-14-10DL	Date Analyzed:	10/18/06 19:58
Lab Samp ID:	J153-02T	Dilution Factor:	25
Lab File ID:	FJ18036A	Matrix :	WATER
Ext Btch ID:	DG10J06	% Moisture :	NA
Calib. Ref.:	FJ18026A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND R	37	15
ETHENE	ND R	37	15
METHANE	530	30	15

RL: Reporting Limit

Revised Report

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 10:00
Sample ID:	BSW-14-11	Date Analyzed:	10/18/06 18:36
Lab Samp ID:	J153-01	Dilution Factor:	1
Lab File ID:	FJ18030A	Matrix :	WATER
Ext Btch ID:	DG10J06	% Moisture :	NA
Calib. Ref.:	FJ18026A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	0.88J	1.5	0.60
ETHENE	2.0	1.5	0.60
METHANE	68E R	1.2	0.60

RL: Reporting Limit
E : Exceeded the calibration range

Revised Report

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 10:00
Sample ID:	BSW-14-11DL	Date Analyzed:	10/18/06 18:50
Lab Samp ID:	J153-01T	Dilution Factor:	5
Lab File ID:	FJ18031A	Matrix :	WATER
Ext Btch ID:	DG10J06	% Moisture :	NA
Calib. Ref.:	FJ18026A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND R	7.5	3.0
ETHENE	ND	7.5	3.0
METHANE	82	6.0	3.0

RL: Reporting Limit

Revised Report

RSK-175
DISSOLVED GASES

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 10:00
Sample ID:	MW-05-01	Date Analyzed:	10/18/06 19:04
Lab Samp ID:	J153-06	Dilution Factor:	1
Lab File ID:	FJ18032A	Matrix :	WATER
Ext Btch ID:	DG10J06	% Moisture :	NA
Calib. Ref.:	FJ18026A	Instrument ID :	GCT010

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
ETHANE	ND	1.5	0.60
ETHENE	ND	1.5	0.60
METHANE	ND	1.2	0.60

RL: Reporting Limit

11/07/06

1022

LABORATORY ANALYTICAL RESULTS

WET CHEMISTRY

OCTOBER 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

METHOD 350.2
AMMONIA (NH3-N)

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06J140

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	NHJ005WB	ND	1	NA	0.100	0.0300	10/30/0618:55	10/27/0612:00	NHJ005-05	NHJ005-01	NHJ005W	NA	10/27/06
LCS1W	NHJ005WL	.922	1	NA	0.100	0.0300	10/30/0618:55	10/27/0612:00	NHJ005-06	NHJ005-01	NHJ005W	NA	10/27/06
LCD1W	NHJ005WC	.912	1	NA	0.100	0.0300	10/30/0618:55	10/27/0612:00	NHJ005-07	NHJ005-01	NHJ005W	NA	10/27/06
BSW-14-05	J140-01	.104	1	NA	0.100	0.0300	10/30/0618:55	10/27/0612:00	NHJ005-08	NHJ005-01	NHJ005W	10/16/06	10/16/06
BSW-14-05DUP	J140-01D	.115	1	NA	0.100	0.0300	10/30/0618:55	10/27/0612:00	NHJ005-09	NHJ005-01	NHJ005W	10/16/06	10/16/06
BSW-14-05MS	J140-01M	.974	1	NA	0.100	0.0300	10/30/0618:55	10/27/0612:00	NHJ005-10	NHJ005-01	NHJ005W	10/16/06	10/16/06
DUPLICATE BSW-14-05	J140-02	.0522J	1	NA	0.100	0.0300	10/30/0618:55	10/27/0612:00	NHJ005-11	NHJ005-01	NHJ005W	10/16/06	10/16/06
BSW-14-06	J140-03	.0470J	1	NA	0.100	0.0300	10/30/0618:56	10/27/0612:00	NHJ005-12	NHJ005-01	NHJ005W	10/16/06	10/16/06
BSW-14-09	J140-04	.0782J	1	NA	0.100	0.0300	10/30/0618:56	10/27/0612:00	NHJ005-15	NHJ005-13	NHJ005W	10/16/06	10/16/06
BSW-14-08	J140-05	.125	1	NA	0.100	0.0300	10/30/0618:56	10/27/0612:00	NHJ005-16	NHJ005-13	NHJ005W	10/16/06	10/16/06
BSW-14-07	J140-06	.141	1	NA	0.100	0.0300	10/30/0618:57	10/27/0612:00	NHJ005-17	NHJ005-13	NHJ005W	10/16/06	10/16/06
BSW-14-01	J140-07	.0418J	1	NA	0.100	0.0300	10/30/0618:57	10/27/0612:00	NHJ005-18	NHJ005-13	NHJ005W	10/16/06	10/16/06
BSW-14-11	J153-01	.0418J	1	NA	0.100	0.0300	10/30/0618:57	10/27/0612:00	NHJ005-19	NHJ005-13	NHJ005W	10/16/06	10/17/06
BSW-14-10	J153-02	.193	1	NA	0.100	0.0300	10/30/0618:57	10/27/0612:00	NHJ005-20	NHJ005-13	NHJ005W	10/16/06	10/17/06
BSW-14-03	J153-03	.208	1	NA	0.100	0.0300	10/30/0618:57	10/27/0612:00	NHJ005-21	NHJ005-13	NHJ005W	10/17/06	10/17/06
BSW-14-02	J153-04	.0522J	1	NA	0.100	0.0300	10/30/0618:57	10/27/0612:00	NHJ005-22	NHJ005-13	NHJ005W	10/17/06	10/17/06
BSW-14-04	J153-05	.162	1	NA	0.100	0.0300	10/30/0618:57	10/27/0612:00	NHJ005-23	NHJ005-13	NHJ005W	10/17/06	10/17/06
MW-05-01	J153-06	.0626J	1	NA	0.100	0.0300	10/30/0618:58	10/27/0612:00	NHJ005-24	NHJ005-13	NHJ005W	10/17/06	10/17/06

Revised Report

METHOD 300.0
CHLORIDE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06J140

Matrix : WATER
Instrument ID : I107

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	ICJ040WB	ND	1	NA	0.200	0.100	10/18/0601:39	NA	AJ18-37	AJ18-35	ICJ040W	NA	NA
LCS1W	ICJ040WL	1.90	1	NA	0.200	0.100	10/18/0601:55	NA	AJ18-38	AJ18-35	ICJ040W	NA	NA
LCD1W	ICJ040WC	1.91	1	NA	0.200	0.100	10/18/0602:11	NA	AJ18-39	AJ18-35	ICJ040W	NA	NA
BSW-14-05	J140-01	109	50	NA	10.0	5.00	10/18/0606:08	NA	AJ18-54	AJ18-47	ICJ040W	10/16/06	10/16/06
BSW-14-05DUP	J140-01D	109	50	NA	10.0	5.00	10/18/0606:23	NA	AJ18-55	AJ18-47	ICJ040W	10/16/06	10/16/06
BSW-14-05MS	J140-01M	203	50	NA	10.0	5.00	10/18/0606:39	NA	AJ18-56	AJ18-47	ICJ040W	10/16/06	10/16/06
DUPLICATE BSW-14-05	J140-02	108	50	NA	10.0	5.00	10/18/0606:55	NA	AJ18-57	AJ18-47	ICJ040W	10/16/06	10/16/06
BSW-14-06	J140-03	282	50	NA	10.0	5.00	10/18/0607:11	NA	AJ18-58	AJ18-47	ICJ040W	10/16/06	10/16/06
BSW-14-09	J140-04	389	50	NA	10.0	5.00	10/18/0607:58	NA	AJ18-61	AJ18-59	ICJ040W	10/16/06	10/16/06
BSW-14-08	J140-05	160	50	NA	10.0	5.00	10/18/0608:14	NA	AJ18-62	AJ18-59	ICJ040W	10/16/06	10/16/06
BSW-14-07	J140-06	149	50	NA	10.0	5.00	10/18/0608:30	NA	AJ18-63	AJ18-59	ICJ040W	10/16/06	10/16/06
BSW-14-01	J140-07	252	50	NA	10.0	5.00	10/18/0608:45	NA	AJ18-64	AJ18-59	ICJ040W	10/16/06	10/16/06
MBLK2W	ICJ076WB	ND	1	NA	0.200	0.100	10/27/0602:09	NA	AJ34-39	AJ34-37	ICJ076W	NA	NA
LCS2W	ICJ076WL	1.94	1	NA	0.200	0.100	10/27/0602:25	NA	AJ34-40	AJ34-37	ICJ076W	NA	NA
LCD2W	ICJ076WC	1.94	1	NA	0.200	0.100	10/27/0602:42	NA	AJ34-41	AJ34-37	ICJ076W	NA	NA
BSW-14-11	J153-01	331	20	NA	4.00	2.00	10/27/0607:51	NA	AJ34-60	AJ34-49	ICJ076W	10/16/06	10/17/06
BSW-14-10	J153-02	163	20	NA	4.00	2.00	10/27/0608:40	NA	AJ34-63	AJ34-61	ICJ076W	10/16/06	10/17/06
BSW-14-03	J153-03	277	20	NA	4.00	2.00	10/27/0608:56	NA	AJ34-64	AJ34-61	ICJ076W	10/17/06	10/17/06
BSW-14-02	J153-04	257	20	NA	4.00	2.00	10/27/0609:12	NA	AJ34-65	AJ34-61	ICJ076W	10/17/06	10/17/06
BSW-14-04	J153-05	245	20	NA	4.00	2.00	10/27/0609:29	NA	AJ34-66	AJ34-61	ICJ076W	10/17/06	10/17/06
MBLK3W	ICJ084WB	0.102J	1	NA	0.200	0.100	10/28/0621:04	NA	AJ38-39	AJ38-37	ICJ084W	NA	NA
LCS3W	ICJ084WL	1.98	1	NA	0.200	0.100	10/28/0621:20	NA	AJ38-40	AJ38-37	ICJ084W	NA	NA
LCD3W	ICJ084WC	1.98	1	NA	0.200	0.100	10/28/0621:36	NA	AJ38-41	AJ38-37	ICJ084W	NA	NA
MW-05-01	J153-06	68.0	20	NA	4.00	2.00	10/29/0601:29	NA	AJ38-59	AJ38-49	ICJ084W	10/17/06	10/17/06

Revised Report

6817

METHOD 365.2
ORTHOPHOSPHATE-P

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06J140

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	POJ009WB	ND	1	NA	0.100	0.0200	10/27/0617:07	10/27/0611:00	POJ009-12	POJ009-08	POJ009W	NA	10/27/06
LCS1W	POJ009WL	.532	1	NA	0.100	0.0200	10/27/0617:07	10/27/0611:00	POJ009-13	POJ009-08	POJ009W	NA	10/27/06
LCD1W	POJ009WC	.537	1	NA	0.100	0.0200	10/27/0617:08	10/27/0611:00	POJ009-14	POJ009-08	POJ009W	NA	10/27/06
BSW-14-05	J140-01	ND	1	NA	0.100	0.0200	10/27/0617:08	10/27/0611:00	POJ009-15	POJ009-08	POJ009W	10/16/06	10/16/06
BSW-14-05DUP	J140-01D	ND	1	NA	0.100	0.0200	10/27/0617:08	10/27/0611:00	POJ009-16	POJ009-08	POJ009W	10/16/06	10/16/06
BSW-14-05MS	J140-01M	.593	1	NA	0.100	0.0200	10/27/0617:09	10/27/0611:00	POJ009-17	POJ009-08	POJ009W	10/16/06	10/16/06
DUPLICATE BSW-14-05	J140-02	ND	1	NA	0.100	0.0200	10/27/0617:09	10/27/0611:00	POJ009-18	POJ009-08	POJ009W	10/16/06	10/16/06
BSW-14-06	J140-03	ND	1	NA	0.100	0.0200	10/27/0617:09	10/27/0611:00	POJ009-19	POJ009-08	POJ009W	10/16/06	10/16/06
BSW-14-09	J140-04	ND	1	NA	0.100	0.0200	10/27/0617:10	10/27/0611:00	POJ009-22	POJ009-20	POJ009W	10/16/06	10/16/06
BSW-14-08	J140-05	.119	1	NA	0.100	0.0200	10/27/0617:10	10/27/0611:00	POJ009-23	POJ009-20	POJ009W	10/16/06	10/16/06
BSW-14-07	J140-06	ND	1	NA	0.100	0.0200	10/27/0617:11	10/27/0611:00	POJ009-24	POJ009-20	POJ009W	10/16/06	10/16/06
BSW-14-01	J140-07	ND	1	NA	0.100	0.0200	10/27/0617:11	10/27/0611:00	POJ009-25	POJ009-20	POJ009W	10/16/06	10/16/06
BSW-14-11	J153-01	ND	1	NA	0.100	0.0200	10/27/0617:11	10/27/0611:00	POJ009-26	POJ009-20	POJ009W	10/16/06	10/17/06
BSW-14-10	J153-02	ND	1	NA	0.100	0.0200	10/27/0617:46	10/27/0611:00	POJ009-27	POJ009-20	POJ009W	10/16/06	10/17/06
BSW-14-03	J153-03	.263	1	NA	0.100	0.0200	10/27/0617:46	10/27/0611:00	POJ009-28	POJ009-20	POJ009W	10/17/06	10/17/06
BSW-14-02	J153-04	.273	1	NA	0.100	0.0200	10/27/0617:47	10/27/0611:00	POJ009-29	POJ009-20	POJ009W	10/17/06	10/17/06
BSW-14-04	J153-05	.540	1	NA	0.100	0.0200	10/27/0617:47	10/27/0611:00	POJ009-30	POJ009-20	POJ009W	10/17/06	10/17/06
MW-05-01	J153-06	ND	1	NA	0.100	0.0200	10/27/0617:47	10/27/0611:00	POJ009-31	POJ009-20	POJ009W	10/17/06	10/17/06

Revised Report

01122

METHOD 150.1
PH

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06J140

Matrix : WATER
Instrument ID : I53

SAMPLE ID	EMAX SAMPLE ID	RESULTS (pHUnit)	DLF	MOIST	RL (pHUnit)	MDL (pHUnit)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
BSW-14-05	J140-01	7.15	1	NA	NA	NA	10/16/0618:01	NA	PHJ012-02	PHJ012-01	PHJ012W	10/16/06	10/16/06
BSW-14-05DUP	J140-01D	7.15	1	NA	NA	NA	10/16/0618:02	NA	PHJ012-03	PHJ012-01	PHJ012W	10/16/06	10/16/06
DUPLICATE BSW-14-05	J140-02	7.13	1	NA	NA	NA	10/16/0618:03	NA	PHJ012-04	PHJ012-01	PHJ012W	10/16/06	10/16/06
BSW-14-06	J140-03	7.10	1	NA	NA	NA	10/16/0618:04	NA	PHJ012-05	PHJ012-01	PHJ012W	10/16/06	10/16/06
BSW-14-09	J140-04	6.88	1	NA	NA	NA	10/16/0618:05	NA	PHJ012-06	PHJ012-01	PHJ012W	10/16/06	10/16/06
BSW-14-08	J140-05	7.33	1	NA	NA	NA	10/16/0618:07	NA	PHJ012-07	PHJ012-01	PHJ012W	10/16/06	10/16/06
BSW-14-07	J140-06	7.36	1	NA	NA	NA	10/16/0618:09	NA	PHJ012-08	PHJ012-01	PHJ012W	10/16/06	10/16/06
BSW-14-01	J140-07	6.98	1	NA	NA	NA	10/16/0618:10	NA	PHJ012-09	PHJ012-01	PHJ012W	10/16/06	10/16/06
BSW-14-11	J153-01	7.36	1	NA	NA	NA	10/17/0618:01	NA	PHJ012-02	PHJ014-01	PHJ014W	10/16/06	10/17/06
BSW-14-10	J153-02	6.84	1	NA	NA	NA	10/17/0618:02	NA	PHJ012-03	PHJ014-01	PHJ014W	10/16/06	10/17/06
BSW-14-03	J153-03	7.01	1	NA	NA	NA	10/17/0618:03	NA	PHJ012-04	PHJ014-01	PHJ014W	10/17/06	10/17/06
BSW-14-02	J153-04	6.88	1	NA	NA	NA	10/17/0618:04	NA	PHJ012-05	PHJ014-01	PHJ014W	10/17/06	10/17/06
BSW-14-04	J153-05	6.85	1	NA	NA	NA	10/17/0618:05	NA	PHJ012-06	PHJ014-01	PHJ014W	10/17/06	10/17/06
MW-05-01	J153-06	7.46	1	NA	NA	NA	10/17/0618:06	NA	PHJ012-07	PHJ014-01	PHJ014W	10/17/06	10/17/06
MW-05-01DUP	J153-06D	7.47	1	NA	NA	NA	10/17/0618:07	NA	PHJ012-08	PHJ014-01	PHJ014W	10/17/06	10/17/06

Revised Report

METHOD 300.0
SULFATE

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06J140

Matrix : WATER
Instrument ID : I107

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	ICJ040WB	ND	1	NA	0.500	0.250	10/18/0601:39	NA	AJ18-37	AJ18-35	ICJ040W	NA	NA
LCS1W	ICJ040WL	4.79	1	NA	0.500	0.250	10/18/0601:55	NA	AJ18-38	AJ18-35	ICJ040W	NA	NA
LCD1W	ICJ040WC	4.79	1	NA	0.500	0.250	10/18/0602:11	NA	AJ18-39	AJ18-35	ICJ040W	NA	NA
BSW-14-05	J140-01	75.8	50	NA	25.0	12.5	10/18/0606:08	NA	AJ18-54	AJ18-47	ICJ040W	10/16/06	10/16/06
BSW-14-05DUP	J140-01D	77.8	50	NA	25.0	12.5	10/18/0606:23	NA	AJ18-55	AJ18-47	ICJ040W	10/16/06	10/16/06
BSW-14-05MS	J140-01M	315	50	NA	25.0	12.5	10/18/0606:39	NA	AJ18-56	AJ18-47	ICJ040W	10/16/06	10/16/06
DUPLICATE BSW-14-05	J140-02	76.6	50	NA	25.0	12.5	10/18/0606:55	NA	AJ18-57	AJ18-47	ICJ040W	10/16/06	10/16/06
BSW-14-06	J140-03	86.2	50	NA	25.0	12.5	10/18/0607:11	NA	AJ18-58	AJ18-47	ICJ040W	10/16/06	10/16/06
BSW-14-09	J140-04	97.8	50	NA	25.0	12.5	10/18/0607:58	NA	AJ18-61	AJ18-59	ICJ040W	10/16/06	10/16/06
BSW-14-08	J140-05	234	50	NA	25.0	12.5	10/18/0608:14	NA	AJ18-62	AJ18-59	ICJ040W	10/16/06	10/16/06
BSW-14-07	J140-06	76.4	50	NA	25.0	12.5	10/18/0608:30	NA	AJ18-63	AJ18-59	ICJ040W	10/16/06	10/16/06
BSW-14-01	J140-07	65.4	50	NA	25.0	12.5	10/18/0608:45	NA	AJ18-64	AJ18-59	ICJ040W	10/16/06	10/16/06
MBLK2W	ICJ076WB	ND	1	NA	0.500	0.250	10/27/0602:09	NA	AJ34-39	AJ34-37	ICJ076W	NA	NA
LCS2W	ICJ076WL	4.73	1	NA	0.500	0.250	10/27/0602:25	NA	AJ34-40	AJ34-37	ICJ076W	NA	NA
LCD2W	ICJ076WC	4.73	1	NA	0.500	0.250	10/27/0602:42	NA	AJ34-41	AJ34-37	ICJ076W	NA	NA
BSW-14-11	J153-01	93.2	20	NA	10.0	5.00	10/27/0607:51	NA	AJ34-60	AJ34-49	ICJ076W	10/16/06	10/17/06
BSW-14-10	J153-02	60.0	20	NA	10.0	5.00	10/27/0608:40	NA	AJ34-63	AJ34-61	ICJ076W	10/16/06	10/17/06
BSW-14-03	J153-03	41.4	20	NA	10.0	5.00	10/27/0608:56	NA	AJ34-64	AJ34-61	ICJ076W	10/17/06	10/17/06
BSW-14-02	J153-04	30.6	20	NA	10.0	5.00	10/27/0609:12	NA	AJ34-65	AJ34-61	ICJ076W	10/17/06	10/17/06
BSW-14-04	J153-05	17.5	20	NA	10.0	5.00	10/27/0609:29	NA	AJ34-66	AJ34-61	ICJ076W	10/17/06	10/17/06
MBLK3W	ICJ084WB	ND	1	NA	0.500	0.250	10/28/0621:04	NA	AJ38-39	AJ38-37	ICJ084W	NA	NA
LCS3W	ICJ084WL	4.75	1	NA	0.500	0.250	10/28/0621:20	NA	AJ38-40	AJ38-37	ICJ084W	NA	NA
LCD3W	ICJ084WC	4.76	1	NA	0.500	0.250	10/28/0621:36	NA	AJ38-41	AJ38-37	ICJ084W	NA	NA
MW-05-01	J153-06	34.0	20	NA	10.0	5.00	10/29/0601:29	NA	AJ38-59	AJ38-49	ICJ084W	10/17/06	10/17/06

Revised Report

METHOD 310.1
TOTAL ALKALINITY

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06J140

Matrix : WATER
Instrument ID : I53

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	ALJ014WB	ND	1	NA	5.00	1.00	10/20/0615:59	NA	ALJ014-01	NA	ALJ014W	NA	NA
LCS1W	ALJ014WL	115	1	NA	5.00	1.00	10/20/0616:00	NA	ALJ014-02	NA	ALJ014W	NA	NA
LCD1W	ALJ014WC	113	1	NA	5.00	1.00	10/20/0616:00	NA	ALJ014-03	NA	ALJ014W	NA	NA
BSW-14-05	J140-01	298	1	NA	5.00	1.00	10/20/0616:09	NA	ALJ014-04	NA	ALJ014W	10/16/06	10/16/06
BSW-14-05DUP	J140-01D	295	1	NA	5.00	1.00	10/20/0616:09	NA	ALJ014-05	NA	ALJ014W	10/16/06	10/16/06
DUPLICATE BSW-14-05	J140-02	280	1	NA	5.00	1.00	10/20/0616:36	NA	ALJ014-06	NA	ALJ014W	10/16/06	10/16/06
BSW-14-06	J140-03	208	1	NA	5.00	1.00	10/20/0616:42	NA	ALJ014-07	NA	ALJ014W	10/16/06	10/16/06
BSW-14-09	J140-04	365	1	NA	5.00	1.00	10/20/0616:47	NA	ALJ014-08	NA	ALJ014W	10/16/06	10/16/06
BSW-14-08	J140-05	355	1	NA	5.00	1.00	10/20/0616:51	NA	ALJ014-09	NA	ALJ014W	10/16/06	10/16/06
BSW-14-07	J140-06	290	1	NA	5.00	1.00	10/20/0616:57	NA	ALJ014-10	NA	ALJ014W	10/16/06	10/16/06
BSW-14-01	J140-07	343	1	NA	5.00	1.00	10/20/0617:02	NA	ALJ014-11	NA	ALJ014W	10/16/06	10/16/06
MBLK2W	ALJ013WB	ND	1	NA	5.00	1.00	10/20/0613:46	NA	ALJ013-01	NA	ALJ013W	NA	NA
LCS2W	ALJ013WL	113	1	NA	5.00	1.00	10/20/0613:51	NA	ALJ013-02	NA	ALJ013W	NA	NA
LCD2W	ALJ013WC	115	1	NA	5.00	1.00	10/20/0613:51	NA	ALJ013-03	NA	ALJ013W	NA	NA
BSW-14-11	J153-01	370	1	NA	5.00	1.00	10/20/0615:27	NA	ALJ013-18	NA	ALJ013W	10/16/06	10/17/06
BSW-14-10	J153-02	400	1	NA	5.00	1.00	10/20/0615:33	NA	ALJ013-19	NA	ALJ013W	10/16/06	10/17/06
BSW-14-03	J153-03	400	1	NA	5.00	1.00	10/20/0615:38	NA	ALJ013-20	NA	ALJ013W	10/17/06	10/17/06
BSW-14-02	J153-04	358	1	NA	5.00	1.00	10/20/0615:42	NA	ALJ013-21	NA	ALJ013W	10/17/06	10/17/06
BSW-14-04	J153-05	385	1	NA	5.00	1.00	10/20/0615:49	NA	ALJ013-22	NA	ALJ013W	10/17/06	10/17/06
MW-05-01	J153-06	348	1	NA	5.00	1.00	10/20/0615:53	NA	ALJ013-23	NA	ALJ013W	10/17/06	10/17/06

Revised Report

0002

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06J140

Matrix : WATER
Instrument ID : I40706360

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	TDJ009WB	ND	1	NA	10.0	5.00	10/24/0614:21	10/23/0610:18	TDJ009-01	NA	TDJ009W	NA	10/23/06
LCS1W	TDJ009WL	345	1	NA	10.0	5.00	10/24/0614:21	10/23/0610:18	TDJ009-02	NA	TDJ009W	NA	10/23/06
LCD1W	TDJ009WC	350	1	NA	10.0	5.00	10/24/0614:21	10/23/0610:18	TDJ009-03	NA	TDJ009W	NA	10/23/06
BSW-14-05	J140-01	645	1	NA	10.0	5.00	10/24/0614:22	10/23/0610:18	TDJ009-06	NA	TDJ009W	10/16/06	10/16/06
BSW-14-05DUP	J140-01D	625	1	NA	10.0	5.00	10/24/0614:22	10/23/0610:18	TDJ009-07	NA	TDJ009W	10/16/06	10/16/06
DUPLICATE BSW-14-05	J140-02	665	1	NA	10.0	5.00	10/24/0614:22	10/23/0610:18	TDJ009-07	NA	TDJ009W	10/16/06	10/16/06
BSW-14-06	J140-03	870	1	NA	10.0	5.00	10/24/0614:22	10/23/0610:18	TDJ009-08	NA	TDJ009W	10/16/06	10/16/06
BSW-14-09	J140-04	1190	1	NA	10.0	5.00	10/24/0614:22	10/23/0610:18	TDJ009-10	NA	TDJ009W	10/16/06	10/16/06
BSW-14-08	J140-05	1090	1	NA	10.0	5.00	10/24/0614:22	10/23/0610:18	TDJ009-11	NA	TDJ009W	10/16/06	10/16/06
BSW-14-07	J140-06	735	1	NA	10.0	5.00	10/24/0614:23	10/23/0610:18	TDJ009-12	NA	TDJ009W	10/16/06	10/16/06
BSW-14-01	J140-07	935	1	NA	10.0	5.00	10/24/0614:24	10/23/0610:18	TDJ009-13	NA	TDJ009W	10/16/06	10/16/06
BSW-14-11	J153-01	1090	1	NA	10.0	5.00	10/24/0614:24	10/23/0610:18	TDJ009-14	NA	TDJ009W	10/16/06	10/17/06
BSW-14-10	J153-02	830	1	NA	10.0	5.00	10/24/0614:23	10/23/0610:18	TDJ009-15	NA	TDJ009W	10/16/06	10/17/06
BSW-14-03	J153-03	1010	1	NA	10.0	5.00	10/24/0614:23	10/23/0610:18	TDJ009-16	NA	TDJ009W	10/17/06	10/17/06
BSW-14-02	J153-04	875	1	NA	10.0	5.00	10/24/0614:23	10/23/0610:18	TDJ009-17	NA	TDJ009W	10/17/06	10/17/06
BSW-14-04	J153-05	885	1	NA	10.0	5.00	10/24/0614:24	10/23/0610:18	TDJ009-18	NA	TDJ009W	10/17/06	10/17/06
MW-05-01	J153-06	1110	1	NA	10.0	5.00	10/24/0614:24	10/23/0610:18	TDJ009-19	NA	TDJ009W	10/17/06	10/17/06

Revised Report

METHOD 351.3
TKN

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06J140

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	KNJ004WB	ND	1	NA	0.100	0.0350	10/30/0619:07	10/30/0612:00	KNJ004-13	KNJ004-09	KNJ004W	NA	10/30/06
LCS1W	KNJ004WL	.973	1	NA	0.100	0.0350	10/30/0619:07	10/30/0612:00	KNJ004-14	KNJ004-09	KNJ004W	NA	10/30/06
LCD1W	KNJ004WC	.950	1	NA	0.100	0.0350	10/30/0619:07	10/30/0612:00	KNJ004-15	KNJ004-09	KNJ004W	NA	10/30/06
BSW-14-05	J140-01	.442	1	NA	0.100	0.0350	10/30/0619:09	10/30/0612:00	KNJ004-16	KNJ004-09	KNJ004W	10/16/06	10/16/06
BSW-14-05DUP	J140-01D	.431	1	NA	0.100	0.0350	10/30/0619:09	10/30/0612:00	KNJ004-17	KNJ004-09	KNJ004W	10/16/06	10/16/06
BSW-14-05MS	J140-01M	1.33	1	NA	0.100	0.0350	10/30/0619:09	10/30/0612:00	KNJ004-18	KNJ004-09	KNJ004W	10/16/06	10/16/06
DUPLICATE BSW-14-05	J140-02	.420	1	NA	0.100	0.0350	10/30/0619:10	10/30/0612:00	KNJ004-19	KNJ004-09	KNJ004W	10/16/06	10/16/06
BSW-14-06	J140-03	.340	1	NA	0.100	0.0350	10/30/0619:10	10/30/0612:00	KNJ004-20	KNJ004-09	KNJ004W	10/16/06	10/16/06
BSW-14-09	J140-04	.330	1	NA	0.100	0.0350	10/30/0619:10	10/30/0612:00	KNJ004-23	KNJ004-21	KNJ004W	10/16/06	10/16/06
BSW-14-08	J140-05	.420	1	NA	0.100	0.0350	10/30/0619:10	10/30/0612:00	KNJ004-24	KNJ004-21	KNJ004W	10/16/06	10/16/06
BSW-14-07	J140-06	.440	1	NA	0.100	0.0350	10/30/0619:10	10/30/0612:00	KNJ004-25	KNJ004-21	KNJ004W	10/16/06	10/16/06
BSW-14-01	J140-07	.400	1	NA	0.100	0.0350	10/30/0619:11	10/30/0612:00	KNJ004-26	KNJ004-21	KNJ004W	10/16/06	10/16/06
BSW-14-11	J153-01	.210	1	NA	0.100	0.0350	10/30/0619:11	10/30/0612:00	KNJ004-27	KNJ004-21	KNJ004W	10/16/06	10/17/06
BSW-14-10	J153-02	.460	1	NA	0.100	0.0350	10/30/0619:11	10/30/0612:00	KNJ004-28	KNJ004-21	KNJ004W	10/16/06	10/17/06
BSW-14-03	J153-03	.580	1	NA	0.100	0.0350	10/30/0619:11	10/30/0612:00	KNJ004-29	KNJ004-21	KNJ004W	10/17/06	10/17/06
BSW-14-02	J153-04	.410	1	NA	0.100	0.0350	10/30/0619:11	10/30/0612:00	KNJ004-30	KNJ004-21	KNJ004W	10/17/06	10/17/06
BSW-14-04	J153-05	.580	1	NA	0.100	0.0350	10/30/0619:11	10/30/0612:00	KNJ004-31	KNJ004-21	KNJ004W	10/17/06	10/17/06
MW-05-01	J153-06	.600	1	NA	0.100	0.0350	10/30/0619:12	10/30/0612:00	KNJ004-32	KNJ004-21	KNJ004W	10/17/06	10/17/06

