FINAL

2011 ANNUAL GROUNDWATER REPORT FOR INSTALLATION RESTORATION SITES 26 AND 28

FORMER NAVAL AIR STATION MOFFETT FIELD MOFFETT FIELD, CALIFORNIA

ENVIRONMENTAL MULTIPLE AWARD CONTRACT
Contract Number N62473-07-D-3219
Contract Task Order 0005

DCN: ERS.3219.0005.0008

Prepared for

Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, California 92108-4310

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April 2012

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EXECUTIVE SUMMARY

The objective of this 2011 Annual Groundwater Report is to document and evaluate the progress of remedial actions performed during the 2011 calendar year at Installation Restoration (IR) Sites 26 and 28, within the former Naval Air Station (NAS) Moffett Field (Moffett), located adjacent to the City of Mountain View, California.

Impacted groundwater at Moffett occurs in two areas in the A aquifer, the west-side aquifers (IR Site 28) and the east-side aquifer (IR Site 26). The westernmost air field taxiway on Moffett serves as an approximate physiographic line separating the west-side from the east-side. Historical releases of chemicals to the subsurface have impacted both west-side and east-side aquifers with volatile organic compounds (VOCs), namely trichloroethene (TCE) and tetrachloroethene (PCE). The west-side aquifers are also affected by a regional plume of VOCs from the Region 9 United States (U.S.) Environmental Protection Agency (EPA)-lead Middlefield-Ellis-Whisman (MEW) Superfund Site south of U.S. Highway 101, whereas the east-side aquifer is not.

IR Site 28 and West-Side Aquifers Treatment System

The West-Side Aquifers Treatment System (WATS) is the groundwater treatment system associated with IR Site 28, located on the west-side of the runways near Hangar 1. WATS began operating in November 1998. The chemicals of concern (COCs) identified in the MEW Record of Decision (ROD) include chloroform, 1,2-dichlorobenzene (1,2-DCB), 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), 1,2-dichloroethene (1,2-DCE), Freon 113, phenol, PCE, 1,1,1-trichloroethane (1,1,1-TCA), TCE, and vinyl chloride (VC) (EPA 1989). WATS extracts groundwater from the upper portion of the A aquifer with six shallow-screened extraction wells and from the lower portion of the A aquifer with three deeper-screened extraction wells. WATS uses an advanced oxidation process and granular activated carbon (GAC) to treat groundwater.

During the 2011 reporting period, WATS reportedly operated 99.0 percent of the time. The volume of groundwater extracted, treated, and discharged during 2011 was approximately 22,332,164 gallons. The calculated mass of VOCs removed during 2011 was approximately 247 pounds. Total operation and maintenance (O&M) costs for 2011 were approximately $414,000. The average cost per pound of contaminant removed in 2011 was $1,674. During 2011, sampling and monitoring were conducted in accordance with the (NPDES) Self-Monitoring Program, NPDES Permit Number (No.) CAG912003, Order No. R2-2009-0059. All effluent samples were in compliance with discharge requirements in 2011 (SeaAlaska Environmental, Inc. and TetraTech EC, Inc. [SES-TECH] 2012).

Time series concentration graphs show stable TCE concentration trends for A aquifer wells located downgradient of the WATS extraction wells. Potentiometric surface map interpretations, which are based upon a flow-net method of well pumping and capture analysis, indicate that the target capture zone was maintained throughout 2011, with the exception of the eastern groundwater plume periphery. Stable contaminant concentrations in downgradient wells combined with potentiometric evidence of hydraulic capture supports the conclusion that WATS generally achieved hydraulic containment of the target contaminant capture zone. The results of the Navy pilot tests, along with other results of the individual optimization evaluations for other sites, will be incorporated into the Site-Wide Groundwater Feasibility Study for the regional plume.

Although WATS is functioning as intended, dissolved VOCs in the regional plume continue to migrate north into IR Site 28 with groundwater underflow from off-site areas. As long as contaminant flow continues to migrate into IR Site 28 from an upgradient source (south of U.S. Highway 101), the remedial objective will not be achieved. In addition, based on the sampling of additional monitoring wells by the U.S. Department of the Navy (Navy) and MEW from 2008 through 2011 as well as additional monitoring wells sampled by National Aeronautics and Space Administration (NASA) in 2008, it appears concentrations of TCE may extend beyond the historically considered leading edge of the plume.

IR Site 28 Groundwater Potentiometric Trends

Groundwater elevation trends in the vicinity of WATS for 2011 were similar to those observed during 2010. Most groundwater elevations continue to exhibit seasonal fluctuations. Semiannual groundwater gauging events were completed in March and September. These months were chosen because they represent the high and low groundwater elevations, which typically occur towards the end of the wet season (March) and towards the end of the dry season (October), respectively.

Groundwater in the upper and lower portions of the A aquifer flowed in a northerly direction across Moffett at a gradient ranging from approximately 0.002 to 0.007 foot per foot (ft/ft) between U.S. Highway 101 and Hangar 1 in March and September 2011. The gradient in the general vicinity of Hangar 1 is affected by the WATS pumping; however, the overall flow is northerly from Hangar 1 toward the NASA Ames Research Center at a gradient ranging from approximately 0.002 to 0.005 ft/ft in March and September 2011.

IR Site 28 Groundwater Analytical Trends

Analytical data collected from wells in September 2011 indicates that the general shape and/or extent of the TCE, cis-1,2-dichloroethene (cis-1,2-DCE), PCE, and VC plumes in the upper and lower portions of the A aquifer are similar to those in 2010.

TCE and cis-1,2-DCE made up approximately 96.7 percent of the mass removed by WATS in 2011. Analytical data from monitoring wells surrounding WATS exhibit long-term trends of decreasing or stable TCE concentrations (95 percent of evaluated wells in the upper portion of the A aquifer and 89 percent of evaluated wells in the lower portion of the A aquifer). Analytical data from wells evaluated or long-term trends indicate 90 percent of the monitoring wells in the upper portion of the A aquifer and 55 percent of the wells in the lower portion of the A aquifer have decreasing or stable cis-1,2-DCE concentrations.

Analytical data from one of five wells completed in the B2 aquifer indicated concentrations of TCE, cis-1,2-DCE, and VC from W88-1, were higher than reported in 2010 and exceeded the respective ROD cleanup standards. Cis-1,2-DCE and TCE exceeded their respective ROD cleanup standard in all five wells in the B2 aquifer. PCE was lower than reported in 2010, but is still above the ROD clean up standard. VOC concentrations reported from samples collected from the other four B2 aquifer wells were consistent with historical results and were below ROD cleanup standards.

IR Site 26 and East-Side Aquifer Treatment System

The East-Side Aquifer Treatment System (EATS) is the IR Site 26 groundwater treatment system, located on the east side of the runways, northeast of Hangar 3. The COCs identified in the Operable Unit (OU) 5 ROD include TCE, 1,2-DCE, PCE, VC, 1,1-DCE, and 1,2-dichloroethane (1,2-DCA) (Navy 1996).