Revised Report

METHOD 365.2
TOTAL PHOSPHORUS

Client : MARRS SERVICES, INC.
Project : SEAL BEACH
Batch No. : 06J140

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	POJ009WB	ND	1	NA	0.100	0.0200	10/27/0617:58	10/27/0611:00	POJ009-12	POJ009-08	POJ009W	NA	10/27/06
LCS1W	POJ009WL	.532	1	NA	0.100	0.0200	10/27/0617:58	10/27/0611:00	POJ009-13	POJ009-08	POJ009W	NA	10/27/06
LCD1W	POJ009WC	.537	1	NA	0.100	0.0200	10/27/0617:59	10/27/0611:00	POJ009-14	POJ009-08	POJ009W	NA	10/27/06
BSW-14-05	J140-01	ND	1	NA	0.100	0.0200	10/27/0617:59	10/27/0611:00	POJ009-15	POJ009-08	POJ009W	10/16/06	10/16/06
BSW-14-05DUP	J140-01D	ND	1	NA	0.100	0.0200	10/27/0617:59	10/27/0611:00	POJ009-16	POJ009-08	POJ009W	10/16/06	10/16/06
BSW-14-05MS	J140-01M	.545	1	NA	0.100	0.0200	10/27/0617:59	10/27/0611:00	POJ009-17	POJ009-08	POJ009W	10/16/06	10/16/06
DUPLICATE BSW-14-05	J140-02	ND	1	NA	0.100	0.0200	10/27/0618:00	10/27/0611:00	POJ009-18	POJ009-08	POJ009W	10/16/06	10/16/06
BSW-14-06	J140-03	ND	1	NA	0.100	0.0200	10/27/0618:00	10/27/0611:00	POJ009-19	POJ009-08	POJ009W	10/16/06	10/16/06
BSW-14-09	J140-04	ND	1	NA	0.100	0.0200	10/27/0618:01	10/27/0611:00	POJ009-22	POJ009-20	POJ009W	10/16/06	10/16/06
BSW-14-08	J140-05	.123	1	NA	0.100	0.0200	10/27/0618:01	10/27/0611:00	POJ009-23	POJ009-20	POJ009W	10/16/06	10/16/06
BSW-14-07	J140-06	ND	1	NA	0.100	0.0200	10/27/0618:01	10/27/0611:00	POJ009-24	POJ009-20	POJ009W	10/16/06	10/16/06
BSW-14-01	J140-07	ND	1	NA	0.100	0.0200	10/27/0618:01	10/27/0611:00	POJ009-25	POJ009-20	POJ009W	10/16/06	10/16/06
BSW-14-11	J153-01	ND	1	NA	0.100	0.0200	10/27/0618:02	10/27/0611:00	POJ009-26	POJ009-20	POJ009W	10/16/06	10/17/06
BSW-14-10	J153-02	.101	1	NA	0.100	0.0200	10/27/0618:02	10/27/0611:00	POJ009-27	POJ009-20	POJ009W	10/16/06	10/17/06
BSW-14-03	J153-03	.271	1	NA	0.100	0.0200	10/27/0618:02	10/27/0611:00	POJ009-28	POJ009-20	POJ009W	10/17/06	10/17/06
BSW-14-02	J153-04	.281	1	NA	0.100	0.0200	10/27/0618:03	10/27/0611:00	POJ009-29	POJ009-20	POJ009W	10/17/06	10/17/06
BSW-14-04	J153-05	.534	1	NA	0.100	0.0200	10/27/0618:03	10/27/0611:00	POJ009-30	POJ009-20	POJ009W	10/17/06	10/17/06
MW-05-01	J153-06	ND	1	NA	0.100	0.0200	10/27/0618:03	10/27/0611:00	POJ009-31	POJ009-20	POJ009W	10/17/06	10/17/06

Revised Report

LABORATORY ANALYTICAL RESULTS

CARBON DIOXIDE

OCTOBER 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

RSK-175 MODIFIED
CARBON DIOXIDE

Client : MARRS SERVICES, INC.	Date Collected: 10/16/06
Project : SEAL BEACH	Date Received: 10/16/06
Batch No. : 06J140	Date Extracted: 10/17/06 10:00
Sample ID: BSW-14-01	Date Analyzed: 10/17/06 15:49
Lab Samp ID: J140-07T	Dilution Factor: 10
Lab File ID: CSJ077	Matrix : WATER
Ext Btch ID: CA13J03	% Moisture : NA
Calib. Ref.: CSJ074	Instrument ID : GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	90000	12000	6000

RL : Reporting Limit

11/07/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 10:00
Sample ID:	BSW-14-02	Date Analyzed:	10/18/06 14:40
Lab Samp ID:	J153-04T	Dilution Factor:	10
Lab File ID:	CSJ092	Matrix :	WATER
Ext Btch ID:	CA13J04	% Moisture :	NA
Calib. Ref.:	CSJ082	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	110000	12000	6000

RL : Reporting Limit

11/07/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 10:00
Sample ID:	BSW-14-03	Date Analyzed:	10/18/06 15:11
Lab Samp ID:	J153-03T	Dilution Factor:	10
Lab File ID:	CSJ094	Matrix :	WATER
Ext Btch ID:	CA13J04	% Moisture :	NA
Calib. Ref.:	CSJ093	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	99000	12000	6000

RL : Reporting Limit

11/07/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 10:00
Sample ID:	BSW-14-04	Date Analyzed:	10/18/06 14:09
Lab Samp ID:	J153-05T	Dilution Factor:	10
Lab File ID:	CSJ090	Matrix	: WATER
Ext Btch ID:	CA13J04	% Moisture	: NA
Calib. Ref.:	CSJ082	Instrument ID	: GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	110000	12000	6000

RL : Reporting Limit

11/07/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client : MARRS SERVICES, INC.	Date Collected: 10/16/06
Project : SEAL BEACH	Date Received: 10/16/06
Batch No. : 06J140	Date Extracted: 10/17/06 10:00
Sample ID: BSW-14-05	Date Analyzed: 10/17/06 12:19
Lab Samp ID: J140-01T	Dilution Factor: 10
Lab File ID: CSJ066	Matrix : WATER
Ext Btch ID: CA13J03	% Moisture : NA
Calib. Ref.: CSJ062	Instrument ID : GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	52000	12000	6000

RL : Reporting Limit

11/27/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 10:00
Sample ID:	DUPLICATE BSW-14-05	Date Analyzed:	10/17/06 13:32
Lab Samp ID:	J140-02T	Dilution Factor:	10
Lab File ID:	CSJ069	Matrix :	WATER
Ext Btch ID:	CA13J03	% Moisture :	NA
Calib. Ref.:	CSJ062	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	45000	12000	6000

RL : Reporting Limit

11/8/06

4087

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 10:00
Sample ID:	BSW-14-06	Date Analyzed:	10/17/06 13:45
Lab Samp ID:	J140-03T	Dilution Factor:	10
Lab File ID:	CSJ070	Matrix :	WATER
Ext Btch ID:	CA13J03	% Moisture :	NA
Calib. Ref.:	CSJ062	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	40000	12000	6000

RL : Reporting Limit

11/27/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 10:00
Sample ID:	BSW-14-07	Date Analyzed:	10/17/06 16:08
Lab Samp ID:	J140-06T	Dilution Factor:	5
Lab File ID:	CSJ078	Matrix :	WATER
Ext Btch ID:	CA13J03	% Moisture :	NA
Calib. Ref.:	CSJ074	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	30000	6000	3000

RL : Reporting Limit

11/07/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 10:00
Sample ID:	BSW-14-08	Date Analyzed:	10/17/06 14:14
Lab Samp ID:	J140-05T	Dilution Factor:	10
Lab File ID:	CSJ072	Matrix :	WATER
Ext Btch ID:	CA13J03	% Moisture :	NA
Calib. Ref.:	CSJ062	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	48000	12000	6000

RL : Reporting Limit

11/07/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/16/06
Batch No.	: 06J140	Date Extracted:	10/17/06 10:00
Sample ID:	BSW-14-09	Date Analyzed:	10/17/06 15:24
Lab Samp ID:	J140-04T	Dilution Factor:	10
Lab File ID:	CSJ075	Matrix :	WATER
Ext Btch ID:	CA13J03	% Moisture :	NA
Calib. Ref.:	CSJ074	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	110000	12000	6000

RL : Reporting Limit

11/07/06

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 10:00
Sample ID:	BSW-14-10	Date Analyzed:	10/18/06 13:01
Lab Samp ID:	J153-02T	Dilution Factor:	10
Lab File ID:	CSJ087	Matrix :	WATER
Ext Btch ID:	CA13J04	% Moisture :	NA
Calib. Ref.:	CSJ082	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	130000	12000	6000

RL : Reporting Limit

Revised Report

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	10/16/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 10:00
Sample ID:	BSW-14-11	Date Analyzed:	10/18/06 12:49
Lab Samp ID:	J153-01T	Dilution Factor:	10
Lab File ID:	CSJ086	Matrix :	WATER
Ext Btch ID:	CA13J04	% Moisture :	NA
Calib. Ref.:	CSJ082	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	44000	12000	6000

RL : Reporting Limit

Revised Report

RSK-175 MODIFIED
CARBON DIOXIDE

Client	: MARRS SERVICES, INC.	Date Collected:	10/17/06
Project	: SEAL BEACH	Date Received:	10/17/06
Batch No.	: 06J140	Date Extracted:	10/18/06 10:00
Sample ID:	MW-05-01	Date Analyzed:	10/18/06 15:25
Lab Samp ID:	J153-06T	Dilution Factor:	10
Lab File ID:	CSJ095	Matrix :	WATER
Ext Btch ID:	CA13J04	% Moisture :	NA
Calib. Ref.:	CSJ093	Instrument ID :	GCT013

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CARBON DIOXIDE	43000	12000	6000

RL : Reporting Limit

11/07/06

LABORATORY ANALYTICAL RESULTS

CHAIN-OF-CUSTODY

OCTOBER 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:

SAMPLE STORAGE

EMAX CONTROL NO. * 06J140

PROJECT CODE:

CLIENT: MARRS Service, Inc.
PROJECT: IRP 14 Seal Beach NWS
COORDINATOR: Qihai Chen / John Jackson / Bob Broglio
EMAIL
TEL: 760-233-1840 FAX x 205
SEND REPORT TO: same
COMPANY
ADDRESS: 101 State Place, Suite O
Escondido, CA 92029
EMAX PM

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

TAT: ☐ Rush ____hrs. ☐ Rush ____days ☐ 7 days ☐ 14 days ☐ 21 days ☐ 30 days ☐ ____days ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	TPH Gas 8015B	BTEX MTBE 8260B	TDS 160.1, Alk 310.1, pH 9040, chloride, sulfate 300	CO_2 RSK 175	Ammonia 350.2/TKN 351.3	Met, Ethane, Ethene RSK175	ortho phosphate 365.2	COMMENTS
1	BSW-14-05	Seal Beach	10/16	0840	39					X	X	X	X	X	X	X	3X Volume for MS/MSD
2	Duplicate	Seal Beach	10/16	0905	13					X	X	X	X	X	X	X	
3	BSW-14-06	Seal Beach	10/16	1018	13					X	X	X	X	X	X	X	
4	BSW-14-09	Seal Beach	10/16	1115	13					X	X	X	X	X	X	X	
5	BSW-14-08	Seal Beach	10/16	1210	13					X	X	X	X	X	X	X	
6	BSW-14-07	Seal Beach	10/16	1302	13					X	X	X	X	X	X	X	
7	BSW-14-01	Seal Beach	10/16	1400	13					X	X	X	X	X	X	X	
8	Source Blank	Seal Beach	10/16	1420	6					X	X						
9	Equipment Rinsate 1	Seal Beach	10/16	1425	6					X	X						
10	Trip Blank	Seal Beach	10/16	1430	3					X	X						

Instructions: Send MARRS EDF, Geotracker, & NEDD

* All labels have August written on it, suppose to be October.
* included one temp blank

Cooler #	Temp. (°C)	Sample #s
1	3.2°C	

SAMPLER

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
[signature]	10/16	1500	[signature]
[signature]	10-16	1600	[signature]

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

CHAIN OF CUSTODY

EMAX LABORATORIES, INC.
1835 W. 205th Street, Torrance, CA 90501
Tel #: 310-618-8889 Fax #: 310-618-0818
Email: info@emaxlabs.com

PO NUMBER:
SAMPLE STORAGE

EMAX CONTROL NO. * 06J153
PROJECT CODE:

CLIENT: MARRS Service, Inc.
PROJECT: IRP 14 NWS Seal Beach
COORDINATOR: Qihai Chen, John Jackson / Bob Breglio
TEL: 760-233-1840 FAX: x 205 EMAIL:
SEND REPORT TO: same
COMPANY:
ADDRESS: 101 State Place, Suite O, Escondido, CA 92029
EMAX PM:

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaOH
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H_2SO_4
O=	

TAT: ☐ Rush ____hrs. ☐ Rush ____days ☐ 7 days ☐ 14 days ☐ 21 days ☐ 30 days ☐ ____days ☐

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	DATE	TIME	CONTAINER NO.	SIZE	TYPE	MATRIX CODE	QC	TPH Gasoline 8015B	BTEX MTBE 8260B	TDS 160.1, Alk 310.1, pH 9040	Chloride & Sulfate 300	CO_2 RSK-175	Ammonia 350.2, TKN 351.3	Met, Ethane, Ethene RSK-175	ortho phosphate 365.2	COMMENTS
1	BSW-14-10	Seal Beach	10/16	1505	13					X	X	X		X	X	X	X	
2	BSW-14-11	Seal Beach	10/16	1600	13					X	X	X		X	X	X	X	
3	BSW-14-03	Seal Beach	10/17	0730	13					X	X	X		X	X	X	X	
4	BSW-14-02	Seal Beach	10/17	0823	13					X	X	X		X	X	X	X	
5	BSW-14-04	Seal Beach	10/17	0915	13					X	X	X		X	X	X	X	
6	MW-05-01	Seal Beach	10/17	1015	13					X	X	X		X	X	X	X	
7	Equipment Rinsate 2	Seal Beach	10/17	0945	6					X	X							
8	Trip Blank	Seal Beach	10/17	1100	3						X							
9																		
0																		

Instructions: send MARRS EDF, Geotracker, & NEDD

Cooler #	Temp. (°C)
1	3.0

Sample #s

* date on labels says August, suppose to be October
* included one temp blank

SAMPLER:
COURIER/AIRBILL:

RELINQUISHED BY	Date	Time	RECEIVED BY
Qihai Chen	10/17	1230	Phil Hatten
Phil Hatten	10-17-06	1550	

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs, TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

DATA VALIDATION REPORTS

MARCH 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

LDC Report# 14922A1

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 24

Collection Date: March 28 through March 29, 2006

LDC Report Date: May 15, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06C268

Sample Identification

MW-05-01**
MW-05-01DL**
IRP SITE14-T MW-4
IRP SITE14-T MW-5
IRP SITE14-T MW-1
IRP SITE14-T MW-2
IRP SITE14-T MW-3
IRP SITE14-T MW-6
IRP SITE14-T MW-6DL
DUPLICATE
DUPLICATEDL
ER

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles which are Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) and Methyl-tert-butyl ether (MTBE).

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).

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 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.

The percent differences (%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 method and validation criteria.

V. Blanks

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

Sample "ER" was identified as an equipment rinsate. No volatile contaminants were found in this blank.

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

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

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**	Methyl-tert-butyl ether	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
IRP SITE14-T MW-6 DUPLICATE	Benzene Methyl-tert-butyl ether	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) 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

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Sample	Compound	Flag	A or P
MW-05-01**	Methyl-tert-butyl ether	R	A
MW-05-01DL**	All TCL compounds except Methyl-tert-butyl ether	R	A
IRP SITE14-T MW-6 DUPLICATE	Benzene Methyl-tert-butyl ether	R R	A
IRP SITE14-T MW-6DL DUPLICATEDL	All TCL compounds except Benzene Methyl-tert-butyl ether	R	A

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

XVI. Field Duplicates

Samples IRP SITE14-T MW-6 and DUPLICATE and IRP SITE14-T MW-6DL and DUPLICATEDL were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	IRP SITE14-T MW-6	DUPLICATE	
Benzene	69	75	8
Ethylbenzene	18	18	0
m,p-Xylenes	52	62	18
Methyl-tert-butyl ether	390	550	34
o-Xylene	23	27	16
Toluene	25	30	18

Compound	Concentration (ug/L)		RPD
	IRP SITE14-T MW-6DL	DUPLICATEDL	
Benzene	340	320	6
m,p-Xylenes	66	60	10
Methyl-tert-butyl ether	510	500	2
o-Xylene	28	26	7
Toluene	32	30	6
Ethylbenzene	100U	18	200

NWS Seal Beach, IR Site 24
Volatiles - Data Qualification Summary - SDG 06C268

SDG	Sample	Compound	Flag	A or P	Reason
06C268	MW-05-01**	Methyl-tert-butyl ether	J (all detects)	A	Compound quantitation and CRQLs
06C268	IRP SITE14-T MW-6 DUPLICATE	Benzene Methyl-tert-butyl ether	J (all detects) J (all detects)	A	Compound quantitation and CRQLs
06C268	MW-05-01**	Methyl-tert-butyl ether	R	A	Overall assessment of data
06C268	MW-05-01DL**	All TCL compounds except Methyl-tert-butyl ether	R	A	Overall assessment of data
06C268	IRP SITE14-T MW-6 DUPLICATE	Benzene Methyl-tert-butyl ether	R R	A	Overall assessment of data
06C268	IRP SITE14-T MW-6DL DUPLICATEDL	All TCL compounds except Benzene Methyl-tert-butyl ether	R	A	Overall assessment of data

NWS Seal Beach, IR Site 24
Volatiles - Laboratory Blank Data Qualification Summary - SDG 06C268

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 24
Volatiles - Field Blank Data Qualification Summary - SDG 06C268

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 24

Collection Date: March 27 through March 28, 2006

LDC Report Date: May 17, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06C245

Sample Identification

BSW-14-08**
BSW-14-09
DUPLICATE
TRIP BLANK (06C245)
BSW-14-6
BSW-14-5
BSW-14-7
TRIP BLANK (06C251)
ER
SB
BSW-14-4
BSW-14-4DL
BSW-14-3
BSW-14-3DL
BSW-14-2
BSW-14-1
BSW-14-6MS
BSW-14-6MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 18 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles which are Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) and Methyl-tert-butyl ether.

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).

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.

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.

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

V. Blanks

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

Samples "TRIP BLANK (06C245)" and "TRIP BLANK (06C251)" were identified as trip blanks. No volatile contaminants were found in these blanks.

Sample "ER" was identified as an equipment rinsate. No volatile contaminants were found in this blank.

Sample "SB" was identified as a source blank. No volatile contaminants were found in this blank.

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
BSW-14-4	Benzene Ethylbenzene Methyl-tert-butyl ether Toluene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects) J (all detects)	A

Sample	Compound	Finding	Criteria	Flag	A or P
BSW-14-3	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

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Sample	Compound	Flag	A or P
BSW-14-4	Benzene Ethylbenzene Methyl-tert-butyl ether Toluene	R R R R	A
BSW-14-4DL	All TCL compounds except Benzene Ethylbenzene Methyl-tert-butyl ether Toluene	R	A
BSW-14-3	Methyl-tert-butyl ether	R	A
BSW-14-3DL	All TCL compounds except Methyl-tert-butyl ether	R	A

*Added Overall Assessment findings.

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

XVI. Field Duplicates

Samples BSW-14-08** and DUPLICATE were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	BSW-14-08**	DUPLICATE	
Methyl-tert-butyl ether	2.2	1.3	51

*NWS Seal Beach, IR Site 24
Volatiles - Data Qualification Summary - SDG 06C245

SDG	Sample	Compound	Flag	A or P	Reason
06C245	BSW-14-4	Benzene Ethylbenzene Methyl-tert-butyl ether Toluene	J (all detects) J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs
06C245	BSW-14-3	Methyl-tert-butyl ether	J (all detects)	A	Compound quantitation and CRQLs
*06C245	BSW-14-4	Benzene Ethylbenzene Methyl-tert-butyl ether Toluene	R R R R	A	Overall assessment of data
*06C245	BSW-14-4DL	All TCL compounds except Benzene Ethylbenzene Methyl-tert-butyl ether Toluene	R	A	Overall assessment of data
*06C245	BSW-14-3	Methyl-tert-butyl ether	R	A	Overall assessment of data
*06C245	BSW-14-3DL	All TCL compounds except Methyl-tert-butyl ether	R	A	Overall assessment of data

*Added Overall Assessment findings.

NWS Seal Beach, IR Site 24
Volatiles - Laboratory Blank Data Qualification Summary - SDG 06C245

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 24
Volatiles - Field Blank Data Qualification Summary - SDG 06C245

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 24

Collection Date: March 28 through March 29, 2006

LDC Report Date: May 9, 2006

Matrix: Water

Parameters: Total Petroleum Hydrocarbons as Gasoline

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06C268

Sample Identification

MW-05-01**
IRP SITE14-T MW-4
IRP SITE14-T MW-5
IRP SITE14-T MW-1
IRP SITE14-T MW-2
IRP SITE14-T MW-3
IRP SITE14-T MW-6
DUPLICATE
ER

**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 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

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 III.

Field duplicates are summarized in Section IX.

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

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Sample "ER" was identified as an equipment rinsate. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

b. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

c. 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.

V. Target Compound Identification

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.

VI. 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.

VII. System Performance

The system performance was acceptable for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC 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 IRP SITE14-T MW-6 and DUPLICATE were identified as field duplicates. No total petroleum hydrocarbons as gasoline were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/L)		RPD
	IRP SITE14-T MW-6	DUPLICATE	
Gasoline range organics	0.79	0.73	8

NWS Seal Beach, IR Site 24
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 06C268

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 24
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 06C268

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 24
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 06C268

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 24

Collection Date: March 27 through March 28, 2006

LDC Report Date: May 9, 2006

Matrix: Water

Parameters: Total Petroleum Hydrocarbons as Gasoline

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06C245

Sample Identification

BSW-14-08**
BSW-14-09
DUPLICATE
TRIP BLANK (06C245)
BSW-14-6
BSW-14-5
BSW-14-7
TRIP BLANK (06C251)
ER
SB
BSW-14-4
BSW-14-3
BSW-14-2
BSW-14-1
BSW-14-6MS
BSW-14-6MSD

**Indicates sample underwent NFESC Level IV review

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

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Samples "TRIP BLANK (06C245)" and "TRIP BLANK (06C251)" were identified as trip blanks. No total petroleum hydrocarbons as gasoline contaminants were found in these blanks.

Sample "ER" was identified as an equipment rinsate. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

Sample "SB" was identified as a source blank. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

b. 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.

c. 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.

V. Target Compound Identification

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.

VI. 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.

VII. System Performance

The system performance was acceptable for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC 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 BSW-14-08** and DUPLICATE were identified as field duplicates. No total petroleum hydrocarbons as gasoline were detected in any of the samples.

NWS Seal Beach, IR Site 24
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 06C245

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 24
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 06C245

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 24
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 06C245

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 24

Collection Date: March 27 through March 28, 2006

LDC Report Date: May 17, 2006

Matrix: Water

Parameters: Methane, Ethane, & Ethene

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06C245

Sample Identification

BSW-14-08**
BSW-14-09
DUPLICATE
TRIP BLANK (06C245)
BSW-14-6
BSW-14-5
BSW-14-7
TRIP BLANK (06C251)
ER
SB
BSW-14-4
BSW-14-4DL
BSW-14-3
BSW-14-3DL
BSW-14-2
BSW-14-2DL
BSW-14-1
BSW-14-1DL
BSW-14-6MS
BSW-14-6MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 20 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method RSK-175 for Methane, Ethane, and Ethene.

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 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.

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

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No methane, ethane, or ethene contaminants were found in the method blanks.

Samples "TRIP BLANK (06C245)" and "TRIP BLANK (06C251)" were identified as trip blanks. No methane, ethane, or ethene contaminants were found in these blanks.

Sample "ER" was identified as an equipment rinsate. No methane, ethane, or ethene contaminants were found in this blank.

Sample "SB" was identified as a source blank. No methane, ethane, or ethene contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Not required by the method.

b. 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.

c. 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.

V. 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.

VI. 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
BSW-14-4 BSW-14-3 BSW-14-2 BSW-14-1	Methane	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 Level III criteria.

VII. 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.

*VIII. Overall Assessment of Data

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Sample	Compound	Flag	A or P
BSW-14-4 BSW-14-3 BSW-14-2 BSW-14-1	Methane	R	A
BSW-14-4DL BSW-14-3DL BSW-14-2DL BSW-14-1DL	All TCL compounds except Methane	R	A

*Added Overall Assessment findings.

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

IX. Field Duplicates

Samples BSW-14-08** and DUPLICATE were identified as field duplicates. No methane, ethane, or ethene were detected in any of the samples.

***NWS Seal Beach, IR Site 24**
Methane, Ethane, & Ethene - Data Qualification Summary - SDG 06C245

SDG	Sample	Compound	Flag	A or P	Reason
06C245	BSW-14-4 BSW-14-3 BSW-14-2 BSW-14-1	Methane	J (all detects)	A	Compound quantitation and CRQLs
*06C245	BSW-14-4 BSW-14-3 BSW-14-2 BSW-14-1	Methane	R	A	Overall assessment of data
*06C245	BSW-14-4DL BSW-14-3DL BSW-14-2DL BSW-14-1DL	All TCL compounds except Methane	R	A	Overall assessment of data

*Added Overall Assessment findings.

NWS Seal Beach, IR Site 24
Methane, Ethane, & Ethene - Laboratory Blank Data Qualification Summary - SDG 06C245

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 24
Methane, Ethane, & Ethene - Field Blank Data Qualification Summary - SDG 06C245

No Sample Data Qualified in this SDG

LDC Report# 14922A51

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 24

Collection Date: March 28 through March 29, 2006

LDC Report Date: May 9, 2006

Matrix: Water

Parameters: Methane, Ethane, & Ethene

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06C268

Sample Identification

MW-05-01**
MW-05-01DL**
ER

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method RSK-175 for Methane, Ethane, and Ethene.

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 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.

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

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No methane, ethane, or ethene contaminants were found in the method blanks.

Sample "ER" was identified as an equipment rinsate. No methane, ethane, or ethene contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Not required by the method.

b. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

c. 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.

V. 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.

VI. 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**	Methane	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 Level III criteria.

VII. 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.

VIII. Overall Assessment of Data

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Sample	Compound	Flag	A or P
MW-05-01**	Methane	R	A
MW-05-01DL**	All TCL compounds except Methane	R	A

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

IX. Field Duplicates

No field duplicates were identified in this SDG.

NWS Seal Beach, IR Site 24
Methane, Ethane, & Ethene - Data Qualification Summary - SDG 06C268

SDG	Sample	Compound	Flag	A or P	Reason
06C268	MW-05-01**	Methane	J (all detects)	A	Compound quantitation and CRQLs
06C268	MW-05-01**	Methane	R	A	Overall assessment of data
06C268	MW-05-01DL**	All TCL compounds except Methane	R	A	Overall assessment of data

NWS Seal Beach, IR Site 24
Methane, Ethane, & Ethene - Laboratory Blank Data Qualification Summary - SDG 06C268

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 24
Methane, Ethane, & Ethene - Field Blank Data Qualification Summary - SDG 06C268

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 24

Collection Date: March 27 through March 28, 2006

LDC Report Date: May 9, 2006

Matrix: Water

Parameters: Wet Chemistry

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06C245

Sample Identification

BSW-14-08**
BSW-14-09
DUPLICATE
BSW-14-6
BSW-14-5
BSW-14-7
ER
SB
BSW-14-4
BSW-14-3
BSW-14-2
BSW-14-1
BSW-14-08MS
BSW-14-08DUP
DUPLICATEMS
DUPLICATEDUP
BSW-14-6MS
BSW-14-6DUP
BSW-14-1DUP

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 19 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride and Sulfate, EPA Method 310.1 for Alkalinity, EPA Method 350.2 for Ammonia as Nitrogen, EPA Method 351.3 Total Kjeldahl Nitrogen, and EPA Method 365.2 for Orthophosphate as Phosphorus and Total Phosphorus.

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 with the following exceptions:

Sample	Analyte	Total Days From Sample Collection Until Analysis	Required Holding Time (in Days) From Sample Collection Until Analysis	Flag	A or P
DUPLICATE	Total dissolved solids	14	7	J (all detects) UJ (all non-detects)	P
DUPLICATE	Alkalinity	16	14	J (all detects) UJ (all non-detects)	P

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

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.

Sample ER was identified as an equipment rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
ER	3/27/06	pH Ammonia as N Total kjeldahl nitrogen	6.67 units 0.137 mg/L 0.198 mg/L	BSW-14-08** BSW-14-09 DUPLICATE BSW-14-6 BSW-14-5 BSW-14-7

Sample SB was identified as a source blank. No contaminant concentrations were found in this blank with the following exceptions:

Source Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
SB	3/27/06	pH Ammonia as N Total kjeldahl nitrogen	5.80 units 0.094 mg/L 0.217 mg/L	BSW-14-08** BSW-14-09 DUPLICATE BSW-14-6 BSW-14-5 BSW-14-7

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
BSW-14-08**	Ammonia as N Total kjeldahl nitrogen	0.156 mg/L 0.221 mg/L	0.156U mg/L 0.221U mg/L
BSW-14-09	Ammonia as N	0.210 mg/L	0.210U mg/L
DUPLICATE	Ammonia as N Total kjeldahl nitrogen	0.122 mg/L 0.127 mg/L	0.122U mg/L 0.127U mg/L
BSW-14-6	Ammonia as N Total kjeldahl nitrogen	0.142 mg/L 0.208 mg/L	0.142U mg/L 0.208U mg/L
BSW-14-5	Ammonia as N Total kjeldahl nitrogen	0.118 mg/L 0.208 mg/L	0.118U mg/L 0.208U mg/L
BSW-14-7	Ammonia as N Total kjeldahl nitrogen	0.189 mg/L 0.425 mg/L	0.189U mg/L 0.425U mg/L

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 BSW-14-08** and DUPLICATE were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	BSW-14-08**	DUPLICATE	
pH	7.44 units	7.48 units	1
Total dissolved solids	1030 mg/L	1000 mg/L	3
Chloride	142 mg/L	145 mg/L	2
Sulfate	210 mg/L	215 mg/L	2
Alkalinity	379 mg/L	373 mg/L	2
Ammonia as N	0.156 mg/L	0.122 mg/L	24
Total kjeldahl nitrogen	0.221 mg/L	0.127 mg/L	54
Orthophosphate as P	0.100 mg/L	0.104 mg/L	4
Total phosphorus	0.146 mg/L	0.121 mg/L	19

NWS Seal Beach, IR Site 24
Wet Chemistry - Data Qualification Summary - SDG 06C245

SDG	Sample	Analyte	Flag	A or P	Reason
06C245	DUPLICATE	Total dissolved solids Alkalinity	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Technical holding times

NWS Seal Beach, IR Site 24
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 06C245

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 24
Wet Chemistry - Field Blank Data Qualification Summary - SDG 06C245

SDG	Sample	Analyte	Modified Final Concentration	A or P
06C245	BSW-14-08**	Ammonia as N Total kjeldahl nitrogen	0.156U mg/L 0.221U mg/L	A
06C245	BSW-14-09	Ammonia as N	0.210U mg/L	A
06C245	DUPLICATE	Ammonia as N Total kjeldahl nitrogen	0.122U mg/L 0.127U mg/L	A
06C245	BSW-14-6	Ammonia as N Total kjeldahl nitrogen	0.142U mg/L 0.208U mg/L	A
06C245	BSW-14-5	Ammonia as N Total kjeldahl nitrogen	0.118U mg/L 0.208U mg/L	A
06C245	BSW-14-7	Ammonia as N Total kjeldahl nitrogen	0.189U mg/L 0.425U mg/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 24

Collection Date: March 28 through March 29, 2006

LDC Report Date: May 15, 2006

Matrix: Water

Parameters: Wet Chemistry

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06C268

Sample Identification

MW-05-01**
ER
MW-05-01MS
MW-05-01DUP
ERMS
ERDUP

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride and Sulfate, EPA Method 310.1 for Alkalinity, EPA Method 350.2 for Ammonia as Nitrogen, EPA Method 351.3 Total Kjeldahl Nitrogen, and EPA Method 365.2 for Orthophosphate as Phosphorus and Total Phosphorus.

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.

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

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.

Sample ER was identified as an equipment rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
ER	3/29/06	pH Ammonia as N Total kjeldahl nitrogen	6.80 units 0.125 mg/L 0.133 mg/L	MW-05-01**

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-05-01**	Ammonia as N Total kjeldahl nitrogen	0.100 mg/L 0.219 mg/L	0.100U mg/L 0.219U mg/L

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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

No field duplicates were identified in this SDG.

NWS Seal Beach, IR Site 24
Wet Chemistry - Data Qualification Summary - SDG 06C268

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 24
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 06C268

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 24
Wet Chemistry - Field Blank Data Qualification Summary - SDG 06C268

SDG	Sample	Analyte	Modified Final Concentration	A or P
06C268	MW-05-01**	Ammonia as N Total kjeldahl nitrogen	0.100U mg/L 0.219U mg/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 24

Collection Date: March 27 through March 28, 2006

LDC Report Date: May 9, 2006

Matrix: Water

Parameters: Carbon Dioxide

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06C245

Sample Identification

BSW-14-08**
BSW-14-09
DUPLICATE
BSW-14-6
BSW-14-5
BSW-14-7
ER
SB
BSW-14-4
BSW-14-3
BSW-14-2
BSW-14-1
BSW-14-6MS
BSW-14-6MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method RSK-175 for Carbon Dioxide.

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 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.