EATS began operating in January 1999. Prior to its shutdown in July 2003, EATS processed 67,050,786 gallons of extracted groundwater and removed 23.65 pounds of VOCs. EATS treated groundwater extracted from five wells completed in the upper A aquifer using a combination of an air stripper and GAC. EATS was taken off-line in July 2003 to evaluate plume stability, COC rebound, natural attenuation, and the efficiency of Hydrogen Release Compound® in remediating plume hot spots. Additionally, an abiotic/biotic treatability study using EHC® commenced in May 2009 and was completed in October 2011. EATS remained off-line for the entire 2011 reporting period.

IR Site 26 Groundwater Potentiometric Trends

The groundwater elevation trends across IR Site 26 for 2011 were similar to those observed during 2010. The groundwater elevations in most monitoring wells exhibited seasonal fluctuations. Semiannual groundwater gauging events were completed in March and September 2011. IR Site 26 groundwater in the upper portion of the A aquifer flowed in a northerly direction. North of the intersection of Marriage Road and Macon Road, the hydraulic gradient was approximately 0.002 ft/ft. South of the intersection, the gradient was approximately 0.003 ft/ft.

IR Site 26 Groundwater Analytical Trends

Groundwater samples collected from monitoring wells in 2011 from the upper portion of the A aquifer exhibited generally decreasing trends in TCE concentrations and the plume has decreased in aerial extent. Similarly, cis-1,2-DCE and PCE concentrations in the upper portion of the A aquifer exhibited generally decreasing trends and their plumes have decreased in aerial extent. However, VC concentrations in the upper portion of the A aquifer have increased in some wells in the past few years. These results could be attributed to natural attenuation of cis-1,2-DCE. The decrease in TCE, along with an increase in VC, appears to be a result of continued dechlorination effects associated with the pilot studies in the EATS area.

Planned Activities

With respect to IR Site 28, O&M of WATS will continue in 2012. At IR Site 28, the first base-wide water level gauging event was conducted in March 2012 and the second will be conducted in September 2012. Well gauging events are coordinated with the MEW companies and NASA as part of continued regional plume monitoring efforts. The 2012 annual groundwater sampling event will take place in September 2012. The Navy is currently planning a supplemental investigation in the Former Building 88 Area and Traffic Island Area and additional monitoring of the W9-18 and Traffic Island Areas where in-situ bioremediation pilot tests were performed. EPA will consider the results of the Navy pilot tests, along with other results of the individual optimization evaluations for other sites when preparing the Site-Wide Groundwater Feasibility Study for the regional plume.

At IR Site 26, the first base-wide water level gauging event took place in March 2012. Activities planned for IR Site 26 include the second base-wide water level gauging event which will be conducted in September 2012. The annual groundwater sampling event will take place in September 2012. The Navy is preparing a Focused Feasibility Study for Site 26 that incorporates the results of the combined abiotic/biotic treatment using EHC® that was completed in October 2011 (Shaw 2012).

Based on the results of the passive diffusion bag (PDB)/low-flow sampling study conducted in 2011, the lower cost PDB alternative for groundwater sampling produces comparable results to the conventional sampling method. The study supports implementing PDB sampling for VOC analysis for all wells at the site. This will result in improved cost-effectiveness for the monitoring program while maintaining data quality and compliance with the ROD.

TABLES

FIGURES

FIGURES (continued)

FIGURES (continued)

FIGURES (continued)

FIGURES (continued)

FIGURES (continued)

FIGURES (continued)

APPENDICES

ACRONYMS AND ABBREVIATIONS

1,1,1-TCA	1,1,1-trichloroethane
1,1-DCA	1,1-dichloroethane
1,1-DCE	1,1-dichloroethene
1,2-DCA	1,2-dichloroethane
1,2-DCB	1,2-dichlorobenzene
1,2-DCE	1,2-dichloroethene
µg/L	micrograms per liter
®	registered trademark
AOP	advanced oxidation process
bgs	below ground surface
BRAC	Base Realignment and Closure
CE	chlorinated ethene
cis-1,2-DCE	cis-1,2-dichloroethene
COC	chemical of concern
DCN	document control number
DNAPL	dense non-aqueous phase liquid
EATS	East-Side Aquifer Treatment System
EPA	Environmental Protection Agency
ERS-JV	ERS Joint Venture
ESD	Explanation of Significant Differences
FFS	Focused Feasibility Study
ft/ft	foot per foot
FWENC	Foster Wheeler Environmental Corporation
GAC	granular activated carbon
GIS	geographic information system
IR	Installation Restoration
MCL	Maximum Contaminant Level
MEW	Middlefield-Ellis-Whisman
mg/L	milligrams per liter
Moffett	Moffett Field
msl	mean sea level
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
Navy	United States Department of the Navy
No.	number
NPDES	National Pollutant Discharge Elimination System
O&M	operation and maintenance
OU	Operable Unit
PCE	tetrachloroethene (also known as perchloroethene)

ACRONYMS AND ABBREVIATIONS (CONTINUED)

PDB	passive diffusion bag
PRC	PRC Environmental Management, Inc.
QA/QC	quality assurance/quality control
RAO	Remedial Action Operation
RGRP	Regional Groundwater Remediation Program
ROD	Record of Decision
RPD	relative percent difference
SAP	Sampling and Analysis Plan
SDA	storm drain action
SES-TECH	Sealaska Environmental Services, Inc. and Tetra Tech EC, Inc.
Shaw	Shaw Environmental & Infrastructure, Inc.
TCE	trichloroethene
TDS	total dissolved solids
™	Trademark
TN&A	T N & Associates, Inc.
TPH	total petroleum hydrocarbons
trans-1,2-DCE	trans-1,2-dichloroethene
TtEC	Tetra Tech EC, Inc.
TtFW	Tetra Tech FW, Inc.
U.S.	United States
VC	vinyl chloride
VOC	volatile organic compound
Water Board	California Regional Water Quality Control Board
WATS	West-Side Aquifers Treatment System
WMW	Wilcoxon-Mann-Whitney

1.0 INTRODUCTION

As part of the Installation Restoration (IR) Program, the United States (U.S.) Department of the Navy (Navy) is conducting environmental restoration activities at the former Naval Air Station (NAS) Moffett Field (Moffett), California. The objective of this report is to document and evaluate the progress of remedial actions performed during the 2011 calendar year at IR Site 28, the West-Side Aquifers Treatment System (WATS), and at IR Site 26, the East-Side Aquifer Treatment System (EATS), at Moffett.

This report has been prepared by ERS Joint Venture (ERS-JV) on behalf of the Navy's Base Realignment and Closure (BRAC) Program Management Office West. This work was conducted under Contract Task Order Number (No.) 0005, issued under Contract No. N62473-07-D-3219.