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

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

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

Sample "ER" was identified as an equipment rinsate. No carbon dioxide was found in this blank with the following exceptions:

Equipment RinsateID	Sampling Date	Compound	Concentration	Associated Samples
ER	3/27/06	Carbon dioxide	690 ug/L	BSW-14-08** BSW-14-09 DUPLICATE BSW-14-6 BSW-14-5 BSW-14-7

Sample "SB" was identified as a source blank. No carbon dioxide was found in this blank with the following exceptions:

Source Blank ID	Sampling Date	Compound	Concentration	Associated Samples
SB	3/27/06	Carbon dioxide	770 ug/L	BSW-14-08** BSW-14-09 DUPLICATE BSW-14-6 BSW-14-5 BSW-14-7

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Not required by the method.

b. 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.

c. 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.

V. 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.

VI. 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.

VII. 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.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples BSW-14-08** and DUPLICATE were identified as field duplicates. No carbon dioxide was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	BSW-14-08**	DUPLICATE	
Carbon dioxide	26000	25000	4

NWS Seal Beach, IR Site 24
Carbon Dioxide - Data Qualification Summary - SDG 06C245

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 24
Carbon Dioxide - Laboratory Blank Data Qualification Summary - SDG 06C245

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 24
Carbon Dioxide - Field Blank Data Qualification Summary - SDG 06C245

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 24

Collection Date: March 28 through March 29, 2006

LDC Report Date: May 9, 2006

Matrix: Water

Parameters: Carbon Dioxide

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06C268

Sample Identification

MW-05-01**
ER

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method RSK-175 for Carbon Dioxide.

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 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.

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

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

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

Sample "ER" was identified as an equipment rinsate. No carbon dioxide was found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
ER	3/29/06	Carbon dioxide	640 ug/L	MW-05-01**

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Not required by the method.

b. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

c. 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.

V. 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.

VI. 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.

VII. 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.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

No field duplicates were identified in this SDG.

NWS Seal Beach, IR Site 24
Carbon Dioxide - Data Qualification Summary - SDG 06C268

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 24
Carbon Dioxide - Laboratory Blank Data Qualification Summary - SDG 06C268

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 24
Carbon Dioxide - Field Blank Data Qualification Summary - SDG 06C268

No Sample Data Qualified in this SDG

DATA VALIDATION REPORTS

AUGUST 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 2 through August 3, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H027

Sample Identification

BSW-14-01**
BSW-14-03
BSW-14-03DL
BSW-14-08
BSW-14-07
BSW-14-02
BSW-14-02DL
BSW-14-04
BSW-14-04DL
MW-05-01
MW-05-01DL
EQUIPMENT RINSATE #2
TRIP BLANK

**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 8260B for Volatiles which are Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) and Methyl-tert-butyl ether (MTBE).

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).

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 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.

The percent differences (%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 method and validation criteria.

V. Blanks

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

Sample "TRIP BLANK" was identified as a trip blank. No volatile contaminants were found in this blank.

Samples "EQUIPMENT RINSATE #1" (from SDG 06H019) and "EQUIPMENT RINSATE #2" were identified as equipment rinsates. No volatile contaminants were found in these blanks with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
EQUIPMENT RINSATE #1	8/2/06	Toluene	0.23 ug/L	BSW-14-08 BSW-14-07
EQUIPMENT RINSATE #2	8/3/06	Benzene Toluene	1.1 ug/L 0.24 ug/L	BSW-14-01** BSW-14-03 BSW-14-03DL BSW-14-02 BSW-14-02DL BSW-14-04 BSW-14-04DL MW-05-01 MW-05-01DL

Sample "SOURCE BLANK" (from SDG 06H019) was identified as a source blank. No volatile contaminants were found in this blank with the following exceptions:

Source Blank ID	Sampling Date	Compound	Concentration	Associated Samples
SOURCE BLANK	8/2/06	Toluene	0.2 ug/L	BSW-14-08 BSW-14-07

Sample concentrations were compared to concentrations detected in the field 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 field 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

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

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
BSW-14-03 MW-05-01	Methyl-tert-butyl ether	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
BSW-14-02	Benzene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
BSW-14-04	Benzene Methyl-tert-butyl ether	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) 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

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Sample	Compound	Flag	A or P
BSW-14-03 MW-05-01	Methyl-tert-butyl ether	R	A
BSW-14-03DL MW-05-01DL	All TCL compounds except Methyl-tert-butyl ether	R	A
BSW-14-02	Benzene	R	A
BSW-14-02DL	All TCL compounds except Benzene	R	A
BSW-14-04	Benzene Methyl-tert-butyl ether	R R	A
BSW-14-04DL	All TCL compounds except Benzene Methyl-tert-butyl ether	R	A

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

NWS Seal Beach, IR Site 14
Volatiles - Data Qualification Summary - SDG 06H027

SDG	Sample	Compound	Flag	A or P	Reason
06H027	BSW-14-03 MW-05-01	Methyl-tert-butyl ether	J (all detects)	A	Compound quantitation and CRQLs
06H027	BSW-14-02	Benzene	J (all detects)	A	Compound quantitation and CRQLs
06H027	BSW-14-04	Benzene Methyl-tert-butyl ether	J (all detects) J (all detects)	A	Compound quantitation and CRQLs
06H027	BSW-14-03 MW-05-01	Methyl-tert-butyl ether	R	A	Overall assessment of data
06H027	BSW-14-03DL MW-05-01DL	All TCL compounds except Methyl-tert-butyl ether	R	A	Overall assessment of data
06H027	BSW-14-02	Benzene	R	A	Overall assessment of data
06H027	BSW-14-02DL	All TCL compounds except Benzene	R	A	Overall assessment of data
06H027	BSW-14-04	Benzene Methyl-tert-butyl ether	R R	A	Overall assessment of data
06H027	BSW-14-04DL	All TCL compounds except Benzene Methyl-tert-butyl ether	R	A	Overall assessment of data

NWS Seal Beach, IR Site 14
Volatiles - Laboratory Blank Data Qualification Summary - SDG 06H027

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Volatiles - Field Blank Data Qualification Summary - SDG 06H027

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 2, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H019

Sample Identification

BSW-14-05
DUPLICATE
BSW-14-06**
EQUIPMENT RINSATE #1
SOURCE BLANK
TRIP BLANK
BSW-14-09
BSW-14-05MS
BSW-14-05MSD

**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 8260B for Volatiles which are Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) and Methyl-tert-butyl ether (MTBE).

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).

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 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.

The percent differences (%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 method and validation criteria.

V. Blanks

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

Sample "TRIP BLANK" was identified as a trip blank. No volatile contaminants were found in this blank.

Sample "EQUIPMENT RINSATE #1" was identified as an equipment rinsate. No volatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
EQUIPMENT RINSATE #1	8/2/06	Toluene	0.23 ug/L	BSW-14-05 DUPLICATE BSW-14-06** BSW-14-09

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

Source Blank ID	Sampling Date	Compound	Concentration	Associated Samples
SOURCE BLANK	8/2/06	Toluene	0.2 ug/L	BSW-14-05 DUPLICATE BSW-14-06** BSW-14-09

Sample concentrations were compared to concentrations detected in the field 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 field 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 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 BSW-14-05 and DUPLICATE were identified as field duplicates. No volatiles were detected in any of the samples.

NWS Seal Beach, IR Site 14
Volatiles - Data Qualification Summary - SDG 06H019

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Volatiles - Laboratory Blank Data Qualification Summary - SDG 06H019

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Volatiles - Field Blank Data Qualification Summary - SDG 06H019

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 2, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level III

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H020

Sample Identification

IRP-SITE 14-TMW-07
IRP-SITE 14-TMW-08
IRP-SITE 14-TMW-09
IRP-SITE 14-TMW-10

Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles which are Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) and Methyl-tert-butyl ether (MTBE).

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.

Raw data were not reviewed for this SDG. The review was 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).

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 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.

The percent differences (%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 method and validation criteria.

V. Blanks

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

Sample "EQUIPMENT RINSATE #1" (from SDG 06H019) was identified as an equipment rinsate. No volatile contaminants were found in this blank.

Equipment Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
EQUIPMENT RINSATE #1	8/2/06	Toluene	0.23 ug/L	All samples in SDG 06H020

Sample "SOURCE BLANK" (from SDG 06H019) was identified as a source blank. No volatile contaminants were found in this blank with the following exceptions:

Source Blank ID	Sampling Date	Compound	Concentration	Associated Samples
SOURCE BLANK	8/2/06	Toluene	0.2 ug/L	All samples in SDG 06H020

Sample concentrations were compared to concentrations detected in the field 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 field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
IRP-SITE 14-TMW-07	Toluene	0.44 ug/L	1U ug/L
IRP-SITE 14-TMW-08	Toluene	0.44 ug/L	1U ug/L
IRP-SITE 14-TMW-09	Toluene	0.55 ug/L	1U ug/L
IRP-SITE 14-TMW-10	Toluene	0.33 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

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

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

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

NWS Seal Beach, IR Site 14
Volatiles - Data Qualification Summary - SDG 06H020

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Volatiles - Laboratory Blank Data Qualification Summary - SDG 06H020

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Volatiles - Field Blank Data Qualification Summary - SDG 06H020

SDG	Sample	Compound	Modified Final Concentration	A or P
06H020	IRP-SITE 14-TMW-07	Toluene	1U ug/L	A
06H020	IRP-SITE 14-TMW-08	Toluene	1U ug/L	A
06H020	IRP-SITE 14-TMW-09	Toluene	1U ug/L	A
06H020	IRP-SITE 14-TMW-10	Toluene	1U ug/L	A

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 7, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level III

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H059

Sample Identification

BSW-14-11
BSW-14-11DL
BSW-14-10
BSW-14-10DL
EQUIPMENT RINSATE
TRIP BLANK

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles which are Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) and Methyl-tert-butyl ether (MTBE).

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.

Raw data were not reviewed for this SDG. The review was 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 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.

The percent differences (%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 method and validation criteria.

V. Blanks

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

Sample "TRIP BLANK" was identified as a trip blank. No volatile contaminants were found in this blank.

Sample "EQUIPMENT RINSATE" was identified as an equipment rinsate. No volatile contaminants were found in this blank.

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

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

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

Raw data were not reviewed for this SDG.

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
BSW-14-11 BSW-14-10	Methyl-tert-butyl ether	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Sample	Compound	Flag	A or P
BSW-14-11 BSW-14-10	Methyl-tert-butyl ether	R	A
BSW-14-11DL BSW-14-10DL	All TCL compounds except Methyl-tert-butyl ether	R	A

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

XVI. Field Duplicates

No field duplicates were identified in this SDG.

NWS Seal Beach, IR Site 14
Volatiles - Data Qualification Summary - SDG 06H059

SDG	Sample	Compound	Flag	A or P	Reason
06H059	BSW-14-11 BSW-14-10	Methyl-tert-butyl ether	J (all detects)	A	Compound quantitation and CRQLs
06H059	BSW-14-11 BSW-14-10	Methyl-tert-butyl ether	R	A	Overall assessment of data
06H059	BSW-14-11DL BSW-14-10DL	All TCL compounds except Methyl-tert-butyl ether	R	A	Overall assessment of data

NWS Seal Beach, IR Site 14
Volatiles - Laboratory Blank Data Qualification Summary - SDG 06H059

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Volatiles - Field Blank Data Qualification Summary - SDG 06H059

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 2 through August 3, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Total Petroleum Hydrocarbons as Gasoline

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H027

Sample Identification

BSW-14-01**
BSW-14-03
BSW-14-08
BSW-14-07
BSW-14-02
BSW-14-04
MW-05-01
EQUIPMENT RINSATE #2
TRIP BLANK
BSW-14-01MS
BSW-14-01MSD

**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 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

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 III.

Field duplicates are summarized in Section IX.

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

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Sample "TRIP BLANK" was identified as a trip blank. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

Samples "EQUIPMENT RINSATE #1" (from SDG 06H019) and "EQUIPMENT RINSATE #2" were identified as equipment rinsates. No total petroleum hydrocarbons as gasoline contaminants were found in these blanks.

Sample "SOURCE BLANK" (from SDG 06H019) was identified as a source blank. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
BSW-14-04	4-Bromofluorobenzene	161 (60-140)	TPH as gasoline	J (all detects)	A

b. 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.

c. 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.

V. Target Compound Identification

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.

VI. 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.

VII. System Performance

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

No field duplicates were identified in this SDG.

NWS Seal Beach, IR Site 14
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 06H027

SDG	Sample	Compound	Flag	A or P	Reason
0H027	BSW-14-04	TPH as gasoline	J (all detects)	A	Surrogate recovery (%R)

NWS Seal Beach, IR Site 14
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 06H027

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 06H027

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 2, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Total Petroleum Hydrocarbons as Gasoline

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H019

Sample Identification

BSW-14-05
DUPLICATE
BSW-14-06**
EQUIPMENT RINSATE #1
SOURCE BLANK
TRIP BLANK
BSW-14-09
BSW-14-05MS
BSW-14-05MSD

**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 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

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 III.

Field duplicates are summarized in Section IX.

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

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Sample "TRIP BLANK" was identified as a trip blank. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

Sample "EQUIPMENT RINSATE #1" was identified as an equipment rinsate. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

Sample "SOURCE BLANK" was identified as a source blank. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

b. 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.

c. 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.

V. Target Compound Identification

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.

VI. 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.

VII. System Performance

The system performance was acceptable for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC 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 BSW-14-05 and DUPLICATE were identified as field duplicates. No total petroleum hydrocarbons as gasoline were detected in any of the samples.

NWS Seal Beach, IR Site 14
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 06H019

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 06H019

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 06H019

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 2, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Total Petroleum Hydrocarbons as Gasoline

Validation Level: NFESC Level III

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H020

Sample Identification

IRP-SITE 14-TMW-07
IRP-SITE 14-TMW-08
IRP-SITE 14-TMW-09
IRP-SITE 14-TMW-10

Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Sample "EQUIPMENT RINSATE #1" (from SDG 06H019) was identified as an equipment rinsate. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

Sample "SOURCE BLANK" (from SDG 06H019) was identified as a source blank. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

b. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

c. 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.

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

No field duplicates were identified in this SDG.

NWS Seal Beach, IR Site 14
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 06H020

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 06H020

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 06H020

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 7, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Total Petroleum Hydrocarbons as Gasoline

Validation Level: NFESC Level III

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H059

Sample Identification

BSW-14-11
BSW-14-10
EQUIPMENT RINSATE
TRIP BLANK

Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Sample "TRIP BLANK" was identified as a trip blank. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

Sample "EQUIPMENT RINSATE" was identified as an equipment rinsate. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

b. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

c. 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.

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

No field duplicates were identified in this SDG.

NWS Seal Beach, IR Site 14
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 06H059

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 06H059

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 06H059

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 2 through August 3, 2006

LDC Report Date: September 18, 2006

Matrix: Water

Parameters: Methane, Ethane, & Ethene

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H027

Sample Identification

BSW-14-01**
BSW-14-03
BSW-14-03DL
BSW-14-08
BSW-14-07
BSW-14-02
BSW-14-02DL
BSW-14-04
BSW-14-04DL
MW-05-01

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method RSK-175 for Methane, Ethane, and Ethene.

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 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.

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

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No methane, ethane, or ethene contaminants were found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Not required by the method.

b. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

c. 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.

V. 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.

VI. 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
BSW-14-03 BSW-14-02 BSW-14-04	Methane	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 Level III criteria.

VII. 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.

VIII. Overall Assessment of Data

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Sample	Compound	Flag	A or P
BSW-14-03 BSW-14-02 BSW-14-04	Methane	R	A
BSW-14-03DL BSW-14-02DL BSW-14-04DL	All TCL compounds except Methane	R	A

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

IX. Field Duplicates

No field duplicates were identified in this SDG.

NWS Seal Beach, IR Site 14
Methane, Ethane, & Ethene - Data Qualification Summary - SDG 06H027

SDG	Sample	Compound	Flag	A or P	Reason
06H027	BSW-14-03 BSW-14-02 BSW-14-04	Methane	J (all detects)	A	Compound quantitation and CRQLs
06H027	BSW-14-03 BSW-14-02 BSW-14-04	Methane	R	A	Overall assessment of data
06H027	BSW-14-03DL BSW-14-02DL BSW-14-04DL	All TCL compounds except Methane	R	A	Overall assessment of data

NWS Seal Beach, IR Site 14
Methane, Ethane, & Ethene - Laboratory Blank Data Qualification Summary - SDG 06H027

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Methane, Ethane, & Ethene - Field Blank Data Qualification Summary - SDG 06H027

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 2, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Methane, Ethane, & Ethene

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H019

Sample Identification

BSW-14-05
DUPLICATE
BSW-14-06**
BSW-14-09
BSW-14-05MS
BSW-14-05MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method RSK-175 for Methane, Ethane, and Ethene.

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 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.

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

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No methane, ethane, or ethene contaminants were found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Not required by the method.

b. 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.

c. 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.

V. 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.

VI. 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.

VII. 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.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples BSW-14-05 and DUPLICATE were identified as field duplicates. No methane, ethane, or ethene was detected in any of the samples.

NWS Seal Beach, IR Site 14
Methane, Ethane, & Ethene - Data Qualification Summary - SDG 06H019

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Methane, Ethane, & Ethene - Laboratory Blank Data Qualification Summary - SDG 06H019

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Methane, Ethane, & Ethene - Field Blank Data Qualification Summary - SDG 06H019

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 7, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Methane, Ethane, & Ethene

Validation Level: NFESC Level III

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H059

Sample Identification

BSW-14-11
BSW-14-10
BSW-14-10DL

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method RSK-175 for Methane, Ethane, and Ethene.

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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No methane, ethane, or ethene contaminants were found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Not required by the method.

b. 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.

c. 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.

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. 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
BSW-14-10	Methane	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Sample	Compound	Flag	A or P
BSW-14-10	Methane	R	A
BSW-14-10DL	All TCL compounds except Methane	R	A

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

IX. Field Duplicates

No field duplicates were identified in this SDG.

NWS Seal Beach, IR Site 14
Methane, Ethane, & Ethene - Data Qualification Summary - SDG 06H059

SDG	Sample	Compound	Flag	A or P	Reason
06H059	BSW-14-10	Methane	J (all detects)	A	Compound quantitation and CRQLs
06H059	BSW-14-10	Methane	R	A	Overall assessment of data
06H059	BSW-14-10DL	All TCL compounds except Methane	R	A	Overall assessment of data

NWS Seal Beach, IR Site 14
Methane, Ethane, & Ethene - Laboratory Blank Data Qualification Summary - SDG 06H059

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Methane, Ethane, & Ethene - Field Blank Data Qualification Summary - SDG 06H059

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 2 through August 3, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Wet Chemistry

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H027

Sample Identification

BSW-14-01**
BSW-14-03
BSW-14-08
BSW-14-07
BSW-14-02
BSW-14-04
MW-05-01
MW-05-01DUP

**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 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride and Sulfate, EPA Method 310.1 for Alkalinity, EPA Method 350.2 for Ammonia as Nitrogen, EPA Method 351.3 Total Kjeldahl Nitrogen, and EPA Method 365.2 for Orthophosphate and Total Phosphorus.

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.

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

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.

No field blanks were identified in this SDG.

IV. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) analyses specified for the samples in this SDG, and therefore matrix spike analyses were not performed for this SDG.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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

No field duplicates were identified in this SDG.

NWS Seal Beach, IR Site 14
Wet Chemistry - Data Qualification Summary - SDG 06H027

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 06H027

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Wet Chemistry - Field Blank Data Qualification Summary - SDG 06H027

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 2, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Wet Chemistry

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H019

Sample Identification

BSW-14-05
DUPLICATE
BSW-14-06**
BSW-14-09
BSW-14-05MS
BSW-14-05DUP

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride and Sulfate, EPA Method 310.1 for Alkalinity, EPA Method 350.2 for Ammonia as Nitrogen, EPA Method 351.3 Total Kjeldahl Nitrogen, and EPA Method 365.2 for Orthophosphate and Total Phosphorus.

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.

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

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.

No field blanks were identified in this SDG.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 BSW-14-05 and DUPLICATE were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	BSW-14-05	DUPLICATE	
pH	7.09 units	7.14 units	1
Total dissolved solids	680 mg/L	650 mg/L	5
Chloride	100 mg/L	100 mg/L	0
Sulfate	73.2 mg/L	72.2 mg/L	1
Alkalinity	283 mg/L	288 mg/L	2
Ammonia as N	0.1U mg/L	0.0405 mg/L	200
Total kjeldahl nitrogen	0.35 mg/L	0.54 mg/L	43

NWS Seal Beach, IR Site 14
Wet Chemistry - Data Qualification Summary - SDG 06H019

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 06H019

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Wet Chemistry - Field Blank Data Qualification Summary - SDG 06H019

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 7, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Wet Chemistry

Validation Level: NFESC Level III

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H059

Sample Identification

BSW-14-11
BSW-14-10
BSW-14-11MS
BSW-14-11DUP
BSW-14-10MS
BSW-14-10DUP

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride and Sulfate, EPA Method 310.1 for Alkalinity, EPA Method 350.2 for Ammonia as Nitrogen, EPA Method 351.3 Total Kjeldahl Nitrogen, and EPA Method 365.2 for Orthophosphate and Total Phosphorus.

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.

Raw data were not reviewed for this SDG. The review was 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

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 with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
PBW1 (prep blank)	Chloride	0.175 mg/L	All samples in SDG 06H059

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

No field blanks were identified in this SDG.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

No field duplicates were identified in this SDG.

NWS Seal Beach, IR Site 14
Wet Chemistry - Data Qualification Summary - SDG 06H059

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 06H059

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Wet Chemistry - Field Blank Data Qualification Summary - SDG 06H059

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 2 through August 3, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Carbon Dioxide

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H027

Sample Identification

BSW-14-01**
BSW-14-03
BSW-14-08
BSW-14-07
BSW-14-02
BSW-14-04
MW-05-01

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method RSK-175 for Carbon Dioxide.

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 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.

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

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

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

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Not required by the method.

b. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

c. 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.

V. 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.

VI. 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.

VII. 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.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

No field duplicates were identified in this SDG.

NWS Seal Beach, IR Site 14
Carbon Dioxide - Data Qualification Summary - SDG 06H027

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Carbon Dioxide - Laboratory Blank Data Qualification Summary - SDG 06H027

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Carbon Dioxide - Field Blank Data Qualification Summary - SDG 06H027

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 2, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Carbon Dioxide

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H019

Sample Identification

BSW-14-05
DUPLICATE
BSW-14-06**
BSW-14-09
BSW-14-05MS
BSW-14-05MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method RSK-175 for Carbon Dioxide.

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 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.

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

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

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

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Not required by the method.

b. 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.

c. 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.

V. 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.

VI. 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.

VII. 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.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples BSW-14-05 and DUPLICATE were identified as field duplicates. No carbon dioxide was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	BSW-14-05	DUPLICATE	
Carbon dioxide	37000	37000	0

NWS Seal Beach, IR Site 14
Carbon Dioxide - Data Qualification Summary - SDG 06H019

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Carbon Dioxide - Laboratory Blank Data Qualification Summary - SDG 06H019

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Carbon Dioxide - Field Blank Data Qualification Summary - SDG 06H019

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: August 7, 2006

LDC Report Date: September 14, 2006

Matrix: Water

Parameters: Carbon Dioxide

Validation Level: NFESC Level III

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06H059

Sample Identification

BSW-14-11
BSW-14-10

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method RSK-175 for Carbon Dioxide.

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 III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was 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

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

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

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Not required by the method.

b. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

c. 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.

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

No field duplicates were identified in this SDG.

NWS Seal Beach, IR Site 14
Carbon Dioxide - Data Qualification Summary - SDG 06H059

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Carbon Dioxide - Laboratory Blank Data Qualification Summary - SDG 06H059

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Carbon Dioxide - Field Blank Data Qualification Summary - SDG 06H059

No Sample Data Qualified in this SDG

DATA VALIDATION REPORTS

OCTOBER 2006
GROUNDWATER MONITORING EVENT

INSTALLATION RESTORATION PROGRAM (IRP) SITE 14
NAVAL WEAPONS STATION SEAL BEACH

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: October 16 through October 17, 2006

LDC Report Date: November 20, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06J140

Sample Identification

BSW-14-05
DUPLICATE
BSW-14-06
BSW-14-09
BSW-14-08
BSW-14-07
BSW-14-01**
SOURCE BLANK
EQUIPMENT RINSATE 1
TRIP BLANK 10/16/06
BSW-14-10
BSW-14-10DL
BSW-14-11
BSW-14-11DL
BSW-14-03
BSW-14-03DL
BSW-14-02
BSW-14-02DL
BSW-14-04
BSW-14-04DL
MW-05-01
MW-05-01DL
EQUIPMENT RINSATE 2
TRIP BANK 10/17/06
BSW-14-05MS
BSW-14-05MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 26 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles which are Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) and Methyl-tert-butyl ether (MTBE).

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).

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 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.

The percent differences (%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 method and validation criteria.

V. Blanks

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

Samples "TRIP BLANK 10/16/06" and "TRIP BLANK 10/17/06" were identified as trip blanks. No volatile contaminants were found in these blanks.

Samples "EQUIPMENT RINSATE 1" and "EQUIPMENT RINSATE 2" were identified as equipment rinsates. No volatile contaminants were found in these blanks.

Sample "SOURCE BLANK" was identified as a source blank. No volatile contaminants were found in this blank.

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
BSW-14-10 BSW-14-11 BSW-14-03 MW-05-01	Methyl-tert-butyl ether	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A
BSW-14-02 BSW-14-04	Benzene Methyl-tert-butyl ether	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) 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

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Sample	Compound	Flag	A or P
BSW-14-10 BSW-14-11 BSW-14-03 MW-05-01	Methyl-tert-butyl ether	R	A
BSW-14-10DL BSW-14-11DL BSW-14-03DL MW-05-01DL	All TCL compounds except Methyl-tert-butyl ether	R	A
BSW-14-02 BSW-14-04	Benzene Methyl-tert-butyl ether	R R	A
BSW-14-02DL BSW-14-04DL	All TCL compounds except Benzene Methyl-tert-butyl ether	R	A

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

XVI. Field Duplicates

Samples BSW-14-05 and DUPLICATE were identified as field duplicates. No volatiles were detected in any of the samples.

NWS Seal Beach, IR Site 14
Volatiles - Data Qualification Summary - SDG 06J140

SDG	Sample	Compound	Flag	A or P	Reason
06J140	BSW-14-10 BSW-14-11 BSW-14-03 MW-05-01	Methyl-tert-butyl ether	J (all detects)	A	Compound quantitation and CRQLs
06J140	BSW-14-02 BSW-14-04	Benzene Methyl-tert-butyl ether	J (all detects) J (all detects)	A	Compound quantitation and CRQLs
06J140	BSW-14-10 BSW-14-11 BSW-14-03 MW-05-01	Methyl-tert-butyl ether	R	A	Overall assessment of data
06J140	BSW-14-10DL BSW-14-11DL BSW-14-03DL MW-05-01DL	All TCL compounds except Methyl-tert-butyl ether	R	A	Overall assessment of data
06J140	BSW-14-02 BSW-14-04	Benzene Methyl-tert-butyl ether	R R	A	Overall assessment of data
06J140	BSW-14-02DL BSW-14-04DL	All TCL compounds except Benzene Methyl-tert-butyl ether	R	A	Overall assessment of data

NWS Seal Beach, IR Site 14
Volatiles - Laboratory Blank Data Qualification Summary - SDG 06J140

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Volatiles - Field Blank Data Qualification Summary - SDG 06J140

No Sample Data Qualified in this SDG

LDC Report# 15759A7

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: October 16 through October 17, 2006

LDC Report Date: November 20, 2006

Matrix: Water

Parameters: Total Petroleum Hydrocarbons as Gasoline

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06J140

Sample Identification

BSW-14-05
DUPLICATE
BSW-14-06
BSW-14-09
BSW-14-08
BSW-14-07
BSW-14-01**
SOURCE BLANK
EQUIPMENT RINSATE 1
TRIP BLANK 10/16/06
BSW-14-10
BSW-14-11
BSW-14-03
BSW-14-02
BSW-14-04
MW-05-01
EQUIPMENT RINSATE 2
BSW-14-05MS
BSW-14-05MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 19 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

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 III.

Field duplicates are summarized in Section IX.

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

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Sample "TRIP BLANK 10/16/06" was identified as a trip blank. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

Samples "EQUIPMENT RINSATE 1" and "EQUIPMENT RINSATE 2" were identified as equipment rinsates. No total petroleum hydrocarbons as gasoline contaminants were found in these blanks.

Sample "SOURCE BLANK" was identified as a source blank. No total petroleum hydrocarbons as gasoline contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

b. 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.

c. 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.

V. Target Compound Identification

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.

VI. 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.

VII. System Performance

The system performance was acceptable for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC 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 BSW-14-05 and DUPLICATE were identified as field duplicates. No total petroleum hydrocarbons as gasoline were detected in any of the samples.

NWS Seal Beach, IR Site 14
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 06J140

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 06J140

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 06J140

No Sample Data Qualified in this SDG

LDC Report# 15759A51

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: October 16 through October 17, 2006

LDC Report Date: November 20, 2006

Matrix: Water

Parameters: Methane, Ethane, & Ethene

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06J140

Sample Identification

BSW-14-05
DUPLICATE
BSW-14-06
BSW-14-09
BSW-14-08
BSW-14-07
BSW-14-01**
BSW-14-10
BSW-14-10DL
BSW-14-11
BSW-14-11DL
BSW-14-03
BSW-14-03DL
BSW-14-02
BSW-14-02DL
BSW-14-04
BSW-14-04DL
MW-05-01
BSW-14-05MS
BSW-14-05MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 20 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method RSK-175 for Methane, Ethane, and Ethene.

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 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.

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

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No methane, ethane, or ethene contaminants were found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Not required by the method.

b. 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.

c. 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.

V. 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.

VI. 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
BSW-14-10 BSW-14-11 BSW-14-03 BSW-14-02 BSW-14-04	Methane	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 Level III criteria.

VII. 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.

VIII. Overall Assessment of Data

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Sample	Compound	Flag	A or P
BSW-14-10 BSW-14-11 BSW-14-03 BSW-14-02 BSW-14-04	Methane	R	A
BSW-14-10DL BSW-14-11DL BSW-14-03DL BSW-14-02DL BSW-14-04DL	All TCL compounds except Methane	R	A

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

IX. Field Duplicates

Samples BSW-14-05 and DUPLICATE were identified as field duplicates. No methane, ethane, or ethene was detected in any of the samples.

NWS Seal Beach, IR Site 14
Methane, Ethane, & Ethene - Data Qualification Summary - SDG 06J140

SDG	Sample	Compound	Flag	A or P	Reason
06J140	BSW-14-10 BSW-14-11 BSW-14-03 BSW-14-02 BSW-14-04	Methane	J (all detects)	A	Compound quantitation and CRQLs
06J140	BSW-14-10 BSW-14-11 BSW-14-03 BSW-14-02 BSW-14-04	Methane	R	A	Overall assessment of data
06J140	BSW-14-10DL BSW-14-11DL BSW-14-03DL BSW-14-02DL BSW-14-04DL	All TCL compounds except Methane	R	A	Overall assessment of data

NWS Seal Beach, IR Site 14
Methane, Ethane, & Ethene - Laboratory Blank Data Qualification Summary - SDG 06J140

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Methane, Ethane, & Ethene - Field Blank Data Qualification Summary - SDG 06J140

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: October 16 through October 17, 2006

LDC Report Date: November 22, 2006

Matrix: Water

Parameters: Wet Chemistry

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06J140

Sample Identification

BSW-14-05
DUPLICATE
BSW-14-06
BSW-14-09
BSW-14-08
BSW-14-07
BSW-14-01**
BSW-14-10
BSW-14-11
BSW-14-03
BSW-14-02
BSW-14-04
MW-05-01
BSW-14-05MS
BSW-14-05DUP
MW-05-01DUP

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 16 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 150.1 for pH, EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride and Sulfate, EPA Method 310.1 for Alkalinity, EPA Method 350.2 for Ammonia as Nitrogen, EPA Method 351.3 Total Kjeldahl Nitrogen, and EPA Method 365.2 for Orthophosphate and Total Phosphorus.

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 with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
BSW-14-05 DUPLICATE BSW-14-06 BSW-14-09 BSW-14-08 BSW-14-07 BSW-14-01** BSW-14-10 BSW-14-11 BSW-14-05MS BSW-14-05DUP	Orthophosphate as P	11 days	48 hours	J (all detects) R (all non-detects)	P
BSW-14-03 BSW-14-02 BSW-14-04 MW-05-01	Orthophosphate as P	11 days	48 hours	J (all detects) R (all non-detects)	P

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

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 initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
PBW3 (prep blank)	Chloride	0.102 mg/L	MW-05-01
ICB/CCB	Chloride	0.100 mg/L	MW-05-01

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

No field blanks were identified in this SDG.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. 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 BSW-14-05 and DUPLICATE were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	BSW-14-05	DUPLICATE	
pH	7.15 units	7.13 units	0
Total dissolved solids	645 mg/L	665 mg/L	3
Chloride	109 mg/L	108 mg/L	1
Sulfate	75.8 mg/L	76.6 mg/L	1

Analyte	Concentration		RPD
	BSW-14-05	DUPLICATE	
Alkalinity	298 mg/L	280 mg/L	6
Ammonia as N	0.104 mg/L	0.0522 mg/L	66
Total kjeldahl nitrogen	0.442 mg/L	0.420 mg/L	5

NWS Seal Beach, IR Site 14
Wet Chemistry - Data Qualification Summary - SDG 06J140

SDG	Sample	Analyte	Flag	A or P	Reason
0000	BSW-14-05 DUPLICATE BSW-14-06 BSW-14-09 BSW-14-08 BSW-14-07 BSW-14-01** BSW-14-10 BSW-14-11 BSW-14-03 BSW-14-02 BSW-14-04 MW-05-01	Orthophosphate as P	J (all detects) R (all non-detects)	P	Technical holding times

NWS Seal Beach, IR Site 14
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 06J140

No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Wet Chemistry - Field Blank Data Qualification Summary - SDG 06J140

No Sample Data Qualified in this SDG

LDC Report# 15759A77

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NWS Seal Beach, IR Site 14

Collection Date: October 16 through October 17, 2006

LDC Report Date: November 20, 2006

Matrix: Water

Parameters: Carbon Dioxide

Validation Level: NFESC Level III & IV

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06J140

Sample Identification

BSW-14-05
DUPLICATE
BSW-14-06
BSW-14-09
BSW-14-08
BSW-14-07
BSW-14-01**
BSW-14-10
BSW-14-11
BSW-14-03
BSW-14-02
BSW-14-04
MW-05-01
BSW-14-05MS
BSW-14-05MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 15 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method RSK-175 for Carbon Dioxide.

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 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.

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

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No carbon dioxide was found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Not required by the method.

b. 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.

c. 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.

V. 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.

VI. 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.

VII. 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.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples BSW-14-05 and DUPLICATE were identified as field duplicates. No carbon dioxide was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	BSW-14-05	DUPLICATE	
Carbon dioxide	52000	45000	14

NWS Seal Beach, IR Site 14
Carbon Dioxide - Data Qualification Summary - SDG 06J140

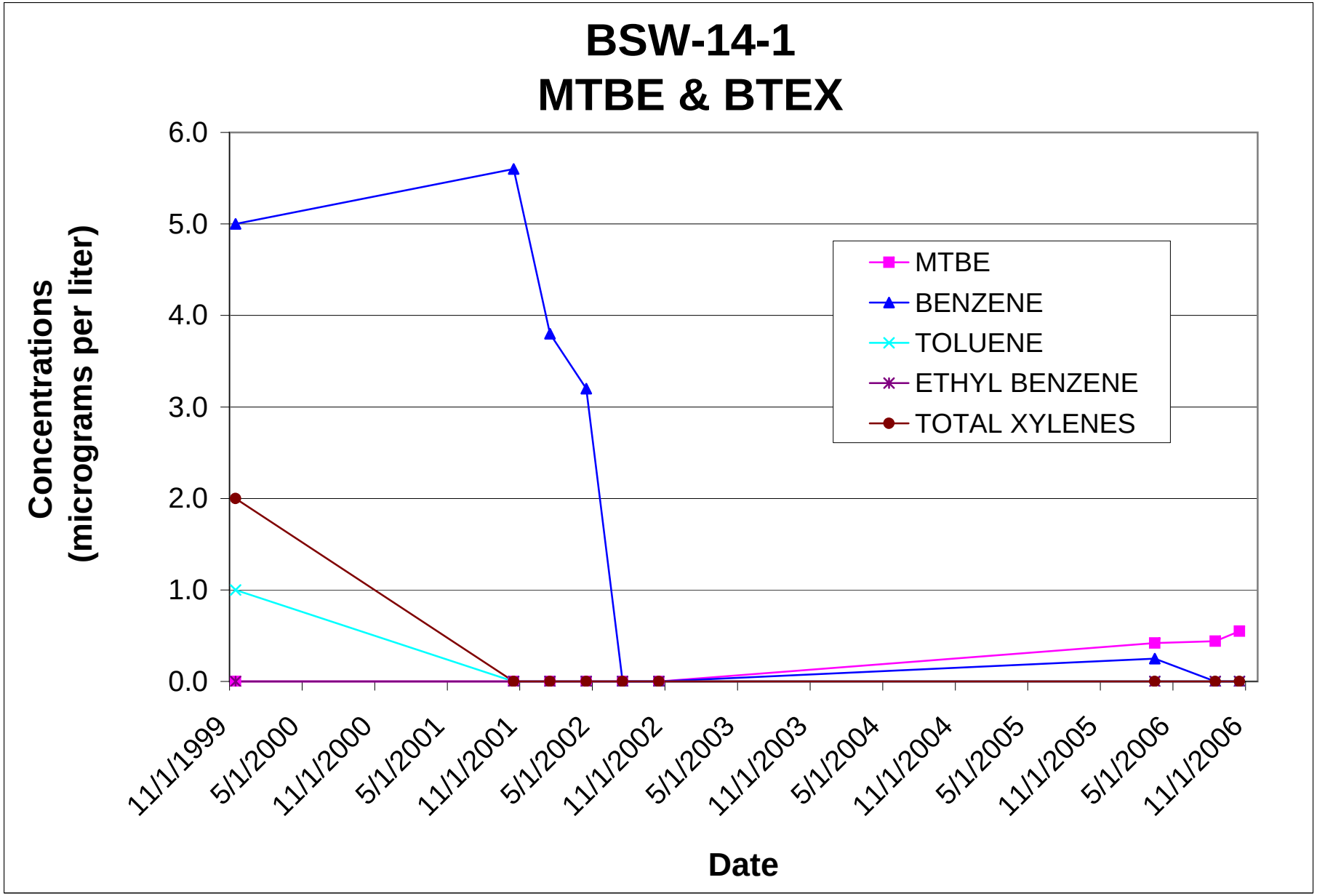
No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Carbon Dioxide - Laboratory Blank Data Qualification Summary - SDG 06J140

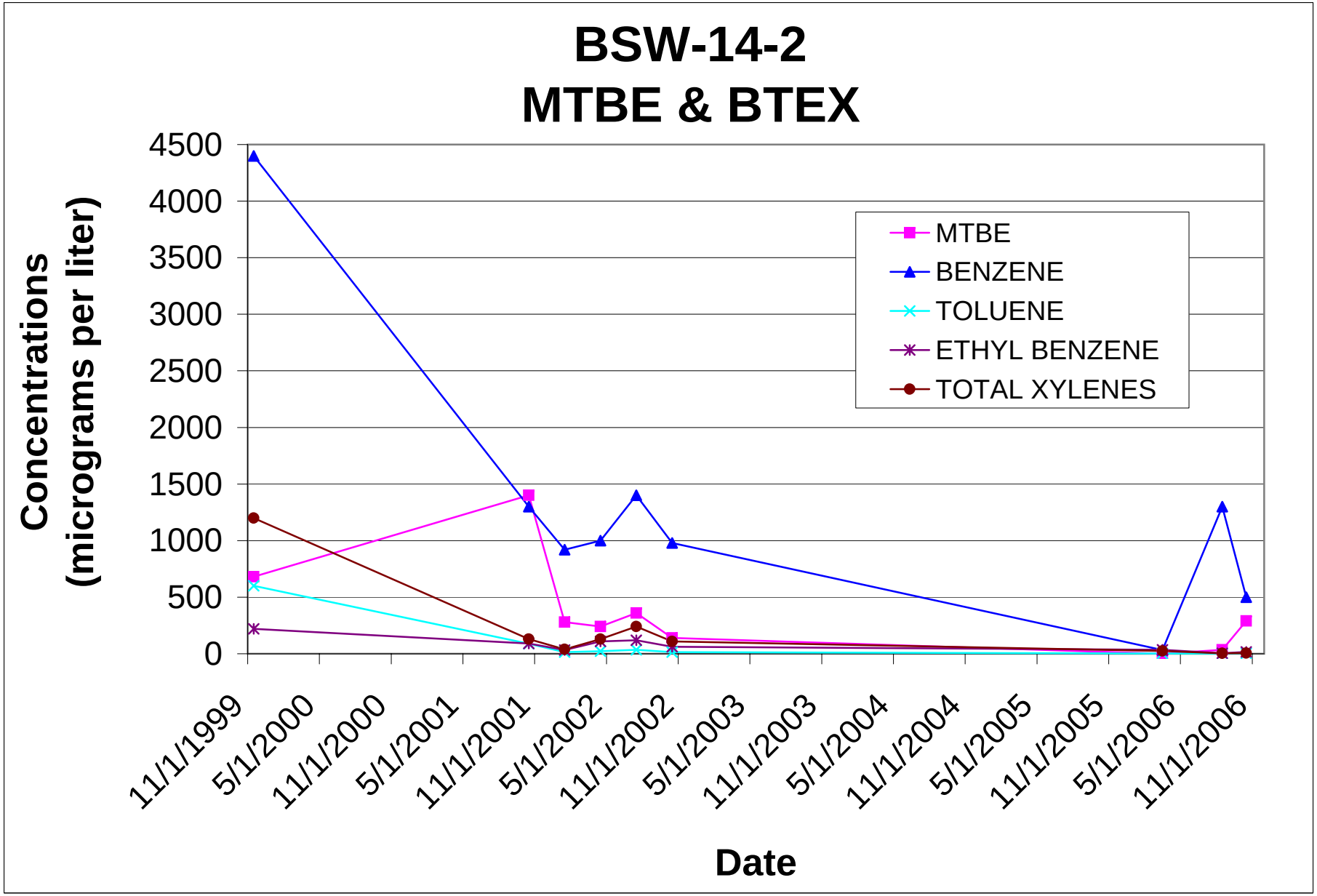
No Sample Data Qualified in this SDG

NWS Seal Beach, IR Site 14
Carbon Dioxide - Field Blank Data Qualification Summary - SDG 06J140

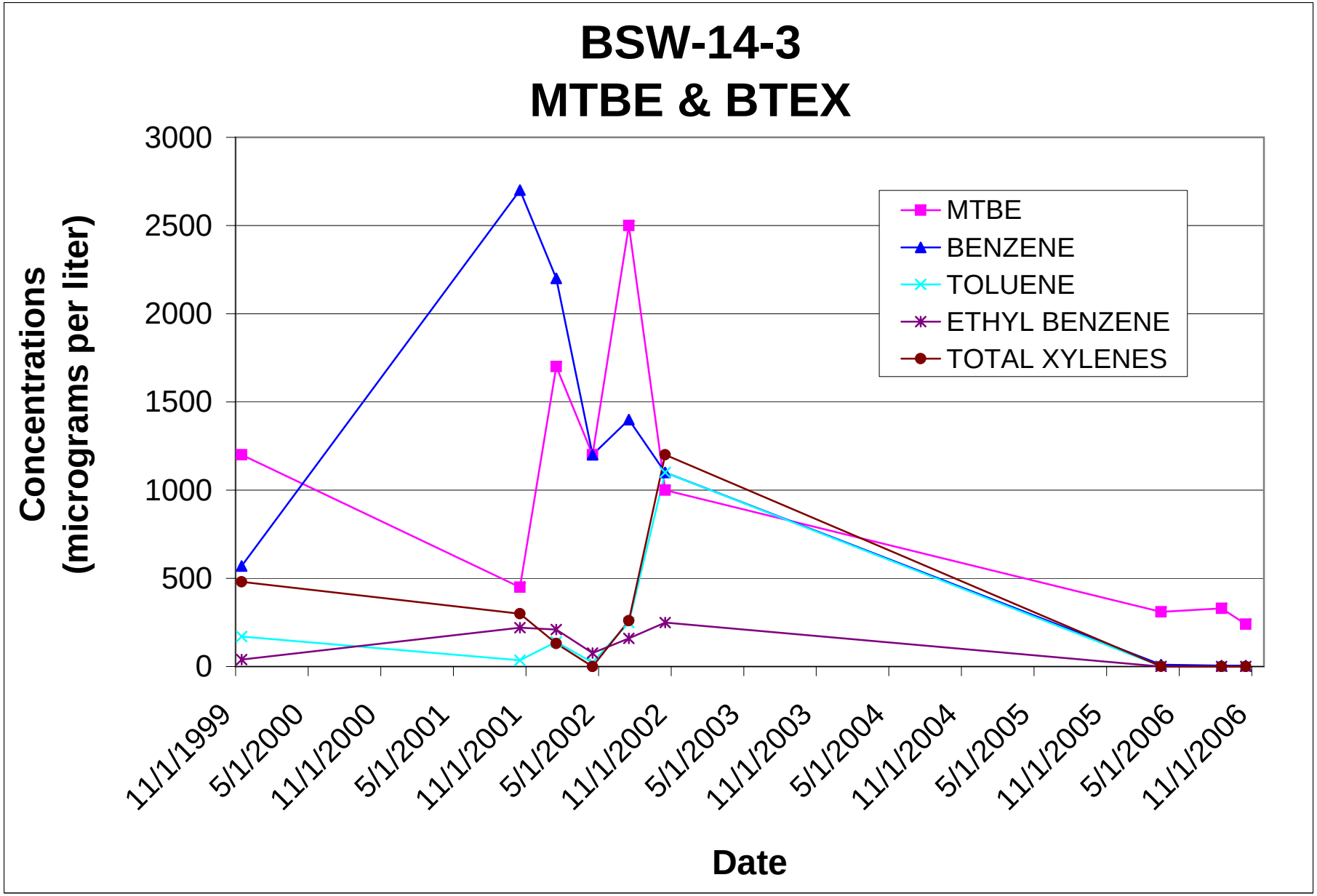
No Sample Data Qualified in this SDG



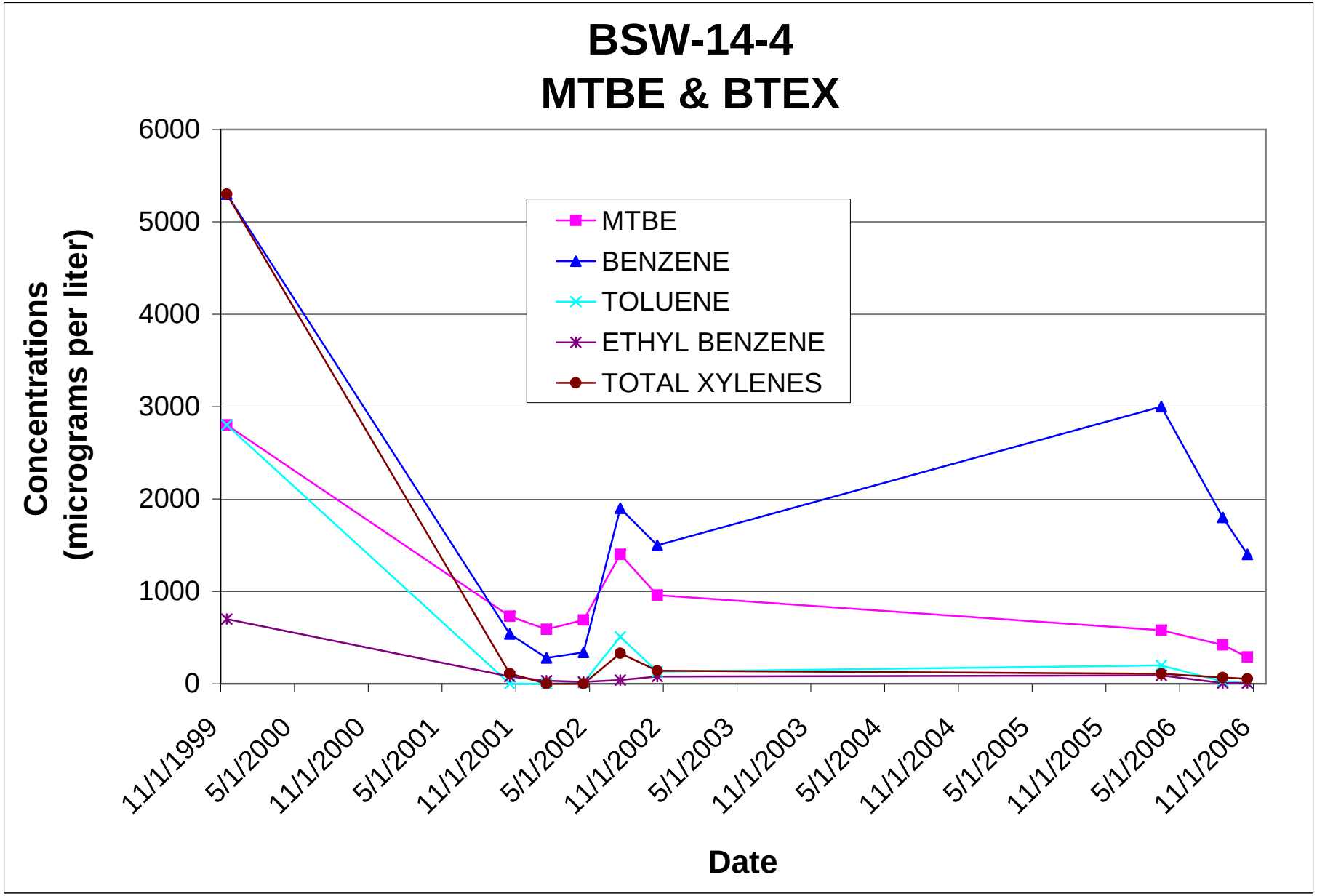
For the purpose of graphing analytical results, non-detect results are shown as "zeroes"



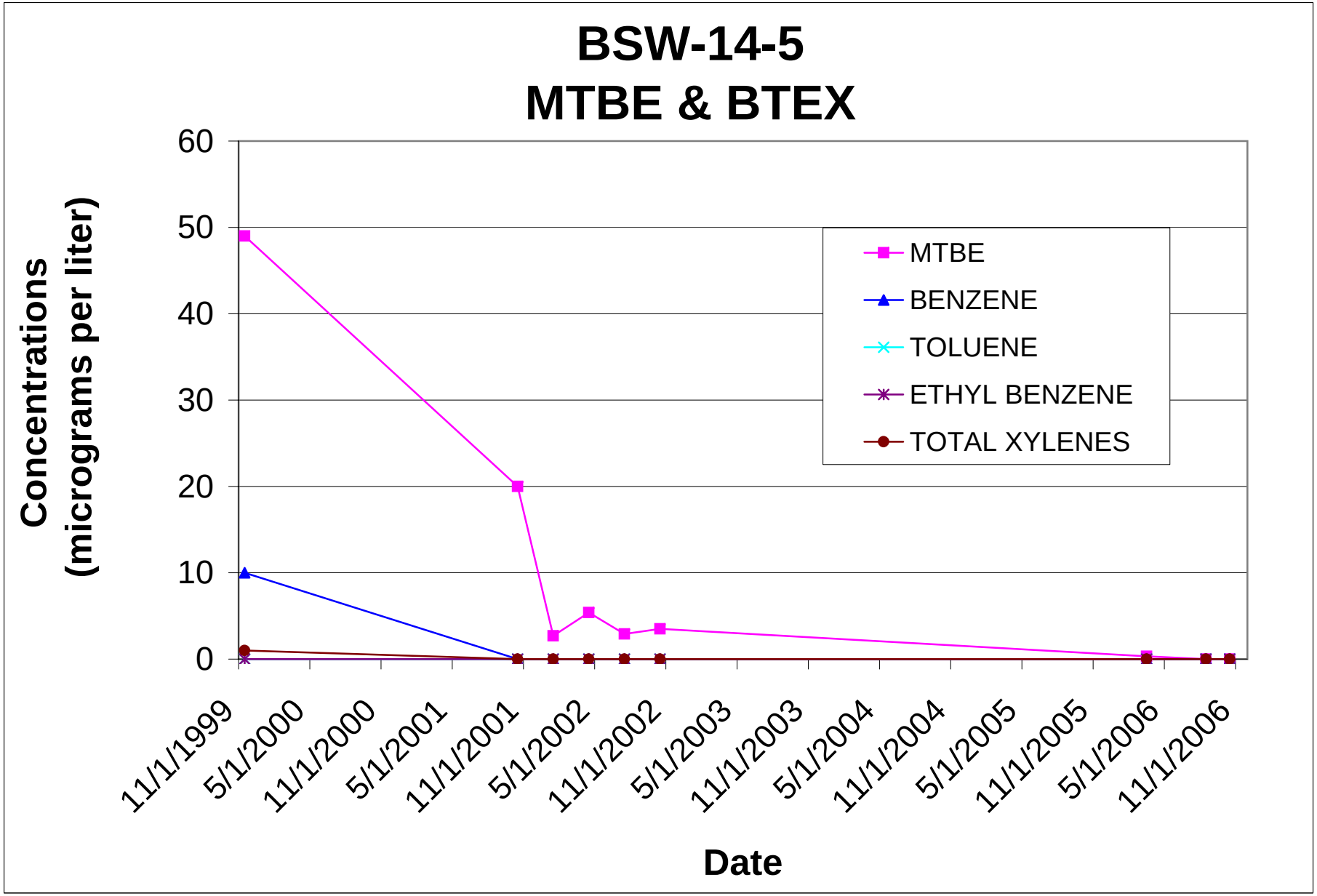
For the purpose of graphing analytical results, non-detect results are shown as "zeroes"



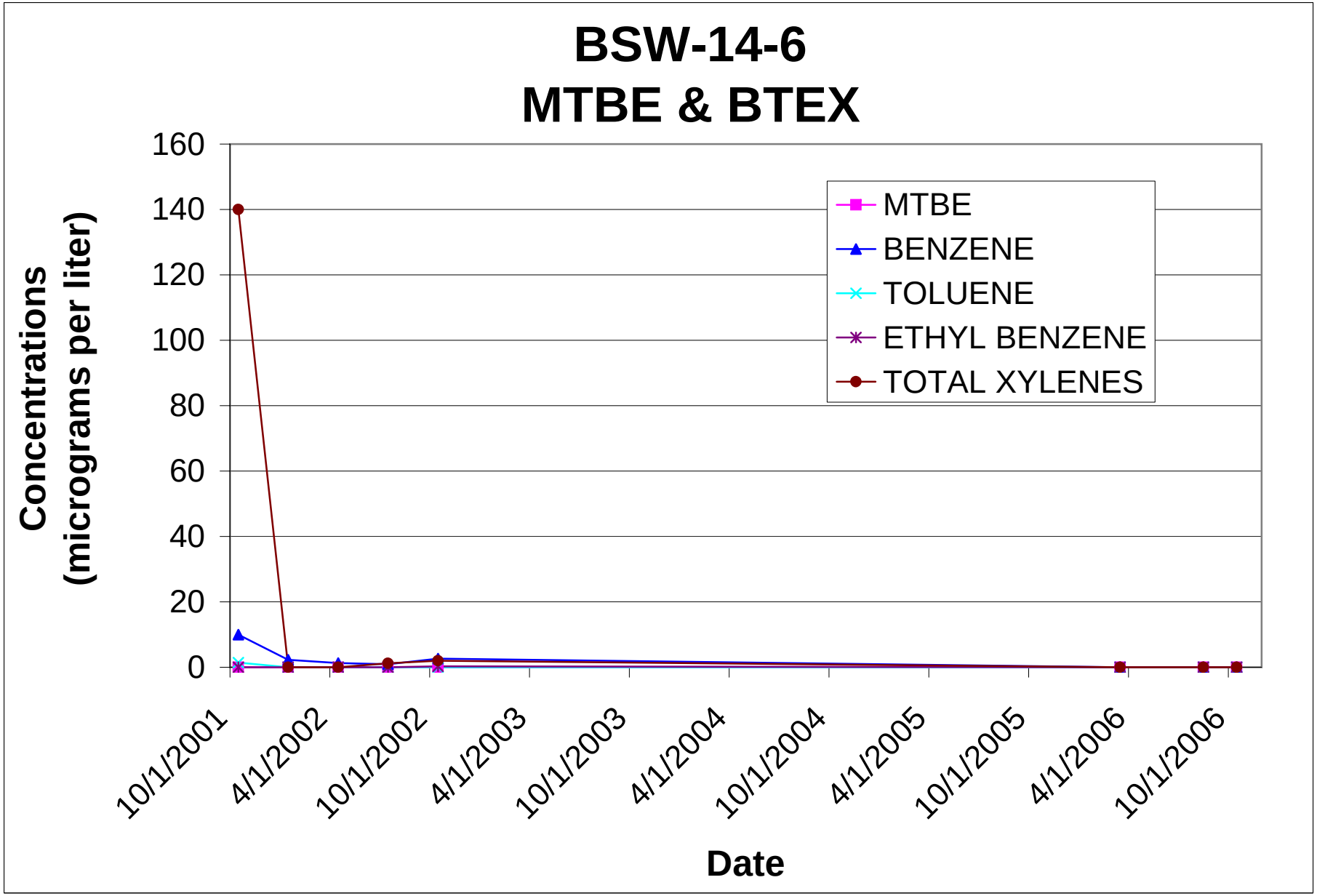
For the purpose of graphing analytical results, non-detect results are shown as "zeroes"



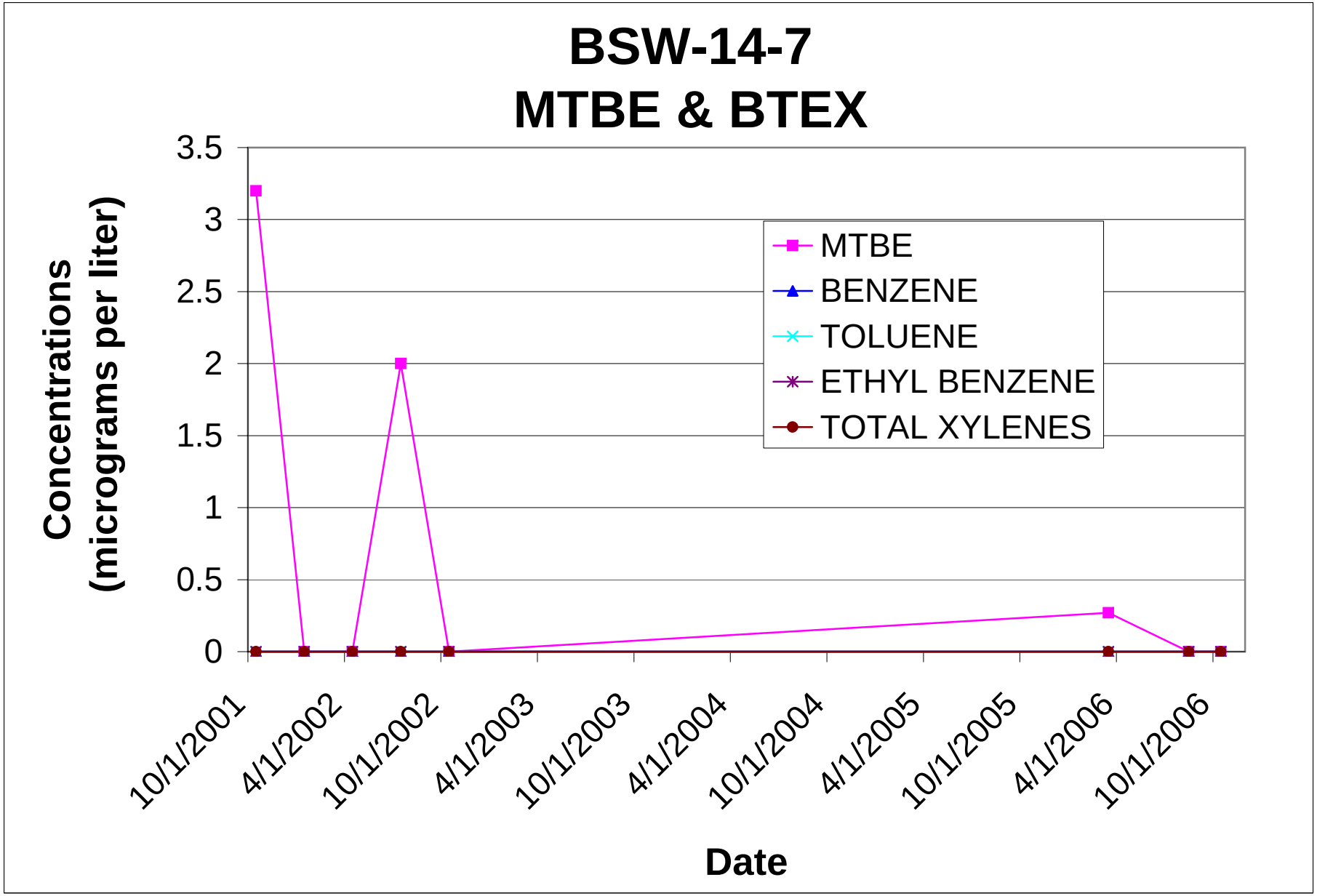
For the purpose of graphing analytical results, non-detect results are shown as "zeroes"



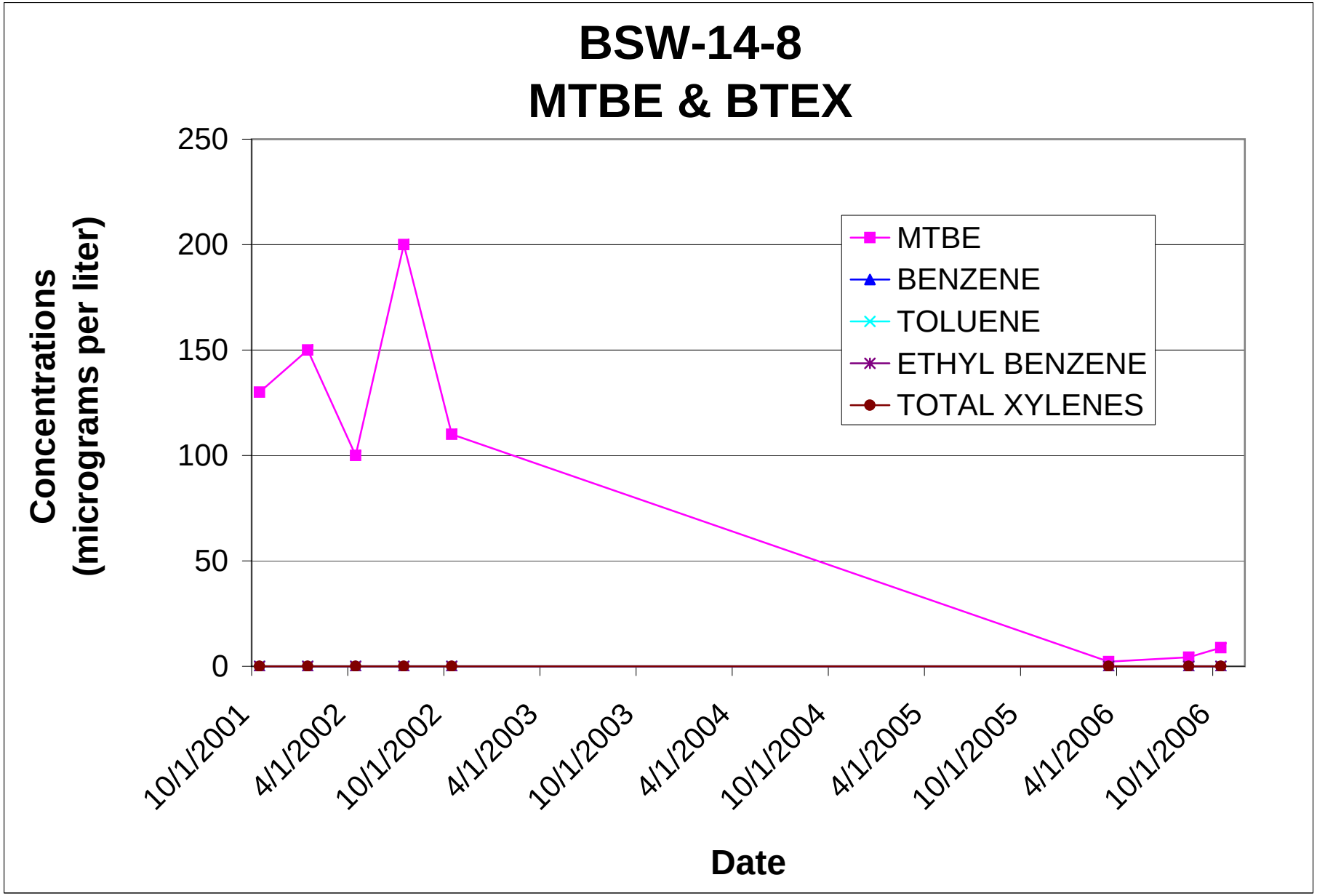
For the purpose of graphing analytical results, non-detect results are shown as "zeroes"