1.1 SITE BACKGROUND – DESCRIPTION LOCATION AND LAND USE

Moffett is located at the northern end of the Santa Clara Valley Basin, approximately 1 mile south of San Francisco Bay (Figure 1-1). Moffett was originally commissioned as NAS Sunnyvale in 1933. In 1935, NAS Sunnyvale was transferred to the U.S. Army Air Corps. In 1939, a permit was granted to Ames Aeronautical Laboratory to use a portion of the base. NAS Sunnyvale was returned to Navy control in 1942 and was renamed NAS Moffett Field. In 1994, NAS Moffett Field was closed as an active Navy base under the U.S. Department of Defense's BRAC program. The operational area of NAS Moffett Field was transferred to the National Aeronautics and Space Administration (NASA) and the military housing portions were transferred to the U. S. Air Force on July 1, 1994.

Impacted groundwater at Moffett occurs in two areas in the A aquifer, the west-side aquifers (IR Site 28) and the east-side aquifer (IR Site 26). The westernmost air field taxiway on Moffett serves as an approximate physiographic line separating the east side from west side (Figure 1-2). Groundwater within IR Site 28 is included in the Middlefield-Ellis-Whisman (MEW) Superfund Site volatile organic compound (VOC) plume, which extends from the off-site source south of U.S. Highway 101 onto Moffett. IR Site 26 is not part of the regional VOC plume.

WATS is a groundwater pump-and-treat system located in the area west of the runways at IR Site 28 (Figure 1-2). WATS extracts and treats groundwater impacted by the regional plume, where contaminants from Navy sources have commingled with the off-site regional VOC plume originating south of U.S. Highway 101. EATS is a groundwater pump-and-treat system located at IR Site 26, northeast of Hanger 3 (Figure 1-2). EATS was installed to extract and remediate VOC-impacted groundwater. Tetrachloroethene (PCE) and possibly trichloroethene (TCE) are believed to have been used at Hangars 2 and 3 and released at the northeast corner of Hangar 3. EATS was taken off-line in July 2003.

Land usage in the vicinity of WATS is specified in the NASA *Moffett Field Comprehensive Use Plan* (NASA 1994). Current primary uses of the area include airfield operations, administrative offices, and various storage buildings (NASA 1994). Hangar 1 and several of the surrounding buildings are part of the Historic District, which was established in 1994 (NASA 1994). WATS is located within NASA's redevelopment area. Future land use is described in the *NASA Ames Development Plan Final Programmatic Environmental Impact Statement* (NASA 2002). The area is within portions of two planning areas: the NASA Research Park and the Ames Campus. New educational, office, research and development, museum, conference center, housing, and retail space is planned for the NASA Research Park. Plans also include demolition of non-historic structures (NASA 2002). Residential development is not planned in areas overlying the regional plume having high concentrations of contaminants. High-density office, research, and development space is planned for the Ames Campus (NASA 2002). There are currently no plans for this land to change ownership.

Land usage in the EATS area is specified in the *Moffett Field Comprehensive Use Plan* (NASA 1994). The area east of the runways includes two planning areas. One of the planning areas contains approximately 174 acres and is used for air operations. The other planning area is approximately 248 acres and is used for ordnance and fuel storage facilities. The *Moffett Field Comprehensive Use Plan* (NASA 1994) restricts access and development in the area east of the runways because of safety considerations related to munitions storage and runway/air operations and indicates that no land use change is planned.

1.2 LOCAL HYDROGEOLOGY

Moffett is located at the northern end of the Santa Clara Valley Basin. Regionally, the northwesterly trending Santa Clara Valley Basin contains interbedded alluvial, fluvial, and estuarine deposits to a depth of 1,500 feet (Iwamura 1980). Soils consist of varying combinations of clay, silt, sand, and gravel that represent the interfingering of estuarine and alluvial depositional environments during the late Pleistocene and Holocene epochs. The fluvial soils were derived from the Santa Cruz highlands west of the basin and deposited on an alluvial plain bounded by alluvial fan deposits to the west and baylands to the northeast (Iwamura 1980). The heterogeneous nature of channel and interchannel sediments deposited in the fluvial depositional environment is evident in the many subsurface explorations that have been conducted at Moffett.

Groundwater beneath Moffett is encountered in the A, B, C, and Deep aquifers (Table 1-1). Only groundwater from the A aquifer is extracted and treated by WATS. The A aquifer is the uppermost aquifer in the Moffett area and consists of multiple interconnected permeable lenses or layers separated by lower permeability layers. The permeable layers consist of sediments ranging from silts and sandy silts to medium to coarse gravelly sands. The number, thickness, depths, and interconnection of these permeable layers vary throughout Moffett. The A aquifer is divided into upper and lower portions. The upper portion of the A aquifer extends from zero to a maximum of approximately 35 feet below ground surface (bgs). The lower portion of the A aquifer ranges in depth from approximately 15 to 77 feet bgs. There is no continuous aquitard between the upper and lower portions of the A aquifer.

Groundwater flow directions in the upper and lower portions of the A aquifer within IR Site 28 are generally to the north-northeast. The groundwater flow direction in the upper portion of the A aquifer within IR Site 26 is generally to the north.

Within IR Sites 26 and 28, the A aquifer is not currently used as a drinking water source; however, the California Regional Water Quality Control Board (Water Board) determined that the Santa Clara Valley Basin's beneficial use designation as a municipal and domestic water source is consistent with the California State Water Resource Control Board's Resolution No. 88-63, which describes criteria for designating sources of drinking water. The northern portion of IR Site 26 is located within an area where the total dissolved solids (TDS) in groundwater are greater than 3,000 milligrams per liter (mg/L). Groundwater having TDS values greater than 3,000 mg/L is not commonly considered to be a beneficial resource and does not satisfy the Water Board's criteria as a potential drinking water source and poses no unacceptable risk to human health or the environment (Navy 1996).

1.3 Description of Remedy and Summary of Remedial Actions - Goals and Objectives

IR Site 28

The requirements for the remediation of impacted groundwater at IR Site 28 are set forth in the Record of Decision (ROD) for the Fairchild, Intel, and Raytheon National Priorities List sites in the MEW Superfund Site study area (MEW ROD) (Environmental Protection Agency [EPA] 1989), which was adopted by the Navy in an amendment to the Federal Facilities Agreement (EPA 1990a). The selected remedy for groundwater at IR Site 28 is extraction and ex situ treatment to restore groundwater to the cleanup standards specified in the MEW ROD.

There have been two Explanations of Significant Differences (ESD) for the MEW ROD (September 1990 and April 1996). The September 1990 ESD (EPA 1990b) clarified that the cleanup goals constituted final cleanup standards that the remedial activity must meet. The September 1990 ESD stated that the final cleanup standard for TCE in the upper and lower portions of the A aquifer is 5 micrograms per liter (μg/L). TCE was selected as an indicator chemical because it was assumed that by remediating TCE, the other chemicals of concern (COCs) would be remediated simultaneously. The April 1996 ESD (EPA 1996) clarified that the groundwater remedy includes the use of liquid-phase granular activated carbon (GAC) as a treatment option for extracted groundwater.