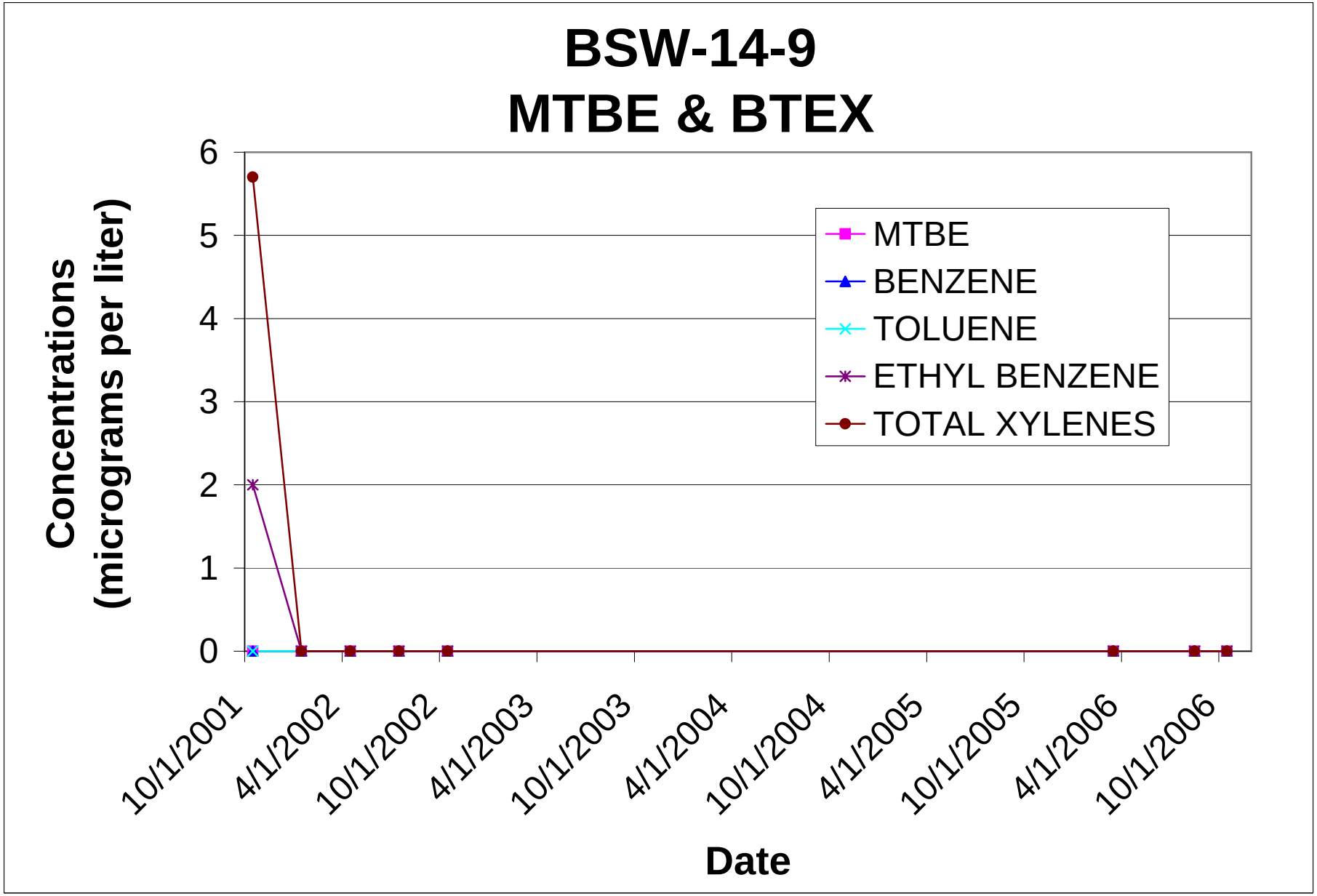
For the purpose of graphing analytical results, non-detect results are shown as "zeroes"



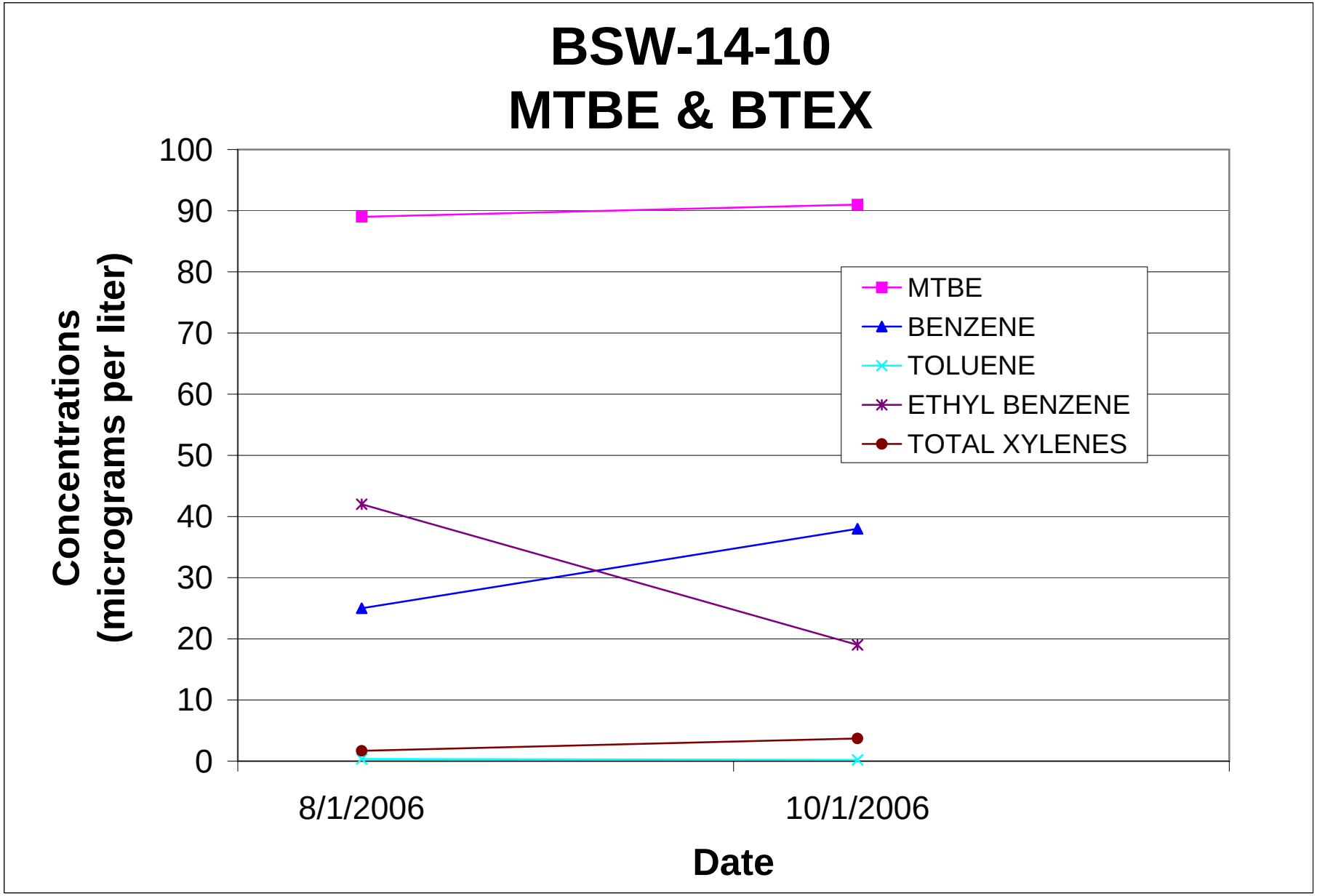
For the purpose of graphing analytical results, non-detect results are shown as "zeroes"



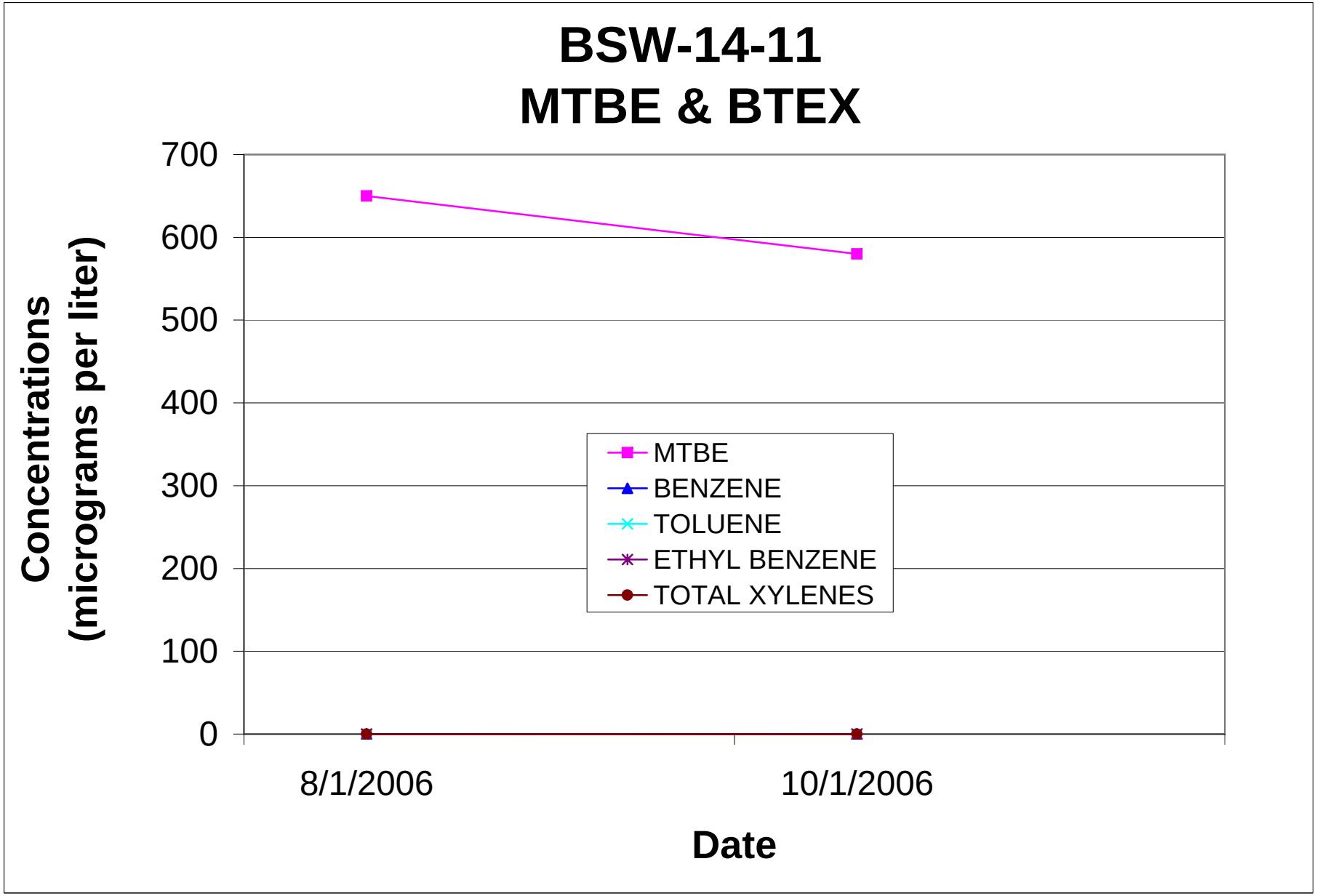
For the purpose of graphing analytical results, non-detect results are shown as "zeroes"



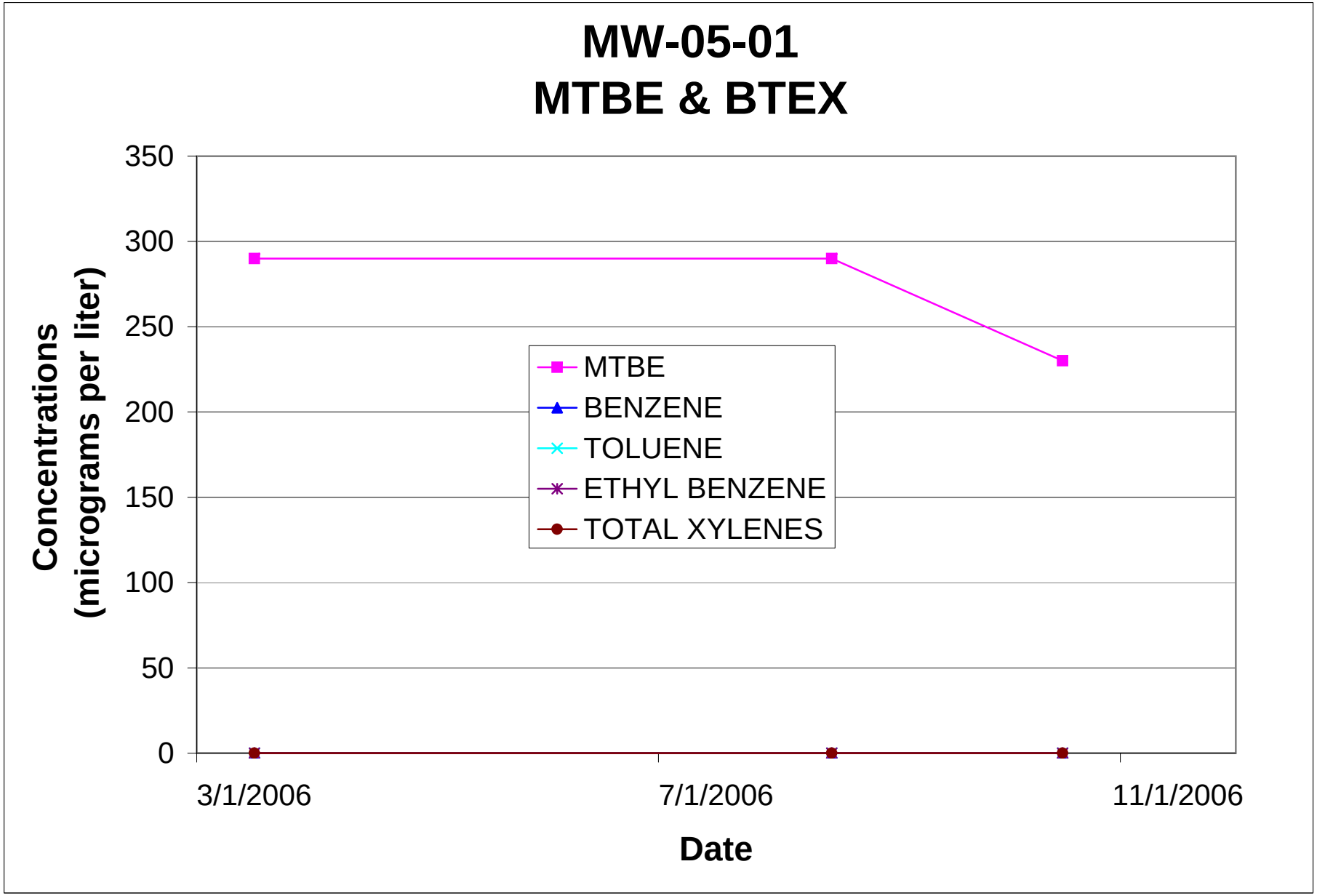
For the purpose of graphing analytical results, non-detect results are shown as "zeroes"



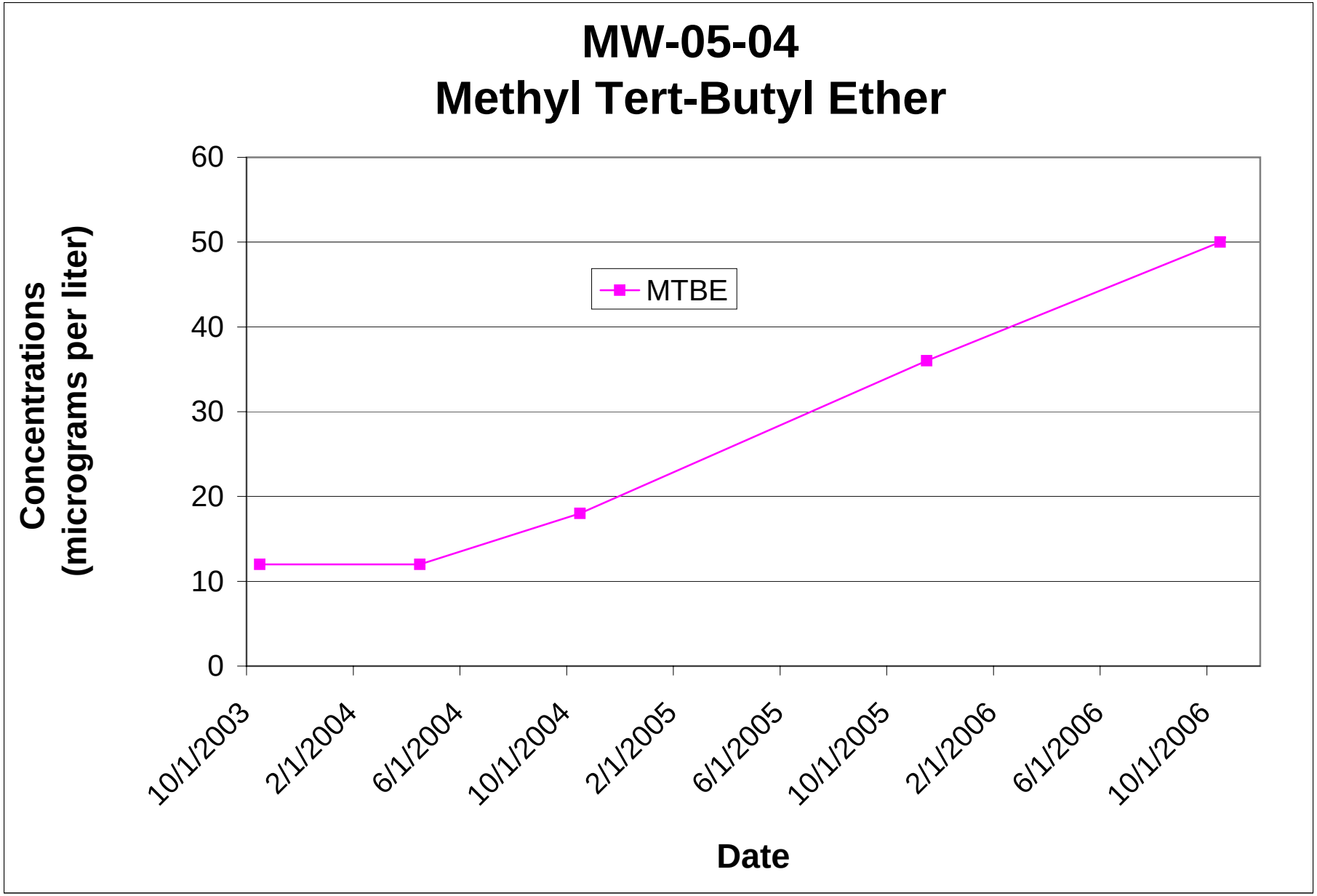
For the purpose of graphing analytical results, non-detect results are shown as "zeroes"



For the purpose of graphing analytical results, non-detect results are shown as "zeroes"



For the purpose of graphing analytical results, non-detect results are shown as "zeroes"


MW-05-04
Methyl Tert-Butyl Ether
Concentrations
(micrograms per liter)
60
50
40
30
20
10
0
MTBE
10/1/2003
2/1/2004
6/1/2004
10/1/2004
2/1/2005
6/1/2005
10/1/2005
2/1/2006
6/1/2006
10/1/2006
Date

Mann-Kendall Statistical Test

(For Groundwater Sam g 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 =	Seal Beach	Site ID No. = Site 14	Well Number =	**BSW-14-1**

Event Number	Compound -> Sampling Date (most recent last)	**TPH as Gas** Concentration (leave blank if no data - 0 if ND)	**MTBE** Concentration (leave blank if no data)	**Benzene** Concentration (leave blank if no data)	**Toluene** Concentration (leave blank if no data)	**Ethyl Benzene** Concentration (leave blank if no data)	**Total Xylenes** Concentration (leave blank if no data)
1	11/1/1999	0.19	2.5	5	1	0.5	2
2	10/4/2001	0.025	2.5	5.6	0.5	0.5	1
3	1/24/2002	0.091	2.5	3.8	0.5	0.5	1
4	4/16/2002	0.091	2.5	3.2	0.5	0.5	1
5	7/24/2002	0.025	2.5	0.25	0.5	0.5	1
6	10/7/2002	0.025	2.5	0.25	0.5	0.5	1
7	3/28/2006	0.025	0.42	0.25	0.5	0.5	1
8	8/3/2006	0.025	0.44	0.25	0.5	0.5	1
9	10/16/2006	0.025	0.55	0.25	0.5	0.5	1
10							

Mann Kendall Statistic (S) =	-16	-15	-24	-8	0	-8
Number of Rounds (n) =	9	9	9	9	9	9
Average =	0.06	1.82	2.09	0.56	0.50	1.11
Standard Deviation =	0.057	1.016	2.288	0.167	0.000	0.333
Coefficient of Variation(CV)=	0.985	0.557	1.092	0.300	0.000	0.300

Error Check, Blank if No Errors Detected

Trend = 80% Confidence Level	**DECREASING**	**DECREASING**	**DECREASING**	**No Trend**	**No Trend**	**No Trend**
Trend = 90% Confidence Level	**DECREASING**	**DECREASING**	**DECREASING**	**No Trend**	**No Trend**	**No Trend**
Stability Test, If No Trend Exists at 80% Confidence Level	**NA**	**NA**	**NA**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**

Data Entry By =	B. Breglio	Date =	11/15/2006	Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sam g 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 =	Seal Beach	Site ID No. = Site 14	Well Number =	**BSW-14-2**

Event Number	Compound -> Sampling Date (most recent last)	**TPH as Gas** Concentration (leave blank if no data - 0 if ND)	**MTBE** Concentration (leave blank if no data)	**Benzene** Concentration (leave blank if no data)	**Toluene** Concentration (leave blank if no data)	**Ethyl Benzene** Concentration (leave blank if no data)	**Total Xylenes** Concentration (leave blank if no data)
1	11/1/1999	2.2	680	4400	600	220	1200
2	10/4/2001	0.92	1400	1300	88	91	130
3	1/24/2002	0.6	280	920	14	33	39
4	4/16/2002	1.3	240	1000	22	110	130
5	7/25/2002	1.9	360	1400	35	120	240
6	10/8/2002	1.2	140	980	15	62	110
7	3/28/2006	0.67	0.5	32	1.2	35	24.85
8	8/3/2006	1	35	1300	2.2	3.4	3.8
9	10/17/2006	0.6	290	500	4.8	16	7.1
10							

Mann Kendall Statistic (S) =	-13	-18	-15	-22	-20	-23
Number of Rounds (n) =	9	9	9	9	9	9
Average =	1.15	380.61	1314.67	86.91	76.71	209.42
Standard Deviation =	0.570	431.443	1235.045	194.268	67.681	379.309
Coefficient of Variation(CV)=	0.494	1.134	0.939	2.235	0.882	1.811

Error Check, Blank if No Errors Detected

Trend = 80% Confidence Level	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**
Trend = 90% Confidence Level	**No Trend**	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**
Stability Test, If No Trend Exists at 80% Confidence Level	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Data Entry By =	B. Breglio	Date =	11/15/2006	Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sam g 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 =	Seal Beach	Site ID No. = Site 14	Well Number =	**BSW-14-3**

Event Number	Compound -> Sampling Date (most recent last)	**TPH as Gas** Concentration (leave blank if no data - 0 if ND)	**MTBE** Concentration (leave blank if no data)	**Benzene** Concentration (leave blank if no data)	**Toluene** Concentration (leave blank if no data)	**Ethyl Benzene** Concentration (leave blank if no data)	**Total Xylenes** Concentration (leave blank if no data)
1	11/1/1999	2.36	1200	570	170	40	480
2	10/4/2001	6.3	450	2700	36	220	300
3	1/24/2002	1.5	1700	2200	140	210	130
4	4/16/2002	0.58	1200	1200	22	76	100
5	7/25/2002	1.8	2500	1400	250	160	260
6	10/8/2002	8.2	1000	1100	1100	250	1200
7	3/28/2006	0.033	310	11	0.66	0.65	0.8
8	8/3/2006	0.05	330	5.7	0.5	0.5	1
9	10/17/2006	0.05	240	5.3	0.5	0.5	1
10							

Mann Kendall Statistic (S) =	-15	-17	-24	-15	-15	-17
Number of Rounds (n) =	9	9	9	9	9	9
Average =	2.32	992.22	1021.33	191.07	106.41	274.76
Standard Deviation =	2.956	760.309	979.604	352.527	103.729	383.322
Coefficient of Variation(CV)=	1.275	0.766	0.959	1.845	0.975	1.395

Error Check, Blank if No Errors Detected						
Trend = 80% Confidence Level	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**
Trend = 90% Confidence Level	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**	**DECREASING**
Stability Test, If No Trend Exists at 80% Confidence Level	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Data Entry By =	B. Breglio	Date =	11/15/2006	Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sam g Trend Analysis)

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Site Name =	Seal Beach	Site ID No. = Site 14	Well Number =	**BSW-14-4**

Event Number	Compound -> Sampling Date (most recent last)	**TPH as Gas** Concentration (leave blank if no data - 0 if ND)	**MTBE** Concentration (leave blank if no data)	**Benzene** Concentration (leave blank if no data)	**Toluene** Concentration (leave blank if no data)	**Ethyl Benzene** Concentration (leave blank if no data)	**Total Xylenes** Concentration (leave blank if no data)
1	11/1/1999	11.1	2800	5300	2800	700	5300
2	10/4/2001	1.5	730	540	25	79	110
3	1/24/2002	0.26	590	280	25	34	25
4	4/16/2002	0.25	690	340	12	19	25
5	7/25/2002	1.6	1400	1900	510	41	330
6	10/8/2002	1.2	960	1500	130	78	140
7	3/28/2006	2	580	3000	200	91	108
8	8/3/2006	0.83	420	1800	26	8.8	67.8
9	10/17/2006	1	290	1400	11	8.1	52.9
10							

Mann Kendall Statistic (S) =	-6	-22	2	-9	-16	-11
Number of Rounds (n) =	9	9	9	9	9	9
Average =	2.19	940.00	1784.44	415.44	117.66	684.30
Standard Deviation =	3.391	768.375	1580.246	908.697	220.613	1733.368
Coefficient of Variation(CV)=	1.546	0.817	0.886	2.187	1.875	2.533

Error Check, Blank if No Errors Detected

Trend = 80% Confidence Level	**No Trend**	**DECREASING**	**No Trend**	**No Trend**	**DECREASING**	**DECREASING**
Trend = 90% Confidence Level	**No Trend**	**DECREASING**	**No Trend**	**No Trend**	**DECREASING**	**No Trend**
Stability Test, If No Trend Exists at 80% Confidence Level	**CV>1 NON-STABLE**	**NA**	**CV<=1 STABLE**	**CV>1 NON-STABLE**	**NA**	**NA**

Data Entry By =	B. Breglio	Date =	11/15/2006	Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sam g Trend Analysis)

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Site Name =	Seal Beach	Site ID No. = Site 14	Well Number =	**BSW-14-5**

	Compound ->	**TPH as Gas**	**MTBE**	**Benzene**	**Toluene**	**Ethyl Benzene**	**Total Xylenes**
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data - 0 if ND)	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	11/1/1999	0.28	49	10	0.5	0.5	1
2	10/4/2001	0.067	20	0.25	0.5	0.5	1
3	1/24/2002	0.025	2.7	0.25	0.5	0.5	1
4	4/16/2002	0.025	5.4	0.25	0.5	0.5	1
5	7/24/2002	0.025	2.9	0.25	0.5	0.5	1
6	10/8/2002	0.025	3.5	0.25	0.5	0.5	1
7	3/27/2006	0.025	0.31	0.25	0.5	0.5	1
8	8/2/2006	0.025	0.5	0.25	0.5	0.5	1
9	10/16/2006	0.025	0.5	0.25	0.5	0.5	1
10							

Mann Kendall Statistic (S) =	-15	-23	-8	0	0	0
Number of Rounds (n) =	9	9	9	9	9	9
Average =	0.06	9.42	1.33	0.50	0.50	1.00
Standard Deviation =	0.084	16.045	3.250	0.000	0.000	0.000
Coefficient of Variation(CV)=	1.455	1.703	2.438	0.000	0.000	0.000

Error Check, Blank if No Errors Detected						
Trend = 80% Confidence Level	**DECREASING**	**DECREASING**	**No Trend**	**No Trend**	**No Trend**	**No Trend**
Trend = 90% Confidence Level	**DECREASING**	**DECREASING**	**No Trend**	**No Trend**	**No Trend**	**No Trend**
Stability Test, If No Trend Exists at 80% Confidence Level	**NA**	**NA**	**CV>1 NON-STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**

Data Entry By =	B. Breglio	Date =	11/15/2006	Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sam g Trend Analysis)

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Site Name =	Seal Beach	Site ID No. = Site 14	Well Number =	**BSW-14-6**

Event Number	Compound -> Sampling Date (most recent last)	**TPH as Gas** Concentration (leave blank if no data - 0 if ND)	**MTBE** Concentration (leave blank if no data)	**Benzene** Concentration (leave blank if no data)	**Toluene** Concentration (leave blank if no data)	**Ethyl Benzene** Concentration (leave blank if no data)	**Total Xylenes** Concentration (leave blank if no data)
1	10/4/2001	2.8	0.5	10	1.4	0.5	140
2	1/24/2002	0.17	0.5	2.3	0.5	0.5	1
3	4/16/2002	0.11	0.5	1.3	0.5	0.5	1
4	7/24/2002	0.025	0.5	0.95	0.5	0.5	1.2
5	10/7/2002	0.025	0.5	2.6	0.5	0.32	2
6	3/27/2006	0.025	0.5	0.25	0.5	0.5	1
7	8/2/2006	0.025	0.5	0.25	0.5	0.5	1
8	10/16/2006	0.025	0.5	0.25	0.5	0.5	1
9							
10							

Mann Kendall Statistic (S) =	-18	0	-19	-7	-1	-8
Number of Rounds (n) =	8	8	8	8	8	8
Average =	0.40	0.50	2.24	0.61	0.48	18.53
Standard Deviation =	0.971	0.000	3.268	0.318	0.064	49.085
Coefficient of Variation(CV)=	2.424	0.000	1.461	0.520	0.133	2.650

Error Check, Blank if No Errors Detected

Trend = 80% Confidence Level	**DECREASING**	**No Trend**	**DECREASING**	**No Trend**	**No Trend**	**DECREASING**
Trend = 90% Confidence Level	**DECREASING**	**No Trend**	**DECREASING**	**No Trend**	**No Trend**	**No Trend**
Stability Test, If No Trend Exists at 80% Confidence Level	**NA**	**CV<=1 STABLE**	**NA**	**CV<=1 STABLE**	**CV<=1 STABLE**	**NA**

Data Entry By =	B. Breglio	Date =	11/15/2006	Checked By =	

Mann-Kendall Statistical Test

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Site Name =	Seal Beach	Site ID No. = Site 14	Well Number =	**BSW-14-7**

Event Number	Compound -> Sampling Date (most recent last)	**TPH as Gas** Concentration (leave blank if no data - 0 if ND)	**MTBE** Concentration (leave blank if no data)	**Benzene** Concentration (leave blank if no data)	**Toluene** Concentration (leave blank if no data)	**Ethyl Benzene** Concentration (leave blank if no data)	**Total Xylenes** Concentration (leave blank if no data)
1	10/4/2001	0.025	3.2	0.25	0.5	0.5	1
2	1/24/2002	0.025	0.5	0.25	0.5	0.5	1
3	4/16/2002	0.025	0.5	0.25	0.5	0.5	1
4	7/25/2002	0.025	2	0.25	0.5	0.5	1
5	10/8/2002	0.025	0.5	0.25	0.5	0.5	1
6	3/27/2006	0.025	0.27	0.25	0.5	0.5	1
7	8/2/2006	0.025	0.5	0.25	0.5	0.5	1
8	10/16/2006	0.025	0.5	0.25	0.5	0.5	1
9							
10							

Mann Kendall Statistic (S) =	0	-10	0	0	0	0
Number of Rounds (n) =	8	8	8	8	8	8
Average =	0.03	1.00	0.25	0.50	0.50	1.00
Standard Deviation =	0.000	1.044	0.000	0.000	0.000	0.000
Coefficient of Variation(CV)=	0.000	1.047	0.000	0.000	0.000	0.000