WATS is comprised of nine groundwater extraction wells in the upper and lower portion of the A aquifer. In 2011, two extraction wells (EA1-1 and EA1-2) were off-line in support of treatability studies performed at Former Building 88 Area, Well W9-18 Area, and the Traffic Island Area. The WATS extraction wells extract VOC-impacted groundwater and treat the groundwater using an advanced oxidation process (AOP) and liquid-phase GAC units. The treated water is then discharged to the Moffett storm drain system, which conveys the water to a settling basin and ultimately discharges to the Eastern Diked Marsh and Stormwater Retention Basin. WATS began operating in November 1998. WATS is operated to maintain a capture zone that is adequate enough to create hydraulic control of affected groundwater downgradient of IR Site 28 and to extract and treat groundwater to meet cleanup standards established by the MEW ROD and clarified in the September 1990 ESD and the April 1996 ESD. The Navy is currently planning an investigation at the Former Building 88 Area and in the Traffic Island Area and additional groundwater monitoring at two locations where in-situ bioremediation pilot tests were conducted (Shaw 2012).

IR Site 26

The impacted groundwater at IR Site 26 has been designated as Operable Unit (OU) 5. The OU5 ROD (Navy 1996) governs the cleanup of VOCs in OU5 groundwater. The ROD was signed by the Navy, EPA Region 9, California Department of Toxic Substances Control, and the Water Board in June 1996. Groundwater contamination in OU5 was identified as two separate VOC plumes, the northern and southern plumes. The northern plume is located within an area where the TDS in groundwater are greater than 3,000 mg/L. Groundwater having TDS values greater than 3,000 mg/L is not commonly considered to be a beneficial resource. Although TCE, cis-1,2-dicholoroethene (cis-1,2-DCE), and vinyl chloride (VC) concentrations are above the clean-up goals in the northern plume, based on the TDS criterion, no further action, beyond groundwater monitoring, was required for the northern plume. Additionally, PCE concentrations are below clean-up goals in the area of the northern plume. TCE, cis-1,2-DCE, PCE, and VC concentrations are above the clean-up goals in the southern plume. The selected remedy for groundwater in the southern OU5 plume was extraction and ex situ treatment to restore groundwater quality to cleanup goals.

The OU5 ROD identified six COCs. The groundwater cleanup standards for the OU5 southern plume, as specified in the OU5 ROD, are the more stringent of the federal or state Maximum Contaminant Levels (MCLs) for each COC. The following organic compounds and corresponding MCLs were identified in the OU5 ROD:

- 1,2-dichloroethane (1,2-DCA) - 0.5 µg/L
- 1,2-dichloroethene (1,2-DCE) - 6 µg/L
- 1,1-dichloroethene (1,1-DCE) - 6 µg/L
- PCE - 5 µg/L
- TCE - 5 µg/L
- VC - 0.5 µg/L

EATS began operation in January 1999 and was operated to maintain a capture zone adequate for hydraulic control of affected groundwater and to restore groundwater quality to cleanup standards established by the OU5 ROD (Navy 1996).

EATS treated groundwater extracted from five wells completed in the upper A aquifer using a combination of an air stripper and GAC. The treated water was discharged to the Moffett storm drain system. In July 2003, EATS was taken off-line to evaluate plume stability, COC rebound, natural attenuation, and the efficiency of Hydrogen Release Compound® in remediating plume hot spots. Although the EATS is turned off, groundwater monitoring is still required. Additionally, an abiotic/biotic treatability study using EHC® commenced in May 2009 and was completed in October 2011 (Shaw 2011a). EATS remained off-line for the entire 2011 reporting period. The Navy is preparing a Focused Feasibility Study (FFS) to evaluate remedial alternatives that may be more efficient than pump and treat to address the low VOC concentrations (Shaw 2011b) currently present at IR Site 26.

1.4 Summary of 2011 Activities and Deliverables

A summary of monitoring activities and deliverables for WATS and EATS is provided in Table 1-2. Progress toward completing five-year review recommendations is provided in Appendix A. The 2011 annual remedy performance checklists are provided in Appendix B.

2.0 WEST-SIDE AQUIFERS TREATMENT SYSTEM

This section provides a description, performance summary, and operation and maintenance (O&M) summary of WATS, located at IR Site 28. This section also provides an evaluation and analysis of WATS' capture zones, discusses contaminant migration from off-site sources, and provides a compilation and evaluation of the groundwater analytical results.

2.1 SYSTEM DESCRIPTION AND PERFORMANCE

WATS began operating on November 26, 1998, and completed its thirteenth year of operation in November 2011. Located in the area west of the runways at Moffett, WATS remediates groundwater contaminants originating from Navy sources that have commingled with a regional volatile organics plume originating from off-site sources south of U.S. Highway 101. WATS currently consists of an AOP and liquid-phase GAC units. The AOP unit destroys the majority of the influent VOCs, and the liquid-phase GAC unit removes any remaining VOCs. To eliminate discharge of VOCs to the air, the WATS air stripper was removed from the treatment train on May 8, 2003 and was replaced with the GAC units.

Groundwater is pumped from extraction wells to maintain a capture zone adequate to create hydraulic control of affected groundwater downgradient of Navy sources at IR Site 28. There are nine extraction wells at the Site. However, EA1-1 and EA1-2 were off-line in 2011 in support of the treatability studies performed at Former Building 88 Area, Well W9-18 Area, and the Traffic Island Area. In 2011, groundwater was only extracted from EA1-3, EA1-4, EA1-5, EA1-6, EA2-1, EA2-2, and EA2-3. Six groundwater extraction wells (EA1-1 through EA1-6) are completed in the upper portion of the A aquifer, and three extraction wells (EA2-1 through EA2-3) are completed in the lower portion of the A aquifer. Figure 2-1 illustrates the locations of extraction and monitoring wells in the upper portion of the A aquifer. Figure 2-2 illustrates the locations of extraction and monitoring wells in the lower portion of the A aquifer. Figures 2-1 and 2-2 also include NASA and MEW extraction well and monitoring well locations. Data from a selected set of wells shown on these two figures were used to develop potentiometric surface maps, capture zone maps, and contaminant distribution maps for this 2011 Annual Groundwater Report.

WATS also treats storm drain action (SDA) water collected in two on-site sumps near Hangar 1. The first sump, the Electrical Vault No. 5 sump, collects stormwater from electrical conduits and groundwater seeping in from the bottom of the vault. The second sump, the Hangar 1 sump, spans the width of Hangar 1, and it collects condensate from steam lines underlying the base. The Hangar 1 sump is completed to a depth of between 8 and 9 feet below grade and also likely receives groundwater infiltration. Water collected in Electrical Vault No. 5 bypasses its flow meter and discharges into the Hangar 1 Sump, where it is recorded as a total volume from both sumps.

2.1.1 Influent and Discharge Information and Discussion

The VOCs in the upper and lower portions of the A aquifer are predominantly TCE, cis-1,2-DCE, PCE, and VC (Foster Wheeler Environmental Corporation [FWENC] 2002). The influent VOC concentrations for these four constituents and the system flow rates were used to calculate the mass of VOCs removed by WATS. The system flow rate (system data) is measured at the influent of WATS and includes groundwater from the extraction wells and SDA water. The volume of groundwater extracted since WATS start-up is approximately 428,365,232 gallons. The volume of groundwater extracted during 2011 is approximately 22,332,164 gallons. The mass of VOCs removed since WATS start-up is

approximately 5,681 pounds. The mass of VOCs removed during 2011 is approximately 247 pounds (Sealaska Environmental Management Inc. and Tetra Tech EC, Inc. [SES-TECH] 2012).
Figure 2-3 shows cumulative volume of groundwater extracted and the contaminant mass removed by WATS from 1998 through 2011. This graph illustrates that the rate of groundwater treatment and contaminant mass removed has remained relatively constant since WATS began operating in 1998. However, the figure also illustrates that the contaminant mass removal rate in 2011 was less than in previous years.

For the reporting period of January 1, 2011, through December 30, 2011, the SDA water flow was 2,837,060 gallons, or 12.7 percent of the total WATS flow for the year (22,332,174 gallons).

Figure 2-4 illustrates PCE, TCE, cis-1,2-DCE, and VC average influent concentrations and the sum of these average concentrations to WATS from 1998 through 2011. Average influent VOC concentrations have fluctuated since system startup in November 1998. Average influent VOC concentrations have been decreasing since 2008.

As in previous years, TCE comprised the majority of the VOC mass removed by WATS, followed by cis-1,2-DCE. Both VC and PCE comprised less than 2 percent of the total mass of contaminants removed. The percentages were calculated from groundwater concentration data collected from each of the extraction wells during the September 2011 sampling event. The average concentration of each contaminant was multiplied by the total flow of the extraction well for the year to determine the total mass of each contaminant removed for that well. The mass from all the extraction wells was summed to determine the total mass of each contaminant removed for the year. The percentage of the total mass for each contaminant was then calculated. A summary of the percentage mass per constituent and percentage mass removed from the upper and lower portions of the A aquifer is provided below.

VOC	Percentage of Total VOC Mass	Percentage Mass from Lower Portion of the A Aquifer	Percentage Mass from Upper Portion of the A Aquifer
TCE	66.9	68.2	25.3
cis-1,2-DCE	29.8	28.6	67.1
PCE	1.5	1.5	1.4
VC	1.9	1.7	6.2

WATS sampling was conducted from January through December 2011 in accordance with the National Pollutant Discharge Elimination System (NPDES) Self-Monitoring Program, NPDES Permit No. CAG912003, Order No. R2-2009-0059, effective October 1, 2009. Throughout 2011, the WATS discharge water complied with the permit limits for all VOCs and total petroleum hydrocarbons (TPH). The WATS effluent and influent were sampled and analyzed monthly for VOCs using EPA Method 8260B and TPH using EPA Method 8015B. The WATS effluent was also sampled and analyzed annually for fish bioassay and semiannually for 1,4-dioxane in accordance with the NPDES permit requirements. In compliance with the NPDES permit, effluent samples were also analyzed for copper (see Section 4.4).

Treated effluent water from WATS is discharged to the Moffett storm drain system, which drains to the Eastern Diked Marsh and Stormwater Retention Pond, located near the northern boundary of Moffett.

System analytical data and NPDES compliance evaluations are provided in separate quarterly and annual NPDES reports.

2.1.2 System Performance

As of December 30, 2011, WATS had processed approximately 428,415,994 gallons (system data) of extracted groundwater and SDA water since system start-up. Of that total, approximately 22,332,164 gallons (system data) were processed during 2011 (Figure 2-3).

An estimated total volume of 19,383,634 gallons of groundwater was removed by the extraction wells in 2011, which is about 29.6 percent less than the 27,540,397 gallons removed from extraction wells in 2010. Normally, nine extraction wells are in operation. However, in 2011 two extraction wells (EA1-1 and EA1-2) were off-line in support of the treatability studies performed at Former Building 88 Area, Well W9-18 Area, and the Traffic Island Area. During 2011, an estimated 97.0 percent of the groundwater flow came from the lower portion of the A aquifer, and 3.0 percent came from the upper portion of the A aquifer. These estimates are determined based on extraction well flow rates and may not add up to the total system flow rate due to flow meter error. Table 2-1 shows the monthly average flow rates for the extraction wells and the total system. Table 2-2 shows monthly extraction totals for each well and the total system.

Figure 2-5 provides the cumulative system costs and the cost per pound of contaminant mass removed by WATS. System costs were calculated using WATS O&M costs, including all miscellaneous costs. System O&M costs prior to October 1999 are considered start-up costs and are included in the system construction costs. Construction costs for WATS were not used in this analysis according to the Navy's *Guidance for Optimizing Remedial Action Operation* (RAO) (Navy 2001).

The cumulative cost per pound of VOCs removed from start-up through December 2011 was $1,196, an increase from the $1,170-per-pound cumulative cost reported in 2010. The 2011 monthly cost per pound removed averaged $1,674, compared to an average of $1,273 in 2010. The total O&M costs for 2011 were $414,000.

WATS reportedly operated approximately 99.0 percent of the time during the 2011 calendar year. This was a slight increase from the 98.8 percent WATS operated during the 2010 operating year. WATS system run-times by month are included in Table 2-1. Regularly scheduled monthly maintenance, minor system repairs, replacement of carbon in GAC units, system restarts and site walks or deliveries resulted in brief periods of system downtime from 1 to 24 hours per event, with up to three events per month. Wells EA1-1 and EA1-2 were offline throughout 2011 in support of the treatability studies performed at Former Building 88 Area, Well W9-18 Area and the Traffic Island Area. Additionally, Wells EA1-5, and EA1-6 were shut-off for a period of 4 hours for offline maintenance. Descriptions of these downtime periods are provided below:

- Five hours during the January 2011 reporting period to perform monthly maintenance, change the carbon in GAC vessels # 308 and # 310, and to perform quarterly preventative maintenance on ozone generators.
- Four hours during the February 2011 reporting period to perform monthly maintenance and to perform quarterly preventative maintenance on the air compressor.