Error Check, Blank if No Errors Detected						
Trend = 80% Confidence Level	**No Trend**	**DECREASING**	**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**	**NA**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**

Data Entry By =	B. Breglio	Date =	11/15/2006	Checked By =	

Mann-Kendall Statistical Test

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Site Name =	Seal Beach	Site ID No. = Site 14	Well Number =	**BSW-14-8**

	Compound ->	**TPH as Gas**	**MTBE**	**Benzene**	**Toluene**	**Ethyl Benzene**	**Total Xylenes**
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data - 0 if ND)	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	10/3/2001	0.81	130	0.25	0.5	0.5	1
2	1/24/2002	0.025	150	0.25	0.5	0.5	1
3	4/16/2002	0.067	100	0.25	0.5	0.5	1
4	7/25/2002	0.025	200	0.25	0.5	0.5	1
5	10/7/2002	0.025	110	0.25	0.5	0.5	1
6	3/27/2006	0.025	2.2	0.25	0.5	0.5	1
7	8/2/2006	0.025	4.3	0.25	0.5	0.5	1
8	10/16/2006	0.025	8.8	0.25	0.5	0.5	1
9							
10							

Mann Kendall Statistic (S) =	-11	-12	0	0	0	0
Number of Rounds (n) =	8	8	8	8	8	8
Average =	0.13	88.16	0.25	0.50	0.50	1.00
Standard Deviation =	0.276	75.043	0.000	0.000	0.000	0.000
Coefficient of Variation(CV)=	2.148	0.851	0.000	0.000	0.000	0.000

Error Check, Blank if No Errors Detected

Trend = 80% Confidence Level	**DECREASING**	**DECREASING**	**No Trend**	**No Trend**	**No Trend**	**No Trend**
Trend = 90% Confidence Level	**DECREASING**	**DECREASING**	**No Trend**	**No Trend**	**No Trend**	**No Trend**
Stability Test, If No Trend Exists at 80% Confidence Level	**NA**	**NA**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**

Data Entry By =	B. Breglio	Date =	11/15/2006	Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sam g Trend Analysis)

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Site Name =	Seal Beach	Site ID No. = Site 14	Well Number =	**BSW-14-9**

Event Number	Compound -> Sampling Date (most recent last)	**TPH as Gas** Concentration (leave blank if no data - 0 if ND)	**MTBE** Concentration (leave blank if no data)	**Benzene** Concentration (leave blank if no data)	**Toluene** Concentration (leave blank if no data)	**Ethyl Benzene** Concentration (leave blank if no data)	**Total Xylenes** Concentration (leave blank if no data)
1	10/3/2001	0.58	0.5	0.25	0.5	0.5	5.7
2	1/23/2002	0.025	0.5	0.25	0.5	0.5	1
3	4/16/2002	0.025	0.5	0.25	0.5	0.5	1
4	7/24/2002	0.025	0.5	0.25	0.5	0.5	1
5	10/7/2002	0.025	0.5	0.25	0.5	0.5	1
6	3/27/2006	0.025	0.5	0.25	0.5	0.5	1
7	8/2/2006	0.025	0.5	0.25	0.5	0.5	1
8	10/16/2006	0.025	0.5	0.25	0.5	0.5	1
9							
10							

Mann Kendall Statistic (S) =	-7	0	0	0	0	-7
Number of Rounds (n) =	8	8	8	8	8	8
Average =	0.09	0.50	0.25	0.50	0.50	1.59
Standard Deviation =	0.196	0.000	0.000	0.000	0.000	1.662
Coefficient of Variation(CV)=	2.079	0.000	0.000	0.000	0.000	1.047

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 NON-STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV>1 NON-STABLE**

Data Entry By =	B. Breglio	Date =	11/15/2006	Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sam g 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 =	Seal Beach	Site ID No. = Site 14	Well Number =	**BSW-14-9**

	Compound ->	**TPH as Gas**	**MTBE**	**Benzene**	**Toluene**	**Ethyl Benzene**	**Total Xylenes**
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data - 0 if ND)	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	10/3/2001	0.58	0.5	0.25	0.5	0.5	5.7
2	1/23/2002	0.025	0.5	0.25	0.5	0.5	1
3	4/16/2002	0.025	0.5	0.25	0.5	0.5	1
4	7/24/2002	0.025	0.5	0.25	0.5	0.5	1
5	10/7/2002	0.025	0.5	0.25	0.5	0.5	1
6	3/27/2006	0.025	0.5	0.25	0.5	0.5	1
7	8/2/2006	0.025	0.5	0.25	0.5	0.5	1
8	10/16/2006	0.025	0.5	0.25	0.5	0.5	1
9							
10							

Mann Kendall Statistic (S) =	-7	0	0	0	0	-7
Number of Rounds (n) =	8	8	8	8	8	8
Average =	0.09	0.50	0.25	0.50	0.50	1.59
Standard Deviation =	0.196	0.000	0.000	0.000	0.000	1.662
Coefficient of Variation(CV)=	2.079	0.000	0.000	0.000	0.000	1.047

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 NON-STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV<=1 STABLE**	**CV>1 NON-STABLE**

Data Entry By =	B. Breglio	Date =	11/15/2006	Checked By =	

Mann-Kendall Statistical Test

(For Groundwater Sa ing 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.

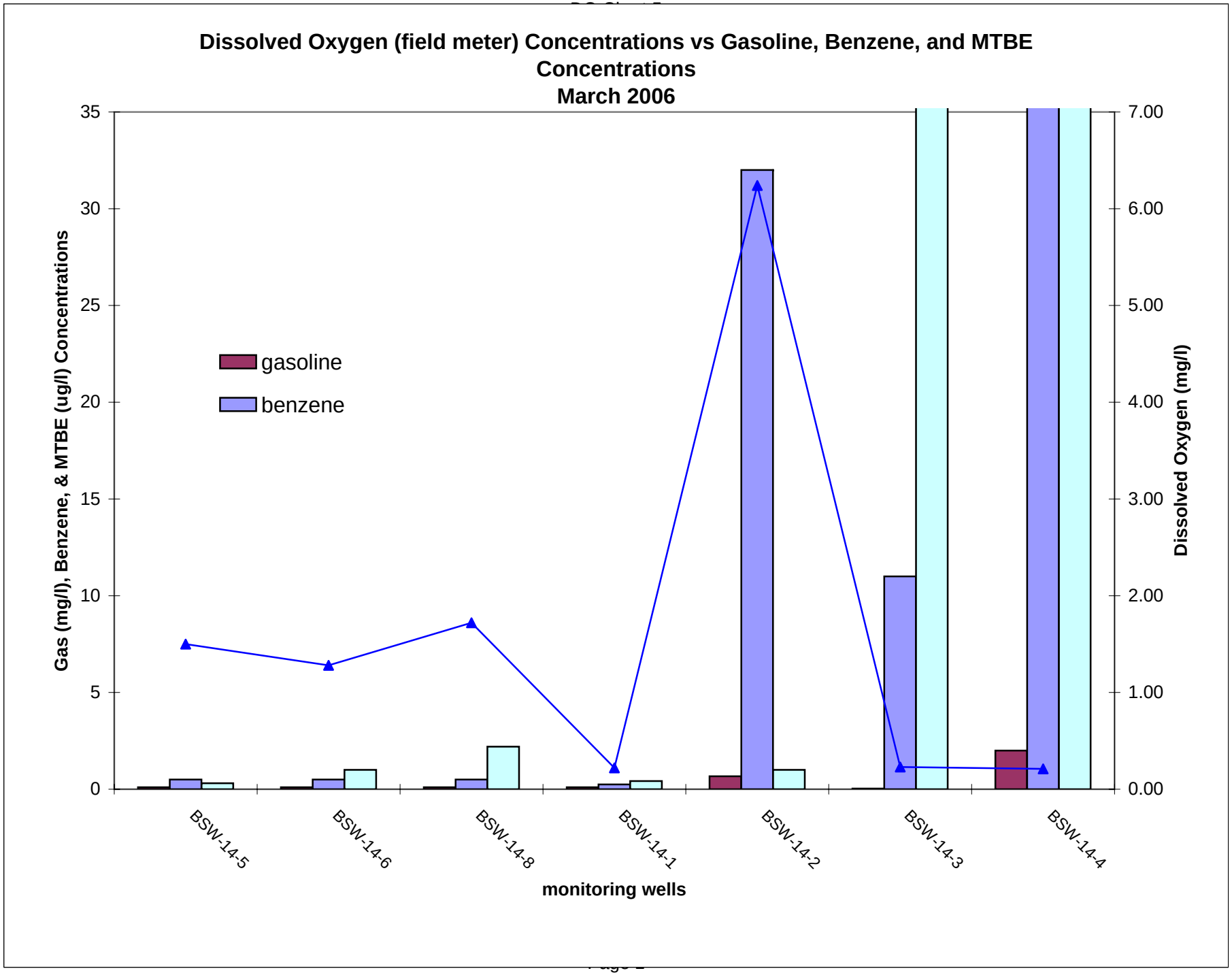
To avoid biasing the Mann-Kendall test, **the same value for all ND results must be entered** in the spreadsheet for a given compound. This is to make sure that any identified trends are data trends and not trends of laboratory detection limits. **SEE PROTOCOL AT BOTTOM OF WORKSHEET !**

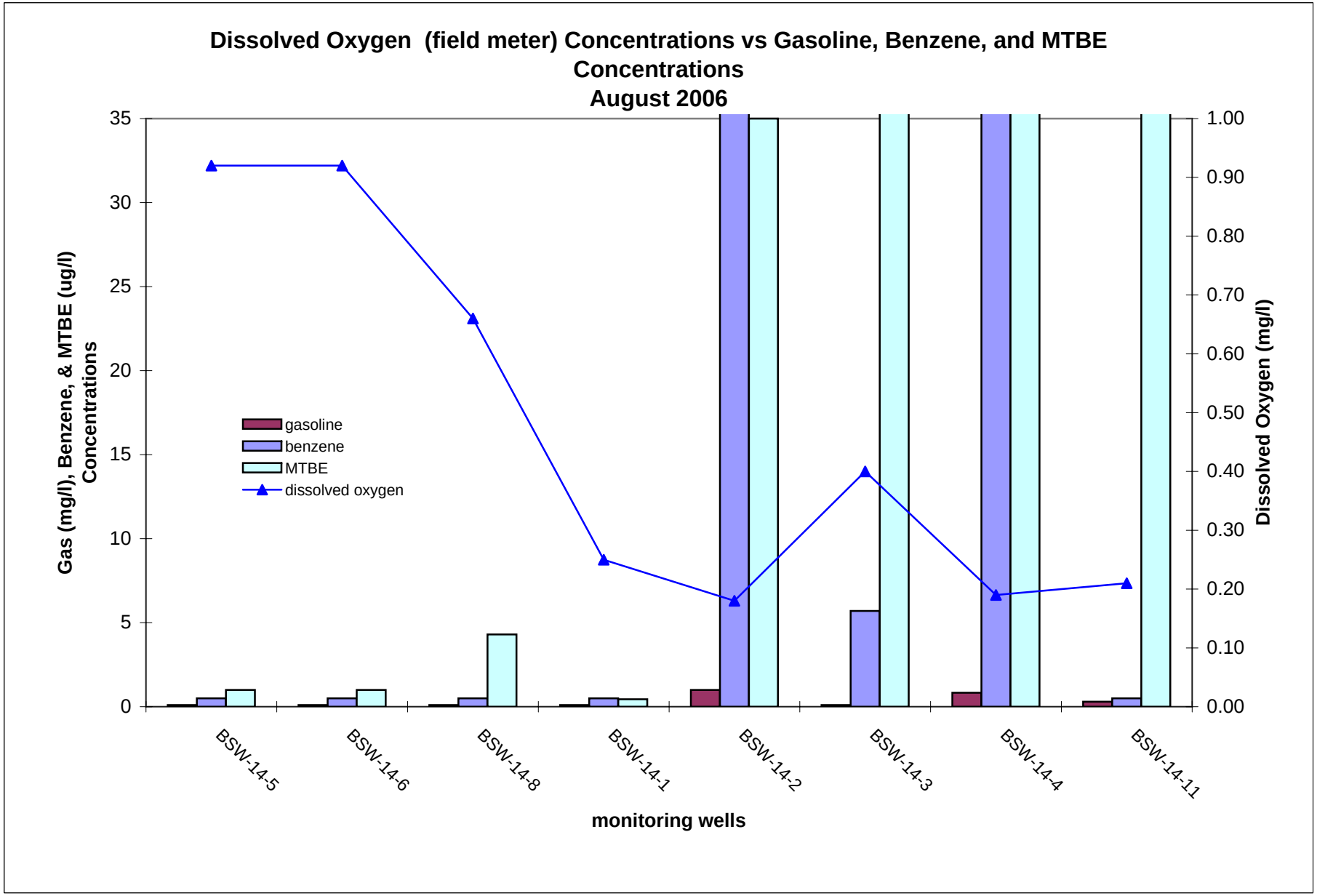
Site Name =	Seal Beach	Site ID No. = Site 14	Well Number =	**MW-05-04**

Event Number	Compound -> Sampling Date (most recent last)	**MTBE** Concentration (leave blank if no data - 0 if ND)	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	10/16/2003	12					
2	4/1/2004	12					
3	10/7/2004	18					
4	11/1/2005	36					
5	10/10/2006	50					
6							
7							
8							
9							
10							

Mann Kendall Statistic (S) =	9	0	0	0	0	0
Number of Rounds (n) =	5	0	0	0	0	0
Average =	25.60	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Standard Deviation =	16.817	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Coefficient of Variation(CV)=	0.657	#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	**INCREASING**	**N<4**	**N<4**	**N<4**	**N<4**	**N<4**
Trend = 90% Confidence Level	**INCREASING**	**N<4**	**N<4**	**N<4**	**N<4**	**N<4**
Stability Test, If No Trend Exists at 80% Confidence Level	**NA**	**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 =	11/15/2006	Checked By =	


Dissolved Oxygen (field meter) Concentrations vs Gasoline, Benzene, and MTBE Concentrations
March 2006
Gas (mg/l), Benzene, & MTBE (ug/l) Concentrations
Dissolved Oxygen (mg/l)
gasoline
benzene
35
30
25
20
15
10
5
0
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
BSW-14-5
BSW-14-6
BSW-14-8
BSW-14-1
BSW-14-2
BSW-14-3
BSW-14-4
monitoring wells


Dissolved Oxygen (field meter) Concentrations vs Gasoline, Benzene, and MTBE Concentrations
August 2006
Gas (mg/l), Benzene, & MTBE (ug/l) Concentrations
Dissolved Oxygen (mg/l)
35
30
25
20
15
10
5
0
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
gasoline
benzene
MTBE
dissolved oxygen
BSW-14-5
BSW-14-6
BSW-14-8
BSW-14-1
BSW-14-2
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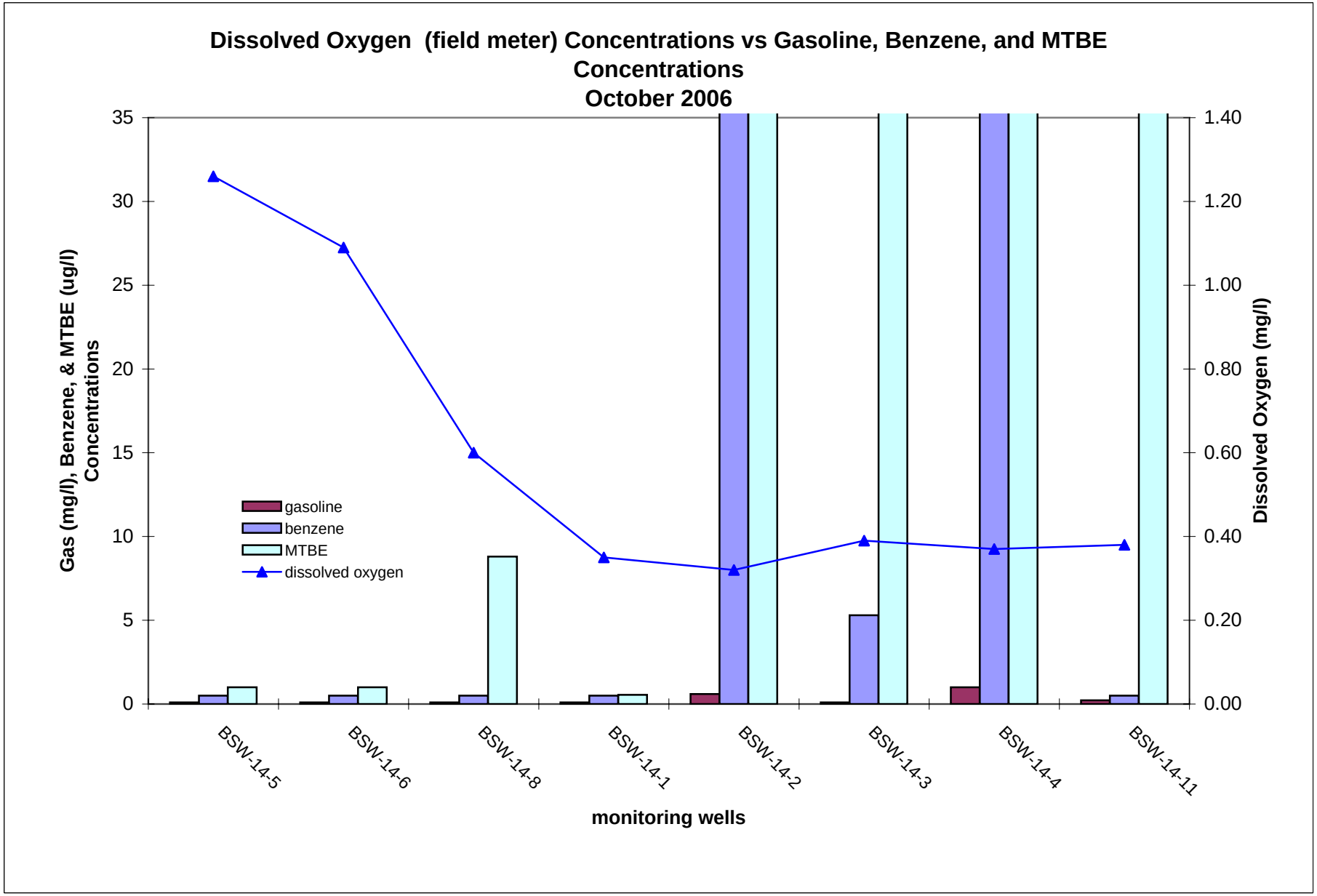
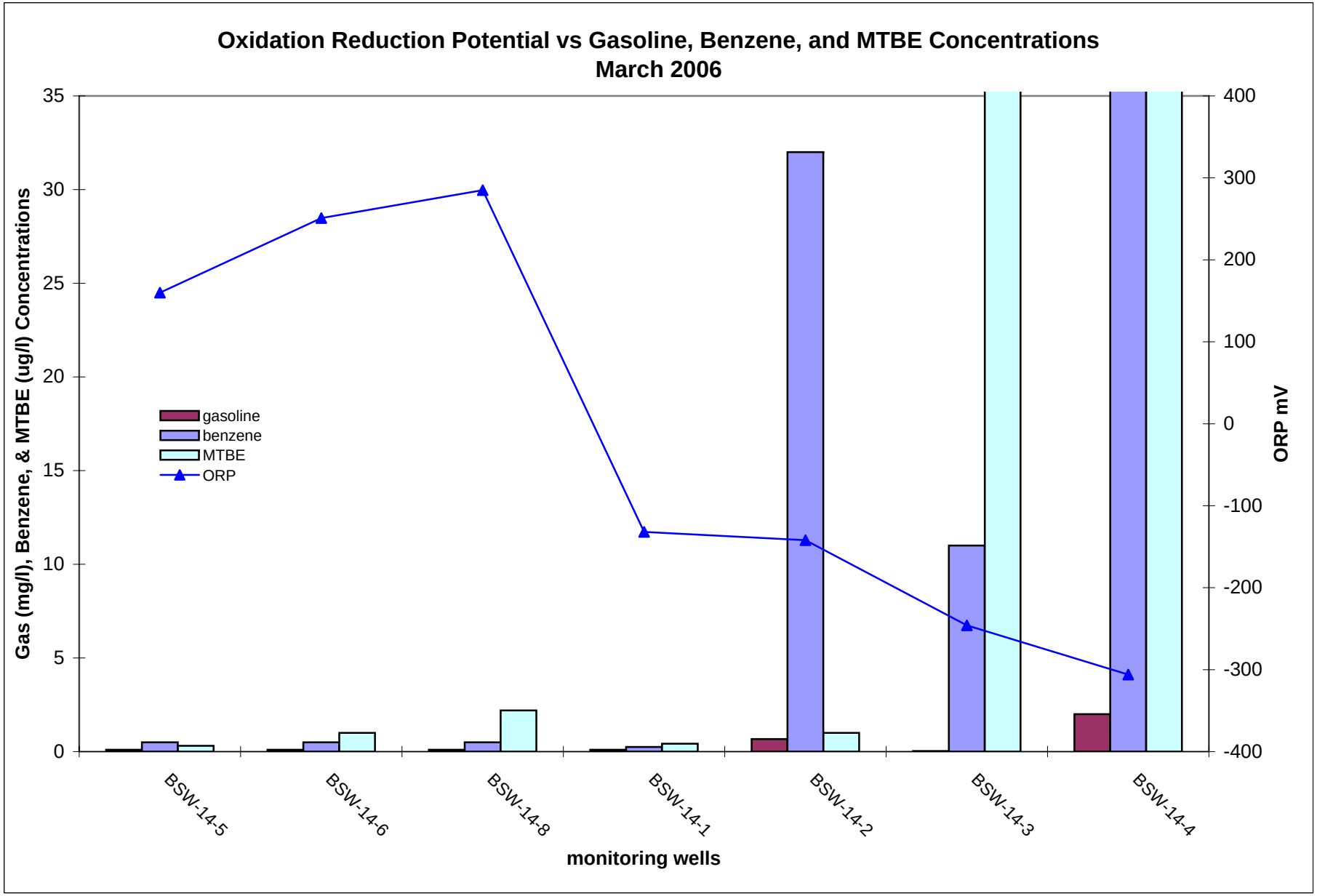
BSW-14-4
BSW-14-11
monitoring wells


Dissolved Oxygen (field meter) Concentrations vs Gasoline, Benzene, and MTBE Concentrations
October 2006
Gas (mg/l), Benzene, & MTBE (ug/l) Concentrations
Dissolved Oxygen (mg/l)
35
30
25
20
15
10
5
0
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
gasoline
benzene
MTBE
dissolved oxygen
BSW-14-5
BSW-14-6
BSW-14-8
BSW-14-1
BSW-14-2
BSW-14-3
BSW-14-4
BSW-14-11
monitoring wells


Oxidation Reduction Potential vs Gasoline, Benzene, and MTBE Concentrations
March 2006
Gas (mg/l), Benzene, & MTBE (ug/l) Concentrations
ORP mV
35
30
25
20
15
10
5
0
400
300
200
100
0
-100
-200
-300
-400
gasoline
benzene
MTBE
ORP
BSW-14-5
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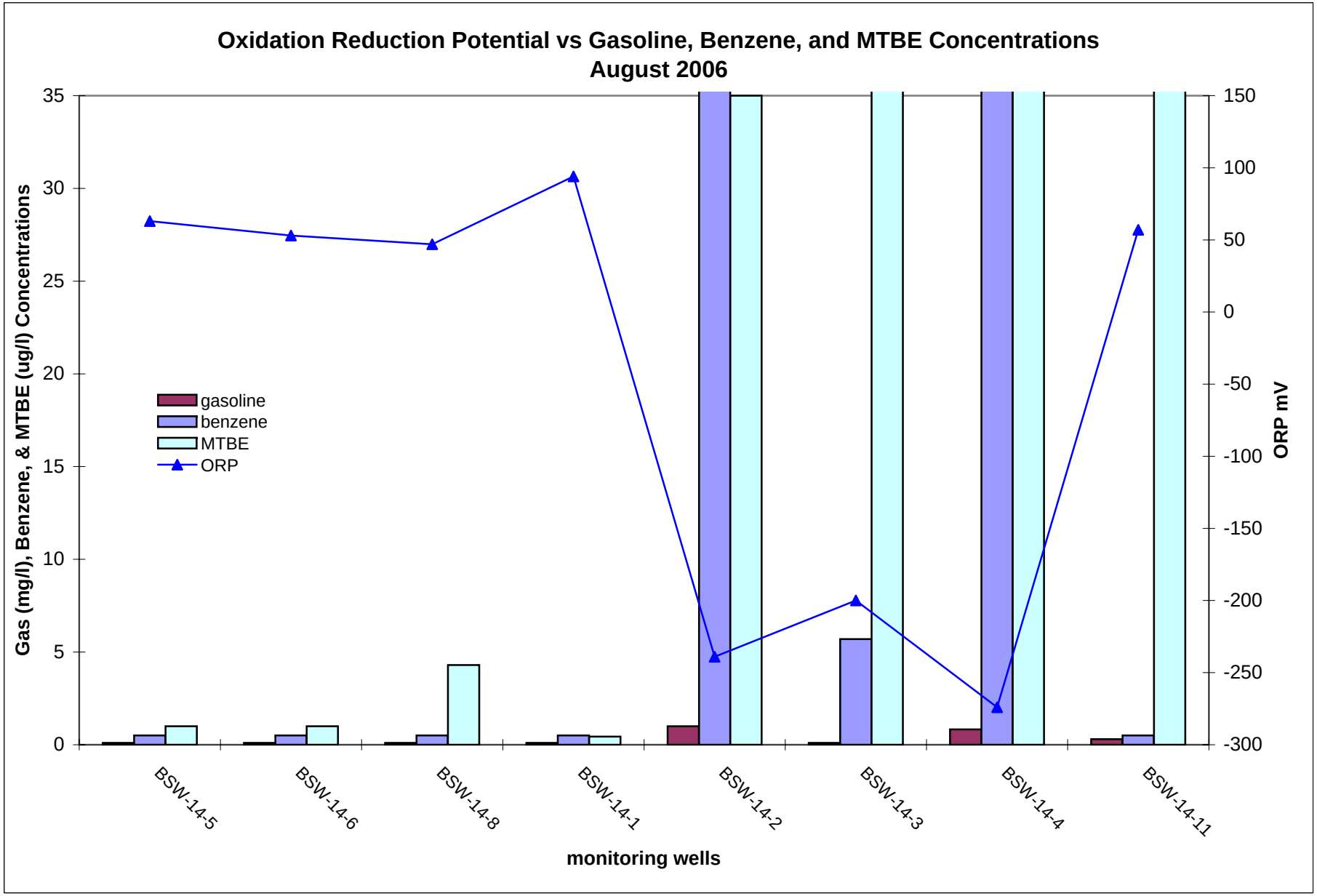
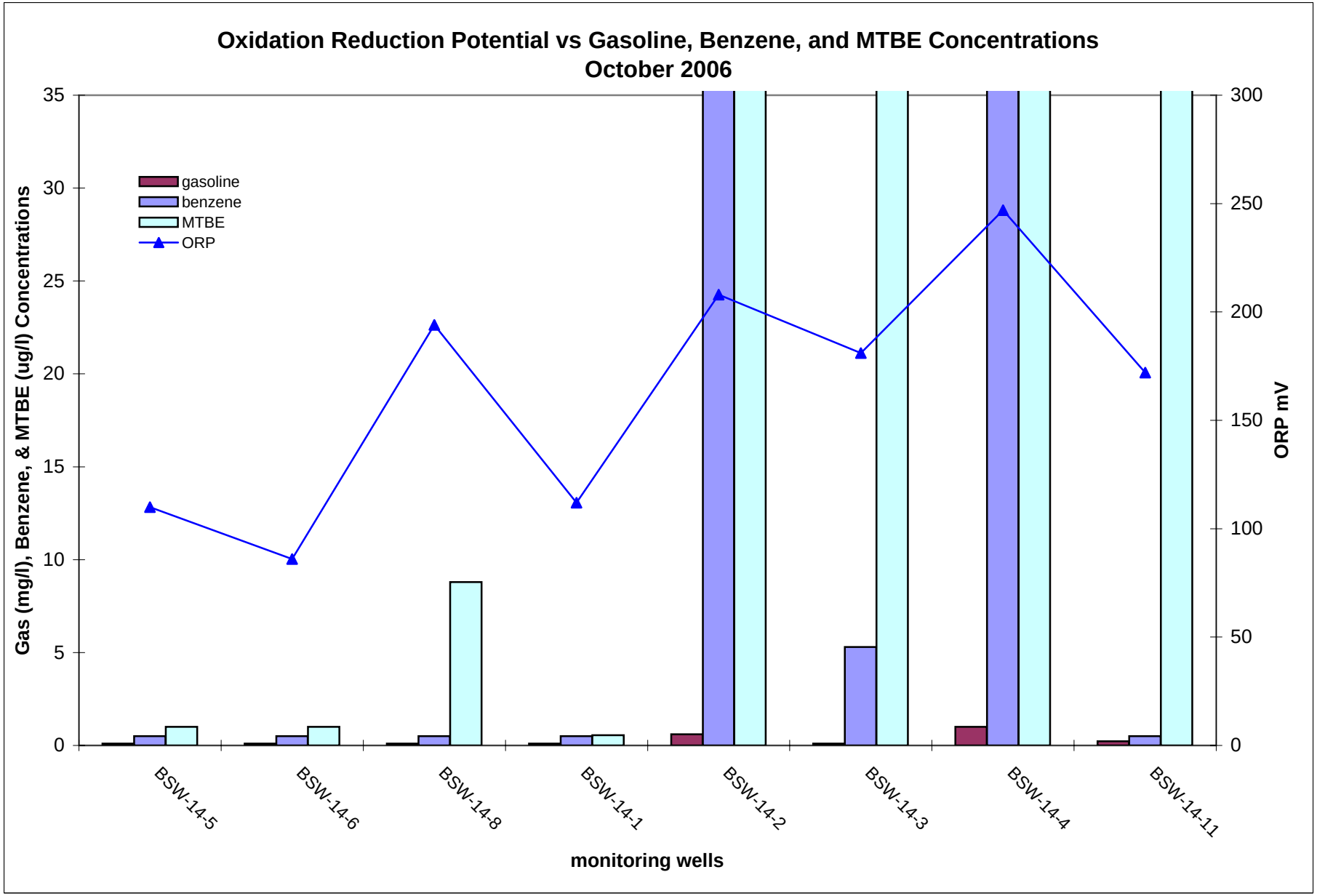
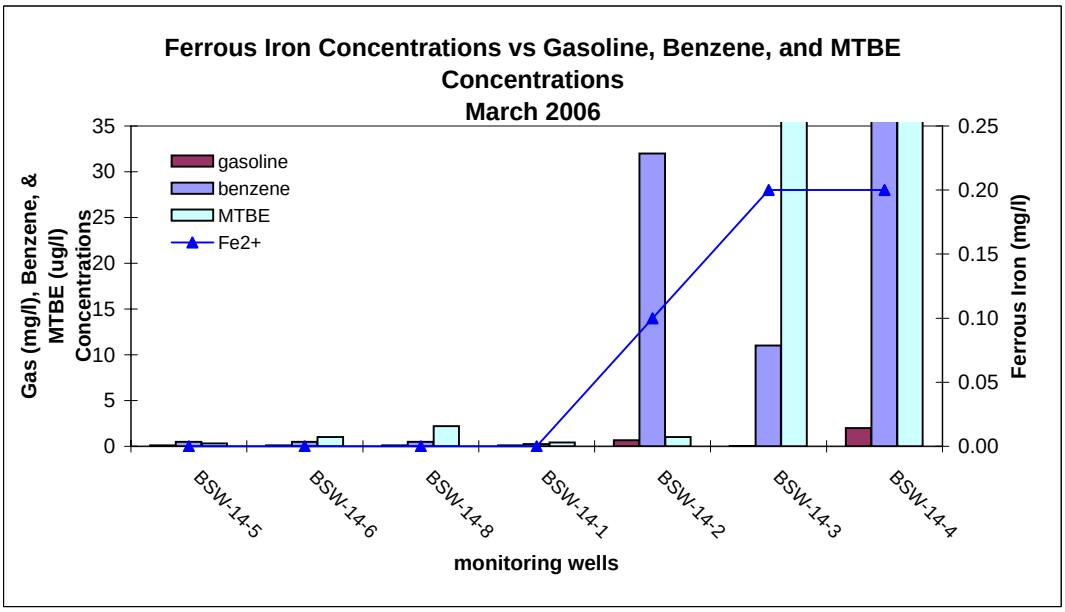
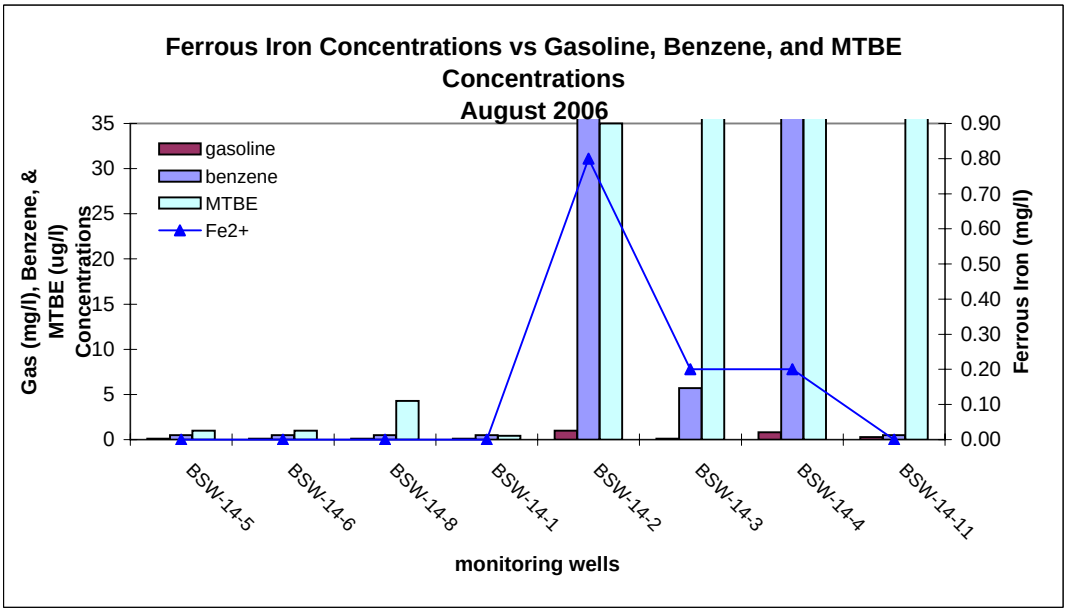
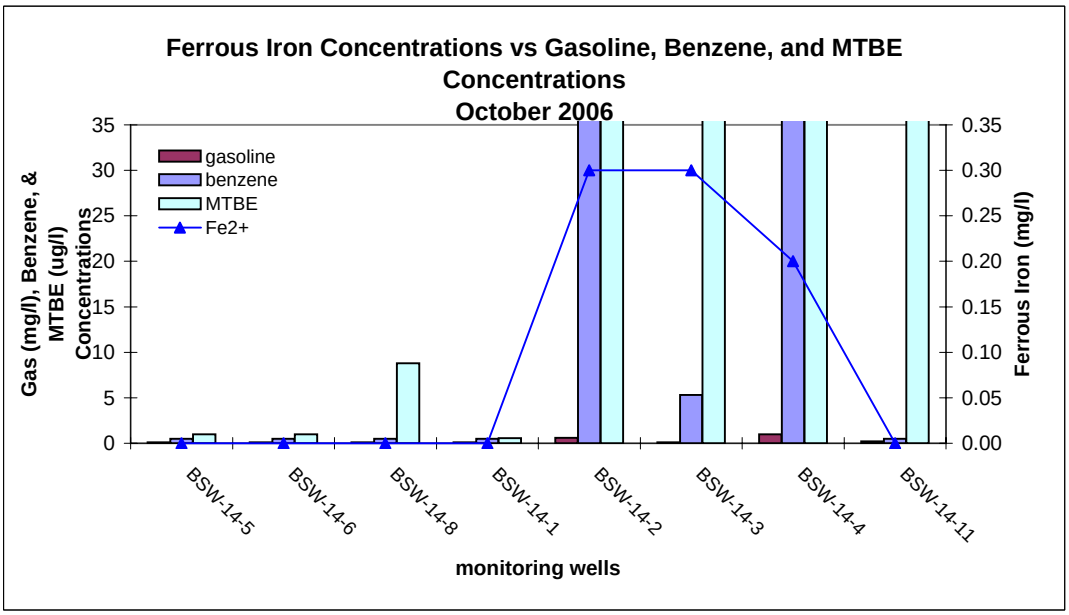
BSW-14-3
BSW-14-4
monitoring wells


Oxidation Reduction Potential vs Gasoline, Benzene, and MTBE Concentrations
August 2006
Gas (mg/l), Benzene, & MTBE (ug/l) Concentrations
ORP mV
gasoline
benzene
MTBE
ORP
35
30
25
20
15
10
5
0
150
100
50
0
-50
-100
-150
-200
-250
-300
BSW-14-5
BSW-14-6
BSW-14-8
BSW-14-1
BSW-14-2
BSW-14-3
BSW-14-4
BSW-14-11
monitoring wells

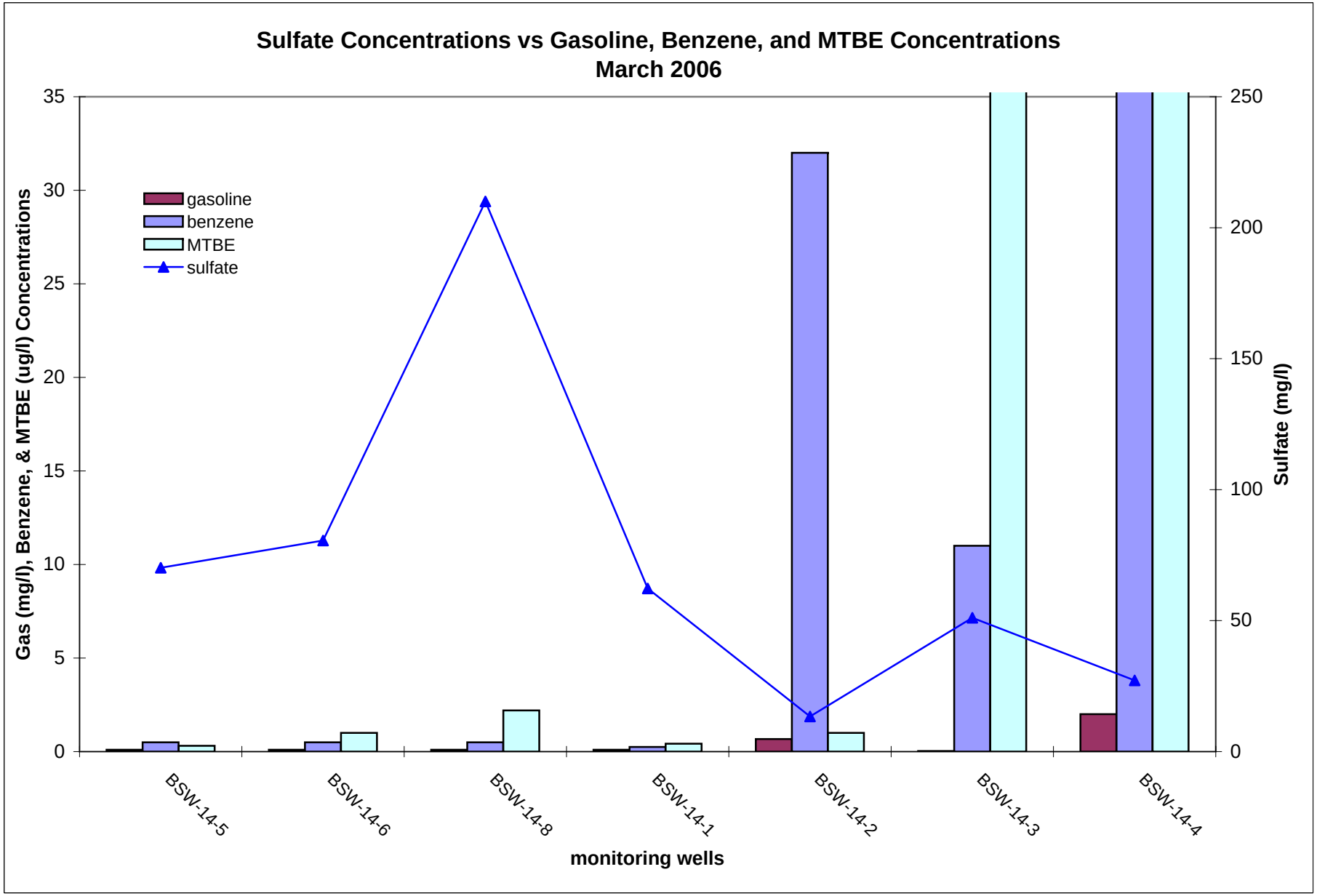

Oxidation Reduction Potential vs Gasoline, Benzene, and MTBE Concentrations
October 2006
Gas (mg/l), Benzene, & MTBE (ug/l) Concentrations
ORP mV
gasoline
benzene
MTBE
ORP
35
30
25
20
15
10
5
0
300
250
200
150
100
50
0
BSW-14-5
BSW-14-6
BSW-14-8
BSW-14-1
BSW-14-2
BSW-14-3
BSW-14-4
BSW-14-11
monitoring wells

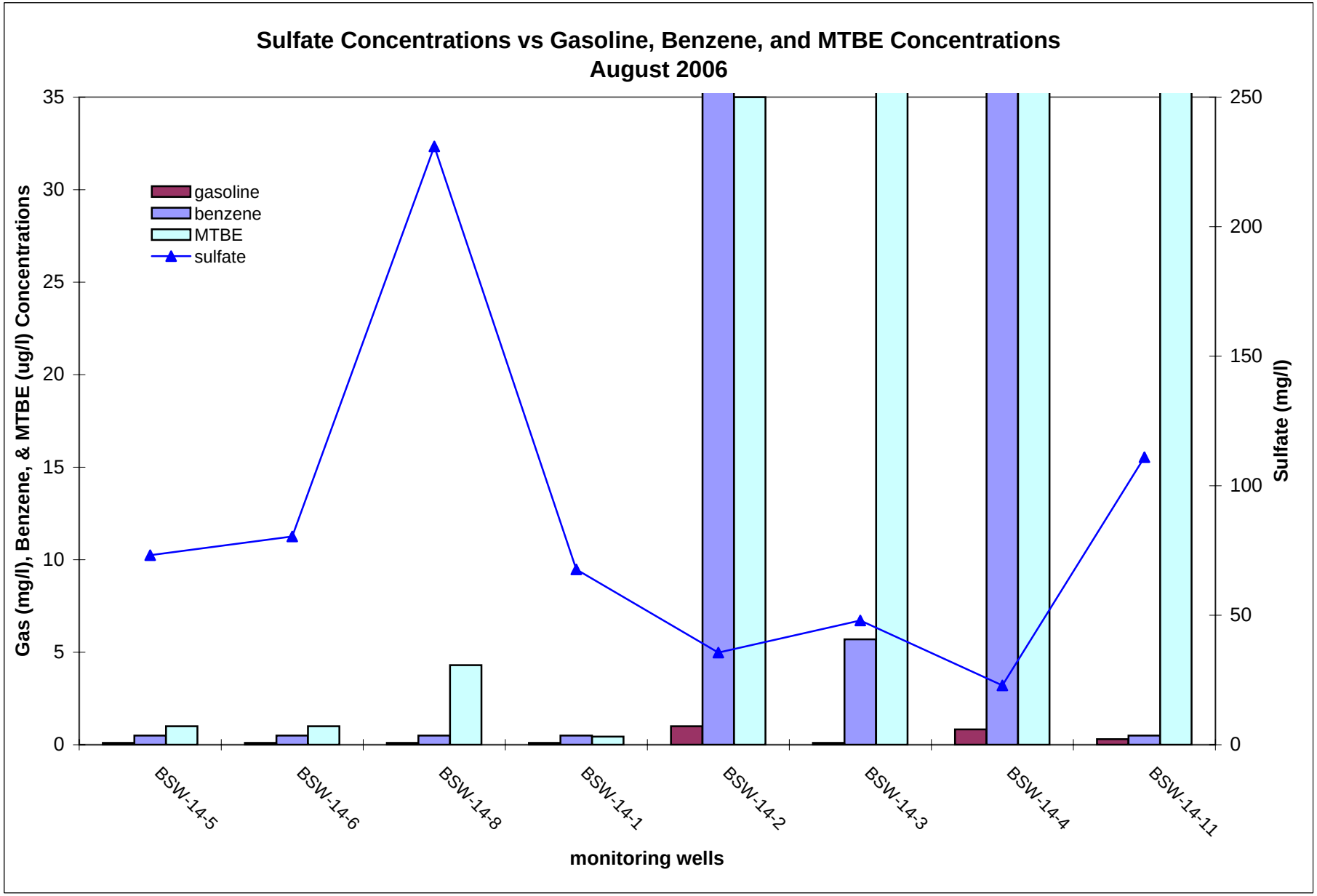


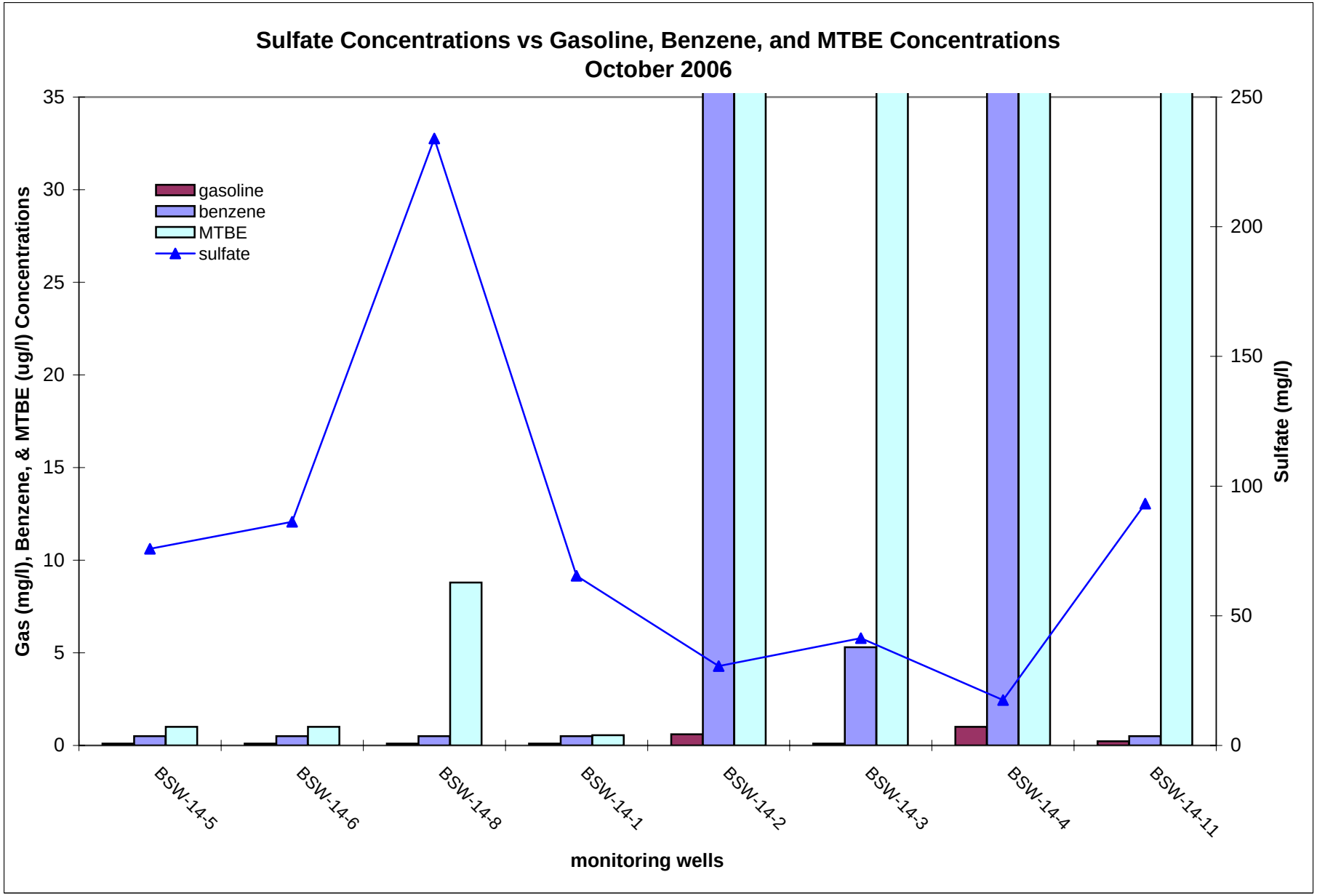


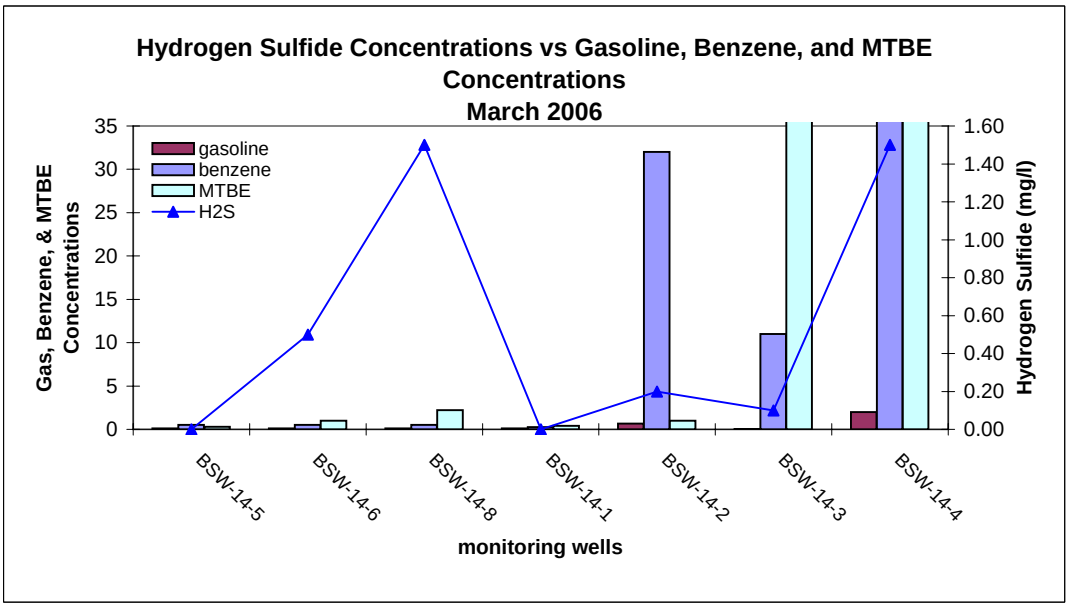


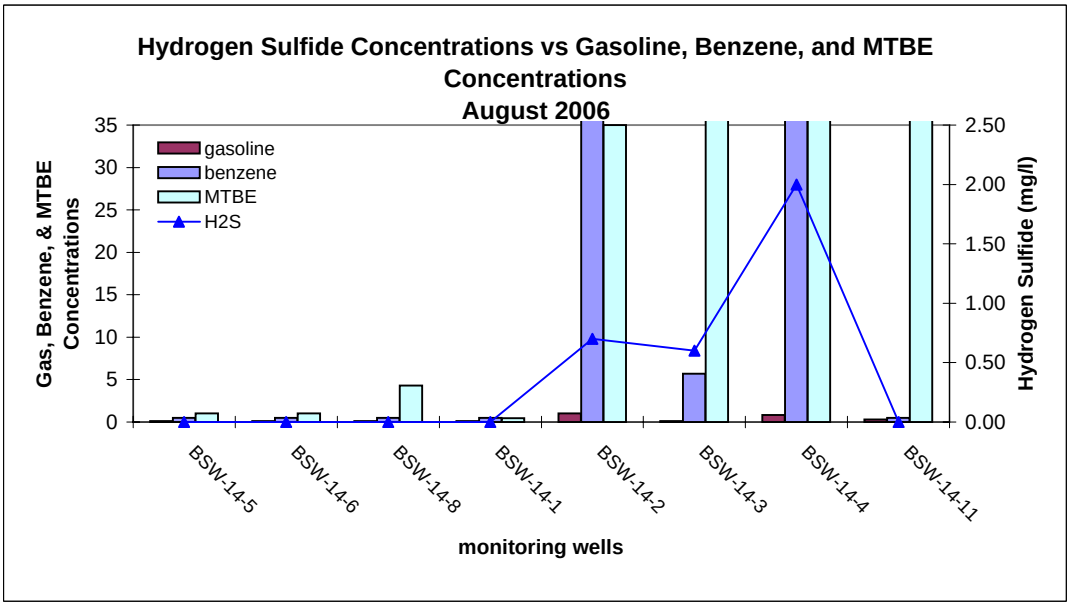
scale of y-axis adjusted for graph readability. Refer to tables for actual concentrations.

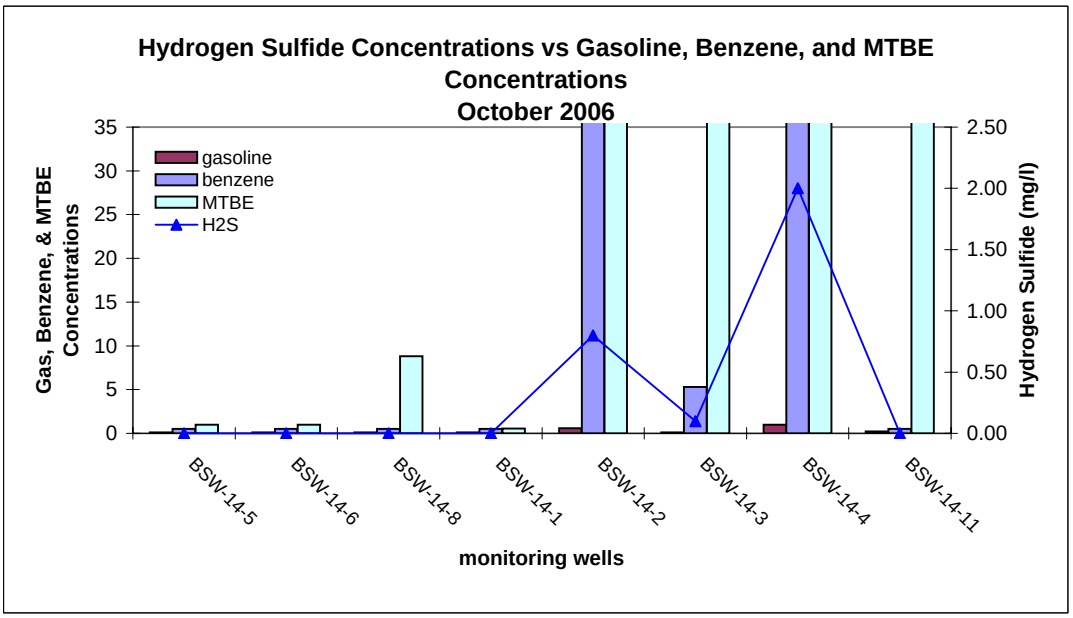

Sulfate Concentrations vs Gasoline, Benzene, and MTBE Concentrations
March 2006
Gas (mg/l), Benzene, & MTBE (ug/l) Concentrations
Sulfate (mg/l)
gasoline
benzene
MTBE
sulfate
35
30
25
20
15
10
5
0
250
200
150
100
50
0
BSW-14-5
BSW-14-6
BSW-14-8
BSW-14-1
BSW-14-2
BSW-14-3
BSW-14-4
monitoring wells


Sulfate Concentrations vs Gasoline, Benzene, and MTBE Concentrations
August 2006
Gas (mg/l), Benzene, & MTBE (ug/l) Concentrations
Sulfate (mg/l)
gasoline
benzene
MTBE
sulfate
35
30
25
20
15
10
5
0
250
200
150
100
50
0
BSW-14-5
BSW-14-6
BSW-14-8
BSW-14-1
BSW-14-2
BSW-14-3
BSW-14-4
BSW-14-11
monitoring wells

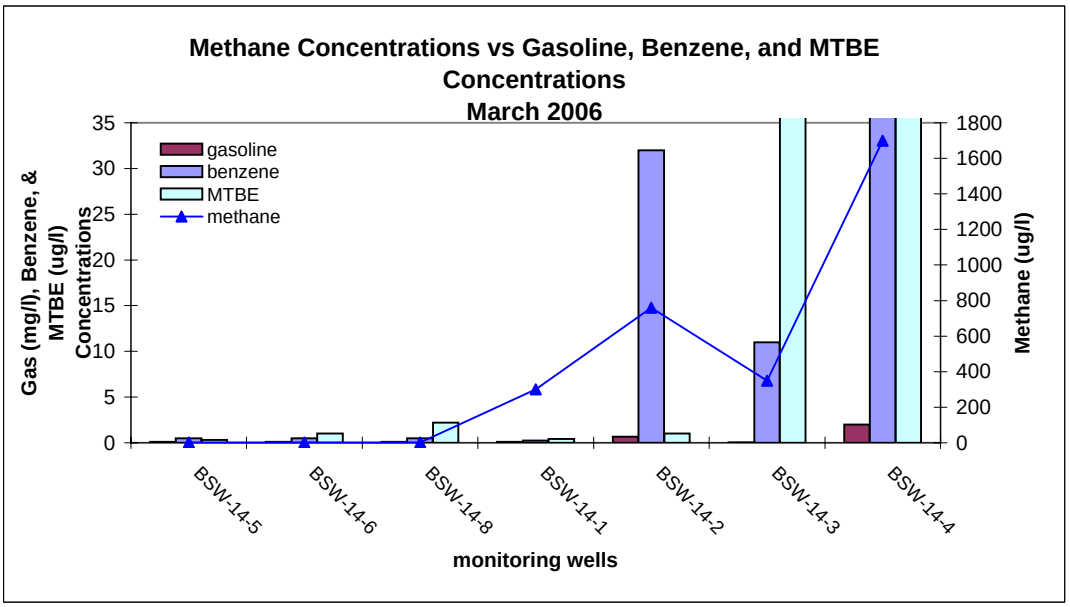

Sulfate Concentrations vs Gasoline, Benzene, and MTBE Concentrations
October 2006
Gas (mg/l), Benzene, & MTBE (ug/l) Concentrations
Sulfate (mg/l)
gasoline
benzene
MTBE
sulfate
35
30
25
20
15
10
5
0
250
200
150
100
50
0
BSW-14-5
BSW-14-6
BSW-14-8
BSW-14-1
BSW-14-2
BSW-14-3
BSW-14-4
BSW-14-11
monitoring wells

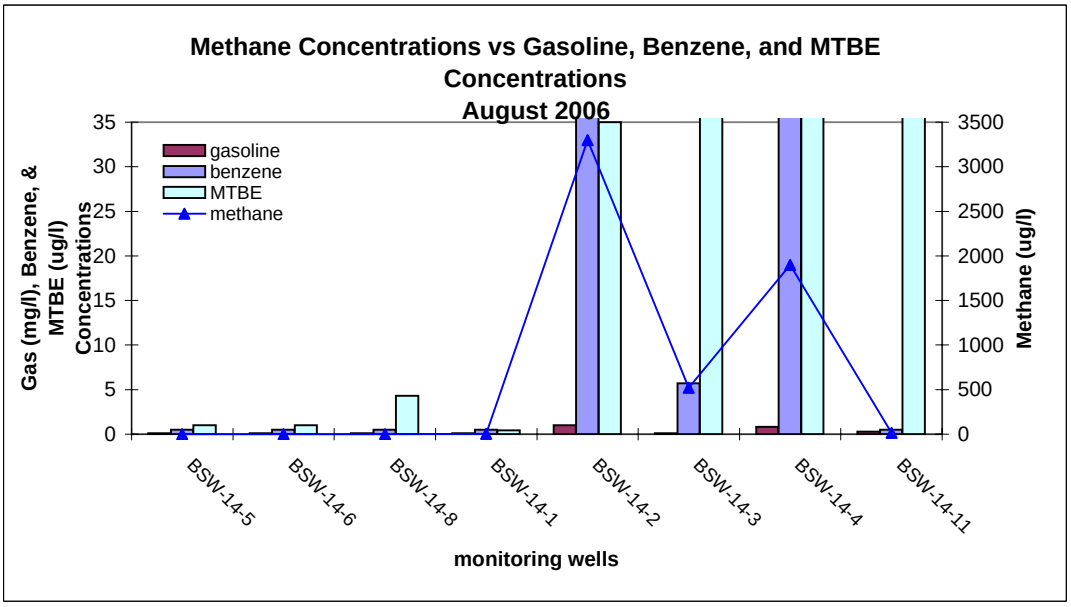


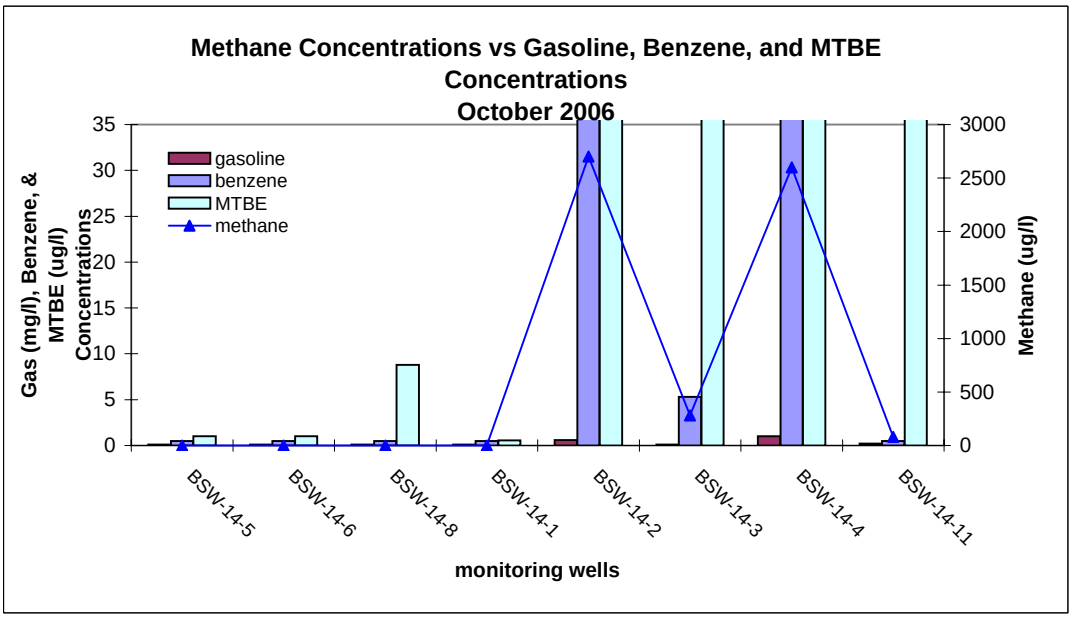




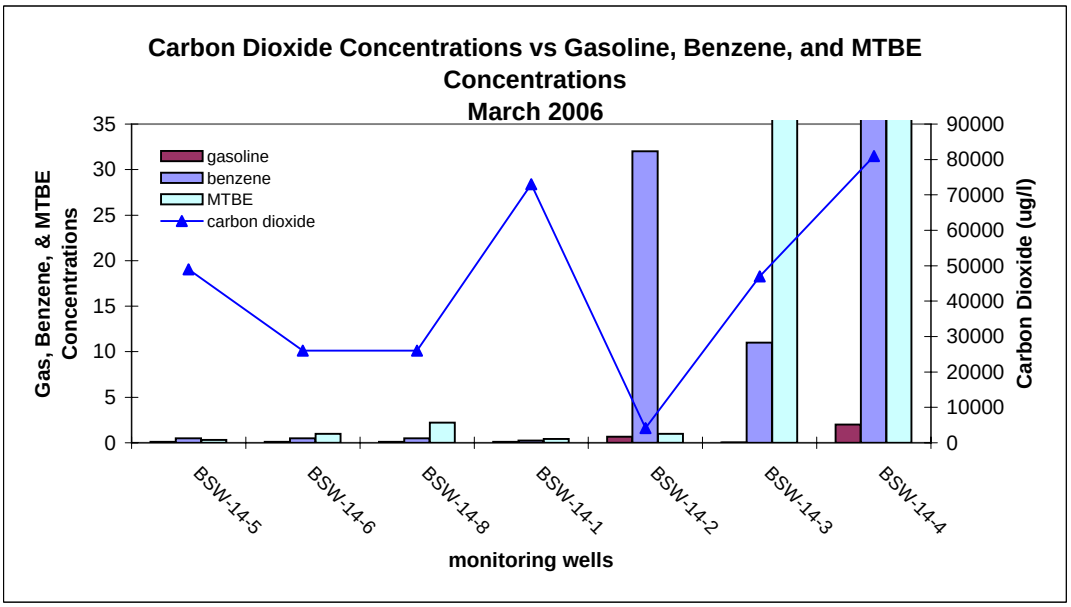
scale of y-axis adjusted for graph readability. Refer to tables for actual concentrations.