- No system downtime during the March 2011 reporting period, but wells EA1-5 and EA1-6 were offline for four hours for maintenance.
- Twenty-five hours during the April 2011 reporting period to perform monthly maintenance and to change carbon in all four GAC vessels.
- Two hours during the May 2011 reporting period to perform monthly maintenance and to restart WATS after a power fluctuation.
- Six hours during the June 2011 reporting period to perform monthly maintenance and to restart WATS after a large amount of rain.
- There was no system downtime during the July 2011 reporting period.
- Three hours during the August 2011 reporting period to perform monthly maintenance.
- Six hours during the September 2011 reporting period to perform monthly maintenance and to troubleshoot the system.
- Five hours during the October 2011 reporting period to perform monthly maintenance, and to perform inspection and maintenance of ozone generators.
- Sixteen hours during the November 2011 reporting period to perform monthly maintenance and to repair a leak on AOP Tank #1.
- Sixteen hours during the December 2011 reporting period to perform monthly maintenance and to change the carbon in GAC vessels #308 and #310. The system was also taken offline during a delivery of 400 gallons of hydrogen peroxide.

2.2 WATS Operation and Maintenance

During the 2011 reporting period, WATS operated approximately 99.0 percent of the time. There were no unexpected O&M difficulties.

Key System Events

The key events for 2011were as follows:

Wells EA1-1 and EA1-2 were offline throughout 2011 in support of the treatability studies.

2.3 Hydraulic Control and Capture Zone Analysis

The following section describes how capture zones for IR Site 28 were estimated and evaluated.

2.3.1 Methodology

Capture zone analysis for IR Site 28 was performed in accordance with *A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems* (EPA 2008) and *Elements of Effective Management of Operating Pump & Treat Systems* (EPA 2002). Current and historical analytical and water level data have been used to evaluate the efficiency of WATS to maintain adequate capture zones.

2.3.2 Estimated Capture Zones for 2011

Capture zone analysis includes the following steps (EPA 2004 and 2008):

Step 1 – Review Site Data, Site Conceptual Model, and Remedial Objectives

Review Site Data

Site data required to evaluate capture zones include analytical results for groundwater samples and water level measurements collected from a network of extraction and monitoring wells installed throughout IR Site 28. Groundwater extraction and monitoring wells installed in the upper and lower portions of the A aquifer are shown on Figures 2-1 and 2-2, respectively. Data from these wells were used to create plume maps, potentiometric surface maps, and capture zone maps.

VOCs are present in the upper and lower portions of the A aquifer. Plume maps for PCE, TCE, cis-1,2-DCE, and VC have been developed for the upper and lower portions of the A aquifer in order to evaluate VOC distribution in three dimensions. TCE was selected in the MEW ROD (EPA 1989) as an indicator chemical because it was assumed that by remediating TCE, the other COCs would be remediated simultaneously.

TCE plume maps for the upper and lower portions of the A aquifer are provided on Figures 2-6 and 2-7, respectively. TCE isoconcentration contours were generated by posting groundwater sample concentrations at each monitoring well and contouring them. The contours were then transferred into a geographic information system (GIS) to create the plume maps.

The TCE plume in the upper portion of the A aquifer is considered sufficiently defined for the purposes of capture zone analysis. Since 2008, the Navy added wells 14D26A, 14D36A, and 14D39A to the sampling program, which improved the resolution of the leading edge of the TCE plume within the upper portion of the A aquifer (Figure 2-6). Similarly, in 2008, the MEW companies added monitoring wells WT14-1, W14-3, W9-16, W89-2, W89-8, W89-9, and W89-5, which better define the areal extent of the two main lobes of the TCE plume within the upper portion of the A aquifer (Figure 2-6).

The TCE plume in the lower portion of the A aquifer is also considered sufficiently defined for the purposes of capture zone analysis. The additional sampling of monitoring wells W89-11, W89-12, W89-14, W9-25, W9-41, WU4-7, WU4-12, and WU4-13 starting in 2008 by MEW companies have better defined the areal extent of the TCE plume in the lower portion of the A aquifer (Figure 2-7). Portions of the leading edge of both the eastern and western lobes of the TCE plume are shown as inferred due to a lack of downgradient control.

Base-wide groundwater elevation data were collected in March and September of 2011. Groundwater elevations were gauged across IR Sites 26 and 28 in coordination with the Regional Groundwater Remediation Program (RGRP), including the Navy, MEW companies and NASA, so that all parties conduct gauging on the same day. Table 2-3 provides the Navy groundwater elevation data for IR Site 28 wells measured in 2011. These elevations were calculated by converting depth-to-water measurements to a common datum in feet above mean sea level (msl). Groundwater elevation data are used to create potentiometric surface maps (Step 3). Site hydrogeologic information (such as potentiometric surface maps, hydraulic gradient values, extraction well pumping rates, and water loss calculations) as well as current and historic water quality data are considered adequate to perform capture zone analysis.

Site Conceptual Model

IR Site 28 subsurface geology is fluvial and is characterized by anastomosing coarse-grained channels and discontinuous finer-grained interchannel and overbank deposits. The channels generally trend northwest to southeast becoming more northerly in the vicinity of WATS. The primary groundwater flow direction is to the north-northeast. Thicker more continuous channels of sands and gravels trending northwest to southeast exist to the south of WATS, extending south of U.S. Highway 101. The sand and gravel intervals are thin, and the clay and silt intervals become thicker near WATS.

Hydrostratigraphically, there are discontinuous sand and gravel channels and discontinuous clay layers surrounded by silty sands, sandy silts, and silts. A hydraulic connection exists between the upper and lower portions of the A aquifer. Locally, there is no continuous aquitard that separates these portions.

VOCs in the upper and lower portions of the A aquifer are migrating onto Moffett from south of U.S. Highway 101. VOCs from south of U.S. Highway 101 are commingled with PCE contamination from the Former Building 88 area (former Navy dry cleaning facility) (Tetra Tech EC, Inc. [TtEC] 2008a). The primary groundwater flow direction is to the north-northeast.

Environmental receptors for VOC contamination have not been identified. Contaminated groundwater does not reach any ecological receptors (TtEC 2008a). The A aquifer is not currently used as a drinking water source; however, the aquifer meets the Water Board's criteria for beneficial use designation.

Remedial Action Objectives

WATS is operated to maintain a capture zone adequate to create hydraulic control of impacted groundwater and to restore groundwater quality to the cleanup standards established by the MEW ROD (EPA 1989) and clarified in the September 1990 and the April 1996 ESDs (EPA 1990b and EPA 1996).

Step 2 – Define Site-Specific Target Capture Zone

The target capture zone is defined as a three-dimensional zone of groundwater that must be captured by the remedy extraction wells for the hydraulic containment portion of a remedy to be considered successful (EPA 2008). The target capture zone for the upper and lower portions of the A aquifer at IR Site 28 is established by the plume extent defined at the 5 µg/L TCE concentration for each portion of the aquifer. The TCE concentration of 5 µg/L is the final cleanup standard that the remedial activity must meet in the upper and lower portions of the A aquifer (EPA 1990b). The target capture zone provides a reference by which to compare the actual determined capture zones as determined by simple horizontal analysis (Step 4).