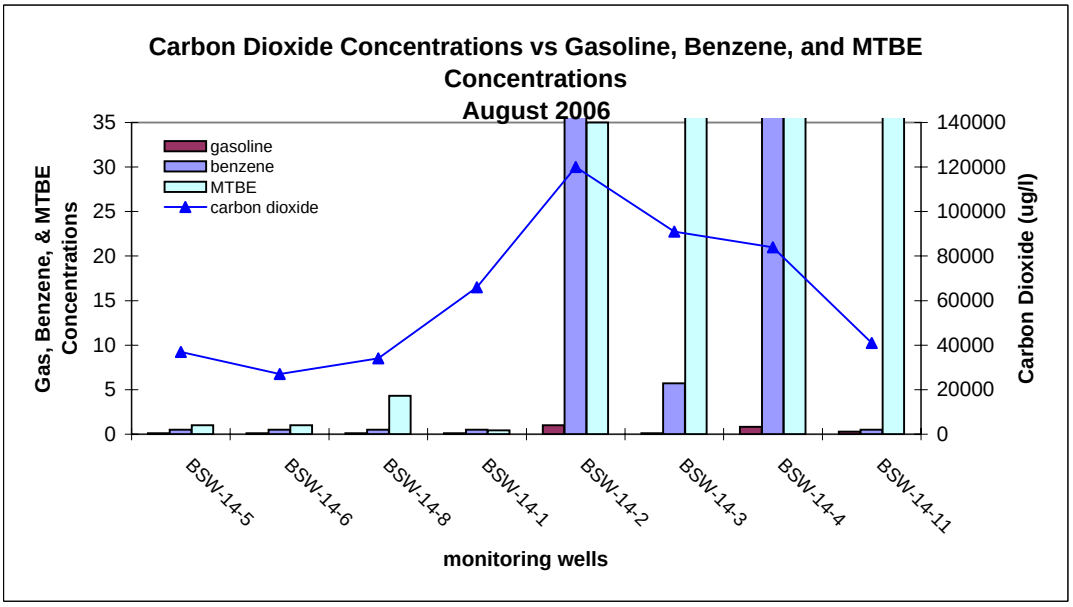


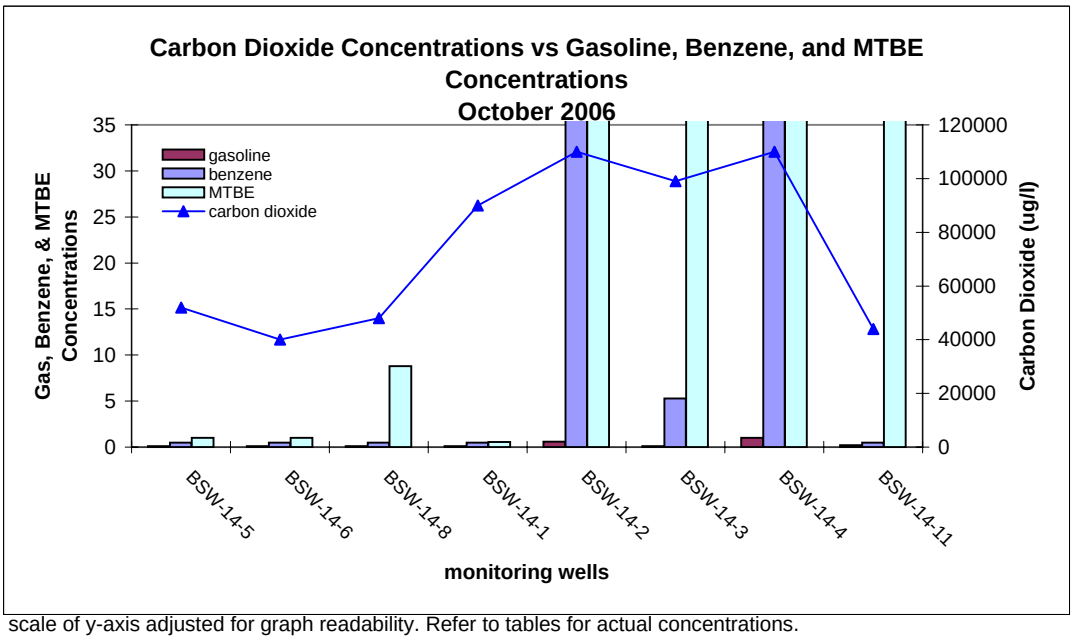




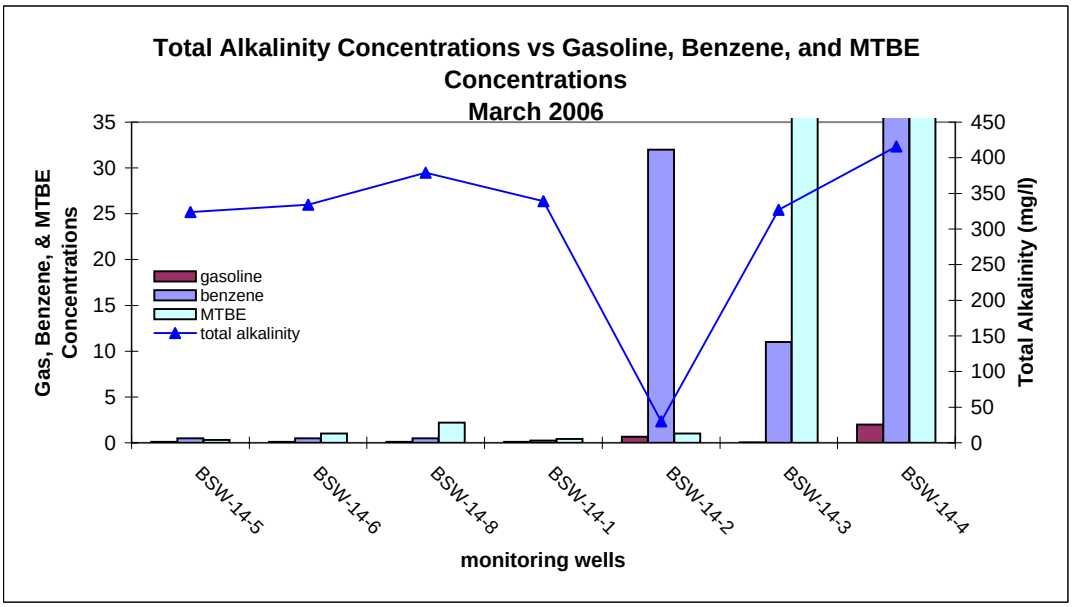
scale of y-axis adjusted for graph readability. Refer to tables for actual concentrations.

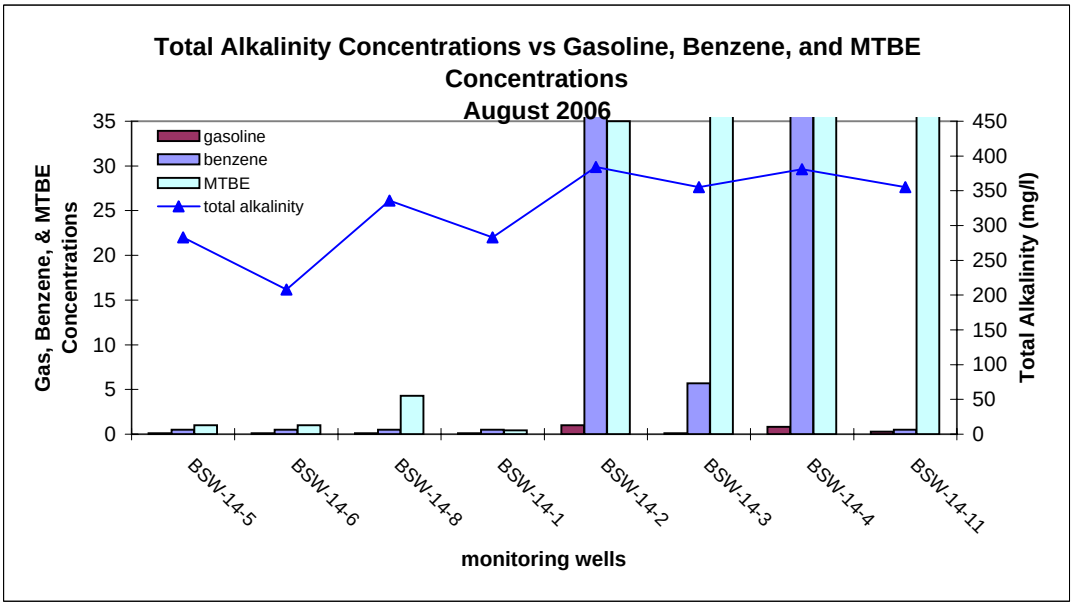


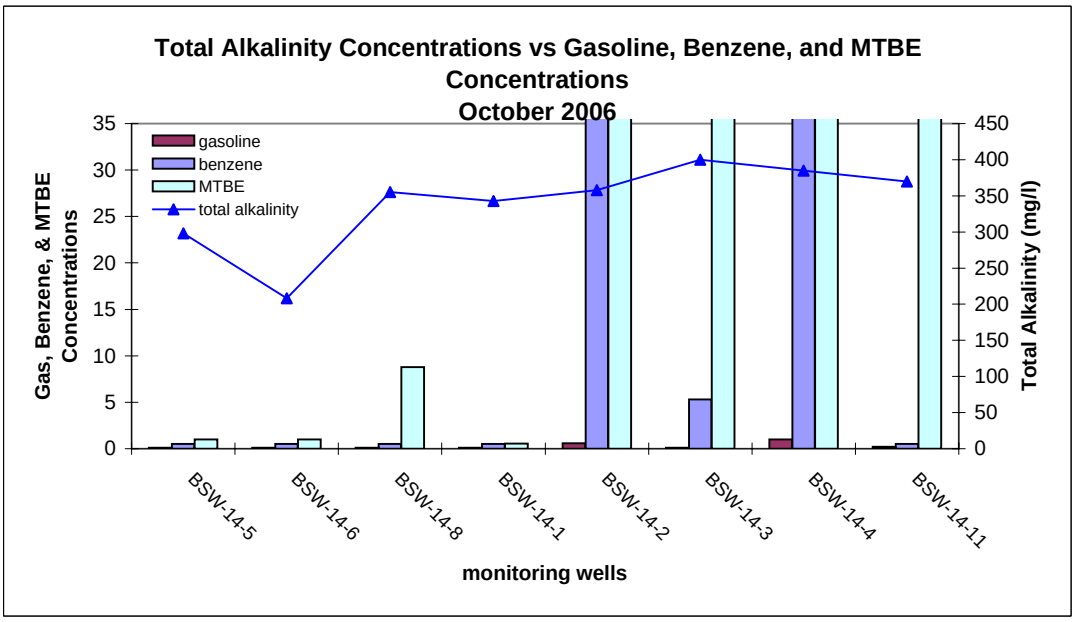




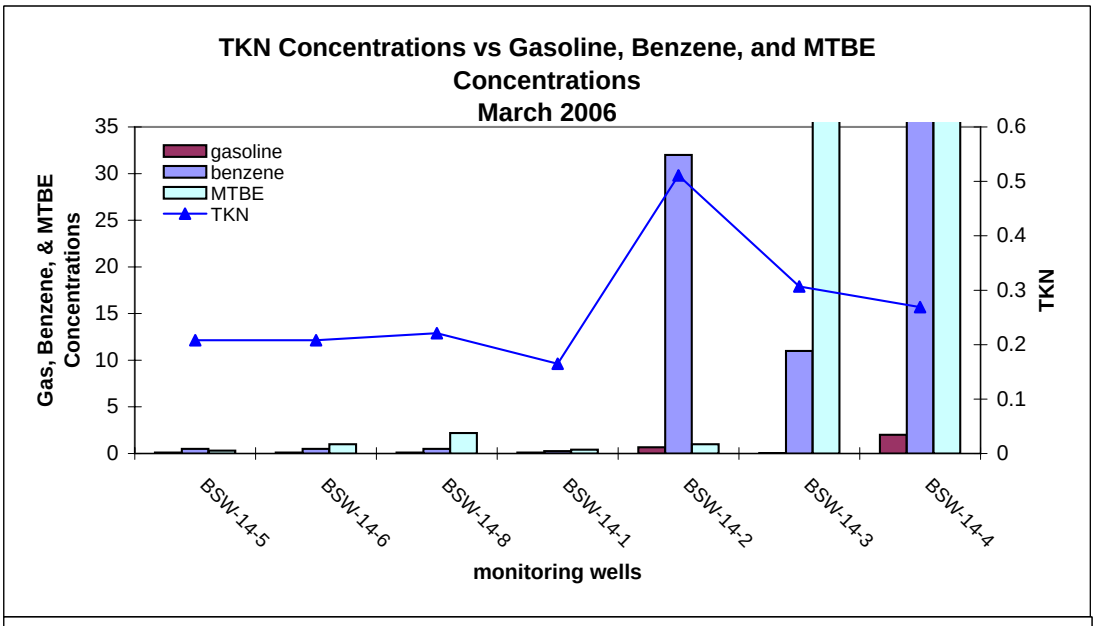
scale of y-axis adjusted for graph readability. Refer to tables for actual concentrations.

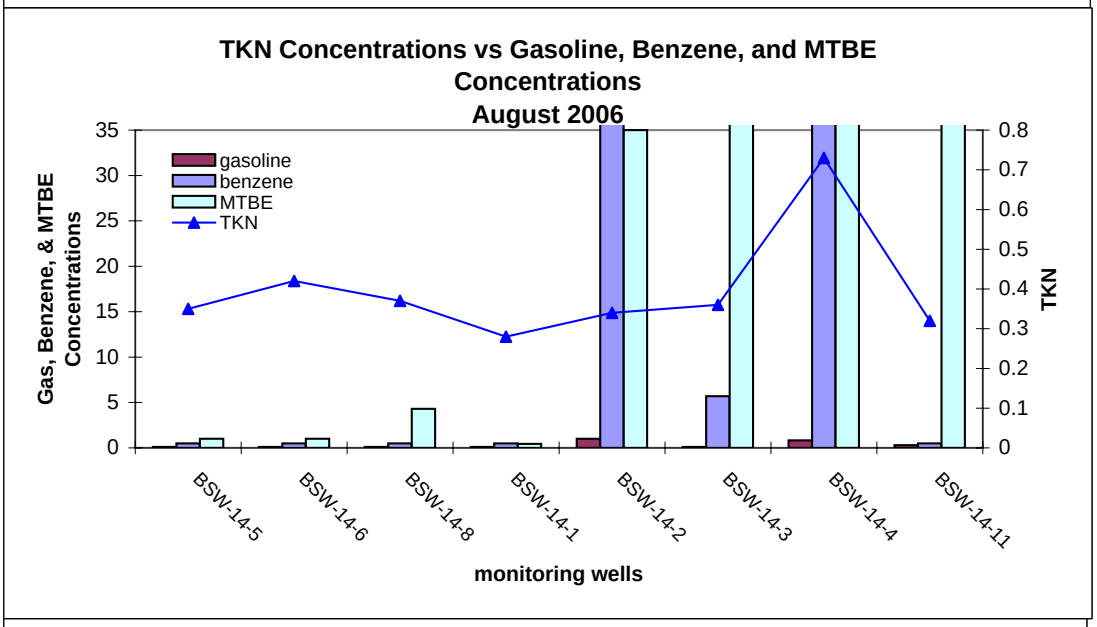


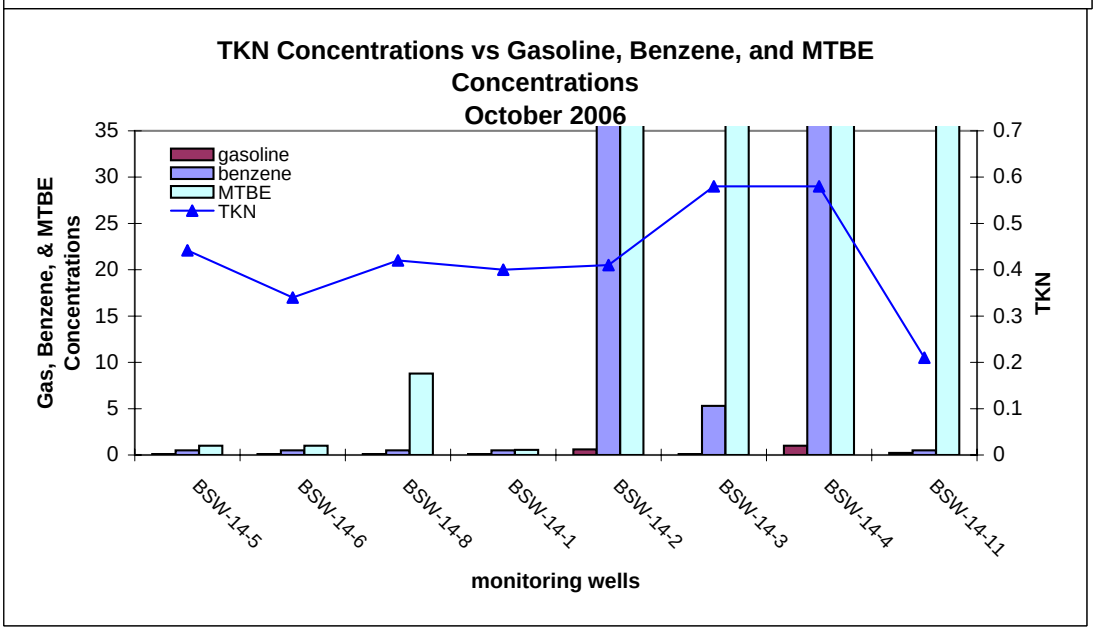




scale of y-axis adjusted for graph readability. Refer to tables for actual concentrations.







scale of y-axis adjusted for graph readability. Refer to tables for actual concentrations.

California Regional Water Quality Control Board
Santa Ana Region

Linda S. Adams
Secretary for Environmental Protection

3737 Main Street, Suite 500, Riverside, California 92501-3348
Phone (951) 782-4130 • FAX (951) 781-6288 • TDD (951) 782-3221
www.waterboards.ca.gov/santaana

Arnold Schwarzenegger
Governor

May 8, 2007

Ms. Pei-Fen Tamashiro
Installation Restoration Coordinator
Naval Weapons Station, Seal Beach
800 Seal Beach Blvd.
Seal Beach, CA 90740-5000

DRAFT GROUNDWATER MONITORING REPORT FOR IR 14, U. S. NAVAL WEAPONS STATION, SEAL BEACH, SWRCB GEOTRACKER ID: T0605901139

Dear Ms. Tamashiro:

We have completed our review of the above-referenced document, dated March16 2007, which we received on March 20, 2007. Six temporary wells were installed and sampled to fill in data gaps to determine the extent of the methyl tert-butyl ether plume in the groundwater. Two of the temporary wells were replaced with permanent groundwater monitoring wells and the rest were properly abandoned. Groundwater samples were also collected from previously installed monitoring wells in March, August and October 2006. The samples were analyzed for benzene, toluene, ethylbenzene, xylene, total petroleum hydrocarbons and methyl tert-butyl ether. In addition, water samples were analyzed for the following natural attenuation parameters: total dissolved solids, alkalinity, anions, pH, methane, ethene, ethane, carbon dioxide, ammonia, total Kjeldahl nitrogen, orthophosphate, ferrous iron, hydrogen sulfide, and dissolved oxygen.

We do not have any comments on the document. We concur with your request for closure. Please send us the final version of this document and we will prepare our closure documents for this site.

Please submit electronic copies of this report and boring logs with well construction details through the State Water Resources Control Board's GeoTracker website. Go to http://geotracker.waterboards.ca.gov/ for information on obtaining a password, data format, and instructions for electronic submittal of information.

If you should have any questions, please contact me by phone at (951) 782-4498, or by e-mail at: phannon@waterboards.ca.gov.

Sincerely,

Patricia A. Hannon

Patricia A. Hannon
SLIC/DoD Section

cc via electronic copy: Ms. Katherine Leibel, Dept of Toxic Substances Control
Mr. Si Le, Naval Facilities Engineering Command, SWDIV
Mr. Kirk Gilligan, Seal Beach National Wildlife Refuge

City of Seal Beach

CITY HALL 211 EIGHTH STREET
SEAL BEACH, CALIFORNIA 90740
(562) 431-2527 • www.ci.seal-beach.ca.us

April 11, 2007

Naval Weapons Station Seal Beach
Attn: Pei-Fen Tamashiro
Installation Restoration Coordinator
800 Seal Beach Boulevard
Seal Beach, CA 90740

SUBJECT: ***"DRAFT GROUNDWATER MONITORING REPORT, INSTALLATION RESTORATION PROGRAM (IRP) SITE 14, NAVAL WEAPONS STATION SEAL BEACH"***

Dear Ms. Tamashiro:

The City of Seal Beach has reviewed the report from the Department of the Navy relative to "*Draft Groundwater Monitoring Report, Installation Restoration Program (IRP) Site 14, Naval Weapons Station Seal Beach*".

The purpose of the subject document is to present the determinations leading to a conclusion that the groundwater investigations at IRP Site 14 have collected sufficient data to support regulatory site closure and "*No Further Action*" status from the California Regional Water Quality Control Board, Santa Ana Region.

The results of the March, August and October 2006 groundwater monitoring activities indicate that the observed concentrations of BTEX and MTBE at IR Site 14 monitoring wells adjacent to the National Wildlife Refuge do not exceed accepted ecological screening values currently recommended by relevant state guidance in the "*Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*" (California Regional Water Quality Control Board, San Francisco Bay Region, 2003) and federal guidance from the U.S. Environmental Protection Agency. In addition, the groundwater flow velocity in the site vicinity is low (1 to 10 feet/year) suggesting the potential for migration in groundwater is limited.

Based on the results of the March, August, and October 2006 groundwater monitoring activities the Navy has determined that:

- ❑ The lateral extent of the dissolved-phase petroleum hydrocarbon plume has been defined and that all detected concentrations of chemicals of ecological concern

(COECs) in monitoring wells have been below the established ecological risk-based screening values established for the site.

- ❑ Natural attenuation is occurring at the site based on statistical trend analysis using the Mann-Kendall (S) statistical tests which indicate that there are no increasing concentration trends for any COECs in any monitoring well at the site.
- ❑ All concentrations of chemicals of potential concern (COPCs) are below the established ecological risk-based screening values.

Based on the above determinations the City of Seal Beach fully supports the proposed regulatory site closure and "*No Further Action*" status from the California Regional Water Quality Control Board, Santa Ana Region, and requests the continued opportunity of reviewing and commenting on future record of decision documents regarding IR Site 14.

The Environmental Quality Control Board of the City of Seal Beach considered and reviewed the "*Draft Groundwater Monitoring Report, Installation Restoration Program (IRP) Site 14, Naval Weapons Station Seal Beach*" and an accompanying Staff Report on April 11, 2007, and authorized the Chairman to sign this letter indicating the official comments of the City of Seal Beach.

Thank you for your consideration of the comments of the City of Seal Beach. Please do not hesitate to contact Mr. Lee Whittenberg, Director of Development Services, City Hall, 211 Eighth Street, Seal Beach, 90740, telephone (562) 431-2527, extension 313 or e-mail at lwhittenberg@ci.seal-beach.ca.us if you have any questions regarding this matter.

Sincerely,

Mario Voce

Mario Voce, Chairman
Environmental Quality Control Board

Distribution: City Council
Planning Commission
Environmental Quality Control Board
Archaeological Advisory Committee
City Manager
Director of Development Services

"Tamashiro, Pei-Fen CIV NWSSB, N45WCW" <pei-fen.tamashiro@navy.mil>
>>> 5/16/2007 10:06 AM >>>
Katherine,
In responding to DTSC's comment, the text in Section 5.3.2 and Table 7 of the document will be revised as attached. If you concur with these revision, we will finalize the document and submit it for your concurrence. Thanks.

Pei-Fen Tamashiro, PG
IRP, RAB, MRP, and EHW
Naval Weapons Station Seal Beach
N45W, Building 110
800 Seal Beach Blvd
Seal Beach, CA 90740-5000
TEL:562-626-7897, DSN873
FAX:562-626-7131
pei-fen.tamashiro@navy.mil

-----Original Message-----
From: Katherine Leibel [mailto:KLeibel@dtsc.ca.gov]
Sent: Wednesday, May 09, 2007 16:33
To: Tamashiro, Pei-Fen CIV NWSSB, N45WCW
Cc: Patricia Hannon
Subject: Review: Draft Groundwater Monitoring Report, IRP Site 14

Pei-fen:

DTSC has reviewed the Draft Groundwater Monitoring Report, IRP Site 14, Naval Weapons Station Seal Beach, California,prepared by MARRS Services, Inc. dated March 16, 2007.

In general DTSC concurs with the conclusion that natural attenuation of gasoline and the gasoline components benzene, toluene, ethylbenzene, and xylene is occurring in groundwater at the site. However, DTSC notes that the Mann-Kendall trend analysis of concentrations of MTBE in well
MW-05-04 (Appendix I) shows a statistically significant increase in concentrations over 5 monitoring events, and a 4-fold increase in concentration during that time. Concentrations increased from 12 ug/L to 50 ug/L between October 2003 and October 2006. Although this is below the stated ecological risk-screening concentration of 8,000 ug/L, DTSC requests this well to be included in Table 7 of the Final Report.

Thank you for the opportunity to review the Report.

Regards,
Katherine Leibel
Project Manager
Office of Military Facilities
5796 Corporate Ave.
Cypress, CA 90630

Phone (714) 484-5446
Fax (714) 484-5437
Email:kleibel@dtsc.ca.gov

Project Title: Draft Groundwater Monitoring Report
Installation Restoration Program (IRP) Site 14
March 16, 2007
Reviewer: Pei-Fen Tamashiro
Comments Dated: May 14, 2007

Comment No.	Page No./ Section	Comment	Response
1.	General	In general DTSC concurs with the conclusion that natural attenuation of gasoline and the gasoline components benzene, toluene, ethylbenzene, and xylene is occurring in groundwater at the site. However, DTSC notes that the Mann-Kendall trend analysis of concentrations of MTBE in well MW-05-04 (Appendix I) shows a statistically significant increase in concentrations over 5 monitoring events, and a 4-fold increase in concentration during that time. Concentrations increased from 12 µg/l to 50 µg/l between October 2003 and October 2006. Although this is below the stated ecological risk-screening concentration of 8,000 µg/l, DTSC requests this well be included in Table 7 of the Final Report.	Concur. Table 7 has been revised to include the results of the statistical trend analysis for monitoring well MW-05-04. In addition, Section 5.3.2 has also been revised to indicate that MW-05-04 has been added to Table 7. The revised pages are included with this response to comments document.

5.3.2 Direct Evidence for Natural Attenuation at IRP Site 14

The following discusses the direct evidence (primary lines of evidence) that natural attenuation is occurring at IRP Site 14.

The Mann-Kendall (S) statistical test has been used to assess if contaminant concentration trends at the site are decreasing, remaining stable, or increasing. 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. However, the test is not able to determine the rate in which the concentrations are changing over time. 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.

Data from monitoring wells exhibiting the highest concentrations of petroleum hydrocarbons at the site, and data from monitoring wells along the boundary of Site 14 and the SBNWR were used to assess contaminant concentration trends. Monitoring wells within the core of the petroleum hydrocarbon plume exhibiting the highest concentrations of contaminants included monitoring wells BSW-14-2, BSW-14-3, and BSW-14-4. Monitoring wells along the boundary of Site 14 and the SBNWR include BSW-14-1 and BSW-14-8. Monitoring wells in which contaminant concentrations have not been detected or detected at relatively low concentrations and infrequently were not used in the statistical evaluation of contaminant concentrations. Data from the newly installed boundary well BSW-14-11 was not used since only two quarters of data exist for this well. MTBE data from monitoring well MW-05-04 (which is associated with IRP Site 5 and discussed in Section 5.2) has also been assessed.

Results of the Mann-Kendall (S) statistical test on data from the core of the petroleum hydrocarbon plume indicate that concentrations of TPH as gasoline, MTBE, and BTEX are decreasing in monitoring wells BSW-14-2 and BSW-14-3. Concentrations of MTBE, ethyl benzene, and total xylenes are decreasing in monitoring well BSW-14-3 with concentrations of TPH as gasoline, benzene, and total xylenes exhibiting no trend.

Results of the Mann-Kendall (S) statistical test on data from the fringe of the petroleum hydrocarbon plume (along the boundary between IRP Site 14 and the SBNWR) indicate that concentrations of TPH as gasoline, MTBE, and benzene are also decreasing. Concentrations of TPH as gasoline, MTBE, and benzene are decreasing in monitoring wells BSW-14-1. Toluene, ethyl benzene, and total xylenes have not been detected in this well with the exception of estimated concentrations during the November 1999 monitoring event. Concentrations of TPH as gasoline and MTBE are decreasing in BSW-14-8. Benzene, toluene, ethyl benzene, and total xylenes have not been detected in this well. In addition, results of the Mann-Kendall (S) statistical test on MTBE data from monitoring well MW-05-04, located within the SBNWR, indicated that MTBE concentrations in this well are increasing. However, concentrations remain below the established risk-based screening value for MTBE of 8,000 µg/l, as shown on Figures 6, 8, 9, and 10.

Time series concentration graphs are presented in Appendix H. Table 7 summarizes the results of the Mann-Kendall (S) statistical tests. The results of the Mann-Kendall (S) statistical calculations are included in Appendix I.

TABLE 7
MANN-KENDALL STATISTICAL RESULTS
IRP SITE, NAVWPNSTA SEAL BEACH

Monitoring Well	Trend and Stability	Analyte					
		TPGas Gasoline	MTBE	Benzene	Toluene	Ethyobenzene	Total Xylenes
BSW-14-1	M-K Statistical Test 80% Confidence Interval	decreasing	decreasing	decreasing	-	-	-
	M-K Statistical Test 90% Confidence Interval	decreasing	decreasing	decreasing	-	-	-
	Stability	NA	NA	NA	-	-	-
BSW-14-2	M-K Statistical Test 80% Confidence Interval	decreasing	decreasing	decreasing	decreasing	decreasing	decreasing
	M-K Statistical Test 90% Confidence Interval	no trend	decreasing	decreasing	decreasing	decreasing	decreasing
	Stability	NA	NA	NA	NA	NA	NA
BSW-14-3	M-K Statistical Test 80% Confidence Interval	decreasing	decreasing	decreasing	decreasing	decreasing	decreasing
	M-K Statistical Test 90% Confidence Interval	decreasing	decreasing	decreasing	decreasing	decreasing	decreasing
	Stability	NA	NA	NA	NA	NA	NA
BSW-14-4	M-K Statistical Test 80% Confidence Interval	no trend	decreasing	to trend	to trend	decreasing	decreasing
	M-K Statistical Test 90% Confidence Interval	no trend	decreasing	to trend	to trend	decreasing	no trend
	Stability	non-stable	NA	stable	non-stable	NA	NA
BSW-14-6	M-K Statistical Test 80% Confidence Interval	decreasing	-	decreasing	-	-	-
	M-K Statistical Test 90% Confidence Interval	decreasing	-	decreasing	-	-	-
	Stability	NA	-	NA	-	-	-
BSW-14-8	M-K Statistical Test 80% Confidence Interval	decreasing	decreasing	-	-	-	-
	M-K Statistical Test 90% Confidence Interval	decreasing	decreasing	-	-	-	-
	Stability	NA	NA	-	-	-	-

TABLE 7
MANN-KENDALL STATISTICAL RESULTS
IRP SITE, NAVWPNSTA SEAL BEACH

Monitoring Well	Trend and Stability	Analyte					
		TPGas Gasoline	MTBE	Benzene	Toluene	Ethyobenzene	Total Xylenes
MW-05-04	M-K Statistical Test 80% Confidence Interval	-	increasing	-	-	-	-
	M-K Statistical Test 90% Confidence Interval	-	increasing	-	-	-	-
	Stability	-	NA	-	-	-	-

acronyms and abbreviations

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

\- Statistical test not perforned on data because a majority or all analytical results were non-detect.

-----Original Message-----
From: Katherine Leibel [mailto:KLeibel@dtsc.ca.gov]
Sent: Wednesday, May 30, 2007 11:17
To: Tamashiro, Pei-Fen CIV NWSSB, N45WCW
Subject: Re: Review: Draft Groundwater Monitoring Report, IRP Site 14

Pei-Fen:

It looks fine.

Regards,
Katherine Leibel
Project Manager
Office of Military Facilities
5796 Corporate Ave.
Cypress, CA 90630

Phone (714) 484-5446
Fax (714) 484-5437
Email:kleibel@dtsc.ca.gov