Step 3 – Interpret Water Levels

Hydrographs were prepared from the groundwater elevation data to aid in the evaluation of site-specific trends. The hydrographs are provided in Figures 2-8 through 2-52. Selections of groundwater monitoring wells for hydrograph preparation were based on the aquifer designation (upper portion of the A aquifer, lower portion of the A aquifer, and B2), monitoring well location (relation to plume and proximity to, or remoteness from, extraction wells), and period of record (1995 to present). Figures 2-8 through 2-29 were prepared using monitoring wells close to extraction wells. Figures 2-30 through 2-52 were prepared using monitoring wells remote from extraction wells. Seasonal groundwater elevation trends for 2011 appear consistent with the trends described in the annual reports from 2001 to 2010.

Before 2004, water level measurements were collected quarterly (February, May, August, and November). The lowest seasonal water levels were usually reported in the August measuring period. Beginning in 2004, water level measurements were collected semiannually in March and November. The semiannual water level measurement schedule was changed to March and September in 2011.

During the November 2005 reporting period, groundwater levels in many monitoring wells were lower than in previous reporting periods. Groundwater levels have generally fluctuated within historical bounds since that time and continue to exhibit seasonal fluctuations. The high and low groundwater elevations typically occur at the end of the wet season (March; high) and dry season (October; low) during base-wide groundwater monitoring events, respectively.

The hydrographs also show that groundwater elevations in monitoring wells near extraction wells completed in the upper and lower portions of the A aquifer have declined as a result of the WATS and RGRP groundwater extraction. The amount of groundwater elevation decline lessens with distance from the extraction wells (SES-TECH 2009). The declines in groundwater elevations in upper portion of the A aquifer monitoring well W9-43 (Figure 2-32), located near lower portion of the A aquifer extraction well EA2-3, indicate a hydraulic connection between the upper and lower portions of the A aquifer.

Hydrographs for the groundwater elevations in monitoring wells completed in the upper and lower portions of the A aquifer at a distance from the extraction wells also registered declines in groundwater elevations, though less pronounced than those located near extraction wells. These declines may be the result of a general lowering of the local potentiometric surfaces caused by the pumping of the extraction wells.

Potentiometric Surface Map

Potentiometric surface maps were prepared to evaluate flow directions and hydraulic gradients using groundwater elevation data collected during the March and September 2011 base-wide groundwater gauging events (Figures 2-53 through 2-56). Using pump test data from 2004, well loss values were calculated in 2011 for WATS extraction wells to adjust the extraction well water level elevation for well loss. The well loss calculations are summarized in Table 2-4. The corrected values for WATS extraction wells were used on the potentiometric surface maps, with the exception of extraction wells EA1-1 and EA1-2 (see Step 4 – Perform Appropriate Calculations). The potentiometric surface maps were computer generated using Surfer™ and the natural-neighbor gridding method. A California professional geologist reviewed the maps and subsequently adjusted the maps using best professional judgment and an understanding of the hydrogeology of the site. The groundwater flow direction in the upper and lower portions of the A aquifer is generally to the north-northeast. The groundwater gradient north of Hangar 1 in the upper and lower portions of the A aquifer ranged from approximately 0.002 to 0.005 foot per foot (ft/ft), and ranged from approximately 0.005 to 0.007 ft/ft south of Hangar 1, excluding extraction well cones of depression.

Extraction well EA2-3, located north of Hangar 1, was completed within the lower portion of the A aquifer in 2004 to increase capture along the eastern edge of the plumes. As observed from 2005 through 2011, additional groundwater extraction from well EA2-3 affected the potentiometric surface maps compared to previous years. The combined pumping of extraction wells EA2-2 and EA2-3 created larger areas of radial flow toward these wells. The area in the vicinity of monitoring wells 90A and W9-43, completed within the upper portion of the A aquifer, demonstrates a water-level response to extraction well pumping in the lower portion of the A aquifer (Figures 2-53 through 2-56). Groundwater monitoring wells 90A and W9-43, completed within the upper portion of the A aquifer, are located above lower portion of the A aquifer extraction wells EA2-2 and EA2-3, respectively. The response in groundwater levels in monitoring wells completed within the upper portion of the A aquifer, caused by extraction well pumping in the lower portion of the A aquifer provides further evidence that the two portions of the A aquifer are hydraulically connected.

Water Level Pairs

Individual well pairs were not evaluated because the location and distance of observation wells and pumping wells within the WATS capture zone are not conducive to this type of analysis. Horizontal influence, capture zones, and stagnation points are based on potentiometric surface map interpretation, which is discussed in the following section.

Step 4 – Perform Appropriate Calculations

Hydraulic control of the contaminant plumes is accomplished by the cumulative effect of capture zones from nine Navy extraction wells working together with RGRP extraction wells. The predominant component of groundwater flow at the site is in the horizontal direction and, even under pumping conditions in the upper A aquifer, remains mainly horizontal with an overall site gradient of 0.002 to 0.007 ft/ft in March 2011 and 0.004 to 0.007 ft/ft in September 2011.

The flow-net analysis method for capture zone estimation takes into consideration site-specific aquifer heterogeneities and hydraulic interference effects from other extraction wells. This information cannot be readily incorporated into a numerical analytical estimate of capture zones. For this reason, the flow-net analysis methodology and results are considered appropriate for hydrogeological conditions at Moffett. Flow budget and capture zone width calculations were not used in the capture zone analysis.

The flow-net analysis method of capture zone estimation includes selecting a stagnation point downgradient of the extraction well based on potentiometric surface map interpretation. The estimated capture zone is drawn by hand, starting at the stagnation point (zero gradient) and continuing in the upgradient direction, perpendicular to the groundwater elevation contours. A capture zone theoretically extends hydraulically upgradient of each functioning extraction well to the first-encountered groundwater flow divide. However, there are no obvious or universally identified hydraulic groundwater flow divides within the study area. Therefore, the capture zones are estimated to extend upgradient to the Moffett boundary.

The illustrated capture zones provided in Figures 2-57 through 2-60 are conservative because the groundwater elevations from the RGRP extraction wells have not been corrected for well loss. The elevations of the groundwater in the extraction wells are lower than what actually exists in the surrounding aquifers, due to frictional head loss in the extraction wells. Using these values would overestimate the drawdown and extent of capture zones. Pumping tests were performed on extraction wells EA1-2 through EA1-6 and EA2-1 through EA2-3 in 2004. The results of the pumping tests were used to calculate well loss at each extraction well (Table 2-4). The well loss was applied to these extraction wells to correct the groundwater elevations (Tetra Tech FW, Inc. [TtFW] 2005a). It is assumed that the calculated well losses remain relatively constant and, therefore, are useful in evaluating 2011 data and conditions. Consequently, these aforementioned corrected elevations were used to construct the potentiometric surface and capture zone maps, in accordance with published EPA guidance (EPA 2002). Extraction well EA1-1 does not pump at a rate sufficient to conduct a pumping test; therefore, a well loss was not calculated (TtFW 2005a).

A qualitative review of the site conceptual model and potentiometric contour figures also indicates that WATS produces conditions favorable for vertical hydraulic containment as exemplified by extraction wells EA2-2 and EA2-3. Extraction wells EA2-2 and EA2-3 are completed in the lower portion of the A aquifer but effective drawdown is recorded locally in wells completed in the upper portion of the A aquifer (Figures 2-57 and 2-59). No extraction occurred from wells EA1-1 and EA1-2 due to a pilot study beginning in August 2010 and continuing through 2011.

Step 5 – Evaluate Concentration Trends at Monitoring Wells

Historical data were compiled to evaluate TCE concentration trends in groundwater samples collected from monitoring wells near WATS. Monitoring wells were selected based on their proximity to King Road and the availability of analytical data.

Upper Portion of the A Aquifer

Groundwater monitoring wells W9-2, 14D12A, W9-10, and WU4-14 were selected for TCE concentration trend analysis because groundwater samples collected from these wells at the onset of groundwater monitoring in 1992 had the highest TCE concentrations of the sampled wells. These monitoring wells are placed within the demarcated IR Site 28 TCE plume (Figure 2-6 and 2-58).

Time series concentration plots for TCE in monitoring wells W9-2, 14D12A, W9-10, and WU4-14 are provided on Figures 2-61 through 2-64. Time series plots for groundwater samples collected from monitoring wells W9-2, 14D12A, and W9-10 illustrate a general decreasing TCE concentration trend since the start-up of WATS in 1998, where the TCE concentration trend for monitoring well WU4-14 shows a generally increasing, then decreasing, trend over this period. From mid-1992 through 2000, the time series concentration plot for monitoring well WU4-14 showed a decreasing TCE concentration trend; however, a reversal of this trend occurred in 2000, which could be attributed to the start-up of WATS in 1998 (Figure 2-64). These increasing TCE concentrations are likely due to the proximity of monitoring well WU4-14 to extraction well EA1-4 (Figure 2-6). The extraction well appears to be drawing water from a zone of relatively higher TCE concentration; however, TCE concentrations have decreased below 1,000 µg/L since 2008 and decreased markedly in 2010 and 2011. The zone of TCE with relatively high concentrations (greater than 100 µg/L) originates from the southern, off site border, and terminates in the vicinity of extraction wells EA1-4, EA1-5, and REG-6A (Figure 2-6).

In 2011, there was one relatively small area in the upper portion of the A aquifer in which TCE concentrations were highest (greater than 1,000 µg/L). This area is located in the main body of the contaminant plume and is associated with monitoring well W9-2, located south of Bushnell Road and east of McCord Avenue (Figure 2-6). Based on historical data, the relatively high TCE concentrations (greater than 100 µg/L) originated from beyond the southern site border. The time-series plot for groundwater samples collected from monitoring well W9-2 illustrates a long-term general decreasing trend in TCE concentrations since 2001 (Figure 2-61). This decreasing TCE trend in monitoring well W9-2 appears to be due to its proximity to extraction well EA1-3 and results from continuous and effective removal of contaminated groundwater by WATS (Figure 2-6). A similar area of historically high TCE concentrations centered on well WU4-3 was not apparent based on the 2011 data. TCE concentrations in WU4-3 have decreased by roughly an order of magnitude since monitoring began in 1992 (4,700 µg/L) to 2011 (240 µg/L), likely due to its proximity to extraction well REG-4A (Figure 2-6).

Figures 2-65 through 2-67 illustrate the time series TCE concentration trend downgradient of WATS. Historically, the downgradient edge of the TCE plume is located approximately 50 ft south (upgradient) of monitoring well 14D02A. The time series plot for groundwater samples collected from monitoring well 14D02A indicates concentrations of TCE similar to those reported since 1992, most of which were analyzed at or below the laboratory reporting limit of 0.5 µg/L. Monitoring well 14D28A (which was not sampled in 2011), also completed within the upper portion of the A aquifer and downgradient of WATS extraction wells (Figure 2-6). The time series concentration plot for groundwater samples collected from monitoring well 14D28A indicates a general decreasing trend in TCE concentrations from the WATS start-up in 1998 through late 2002, followed by fluctuating TCE concentrations until late 2004, and a subsequent stable TCE concentration trend through 2010. The time series plot for groundwater samples collected from monitoring well WU4-16 (Figure 2-67) indicates a decreasing TCE concentration trend falling below the TCE cleanup standard of 5 µg/L since late 2001. TCE concentrations within the upper portion of the A aquifer have decreased to below 1,000 µg/L along the leading edge of the plume.

TCE, cis-1,2-DCE, PCE, and VC trend analysis for groundwater samples collected from selected monitoring wells installed in the upper portion of the A aquifer throughout IR Site 28 is included in Section 2.4.1.

Lower Portion of the A Aquifer

Groundwater monitoring wells 154B1, W9-25, W29-7, and WU4-15, completed within the lower portion of the A aquifer, were selected for TCE concentration trend analysis because these monitoring wells are representative observation wells that are located within the 5 µg/L TCE plume boundary (Figure 2-7). Monitoring well W29-7 is located in a zone of reduced TCE concentration. However, it will still be used for trend analysis since it outside the 5 µg/L boundary of the plume (Figure 2-7). These monitoring wells are located downgradient of the WATS extraction wells but are within the estimated extraction well system capture zone (Figure 2-60).

Time series TCE plots for groundwater samples collected from monitoring wells 154B1, W9-25, W29-7, and WU4-15 are provided on Figures 2-68 through 2-71, respectively. Time series plots for groundwater samples collected from monitoring wells 154B1, W9-25, and W29-7 indicate decreasing TCE concentration trends. The time series TCE concentration plot for groundwater samples collected from monitoring well WU4-15 indicates a slight increasing trend from 5.7 µg/L in 1999 to 15 µg/L in 2011. This condition is likely due to the upgradient capture of higher TCE concentrations by extraction well REG-9B(1).

Groundwater monitoring wells 139B1, WNB-14, and WU4-19, completed within the lower portion of the A aquifer, are located along the leading edge of the TCE plume and downgradient of the WATS extraction wells (Figure 2-7). The downgradient edge of the TCE plume in 2011 is located about 100 feet upgradient from monitoring well 139B1 (Figure 2-7). Well WU4-19 is located within the lower portion of the A aquifer TCE plume, and well WNB-14 is located cross-gradient of the 5 µg/L boundary of the TCE plume in the lower portion of the A aquifer.

Time series TCE concentration plots for groundwater samples collected from monitoring wells 139B1, WNB-14, and WU4-19 are provided in Figures 2-72 through 2-74, respectively. Since 1992, the time series plot for groundwater samples collected from monitoring well 139B1 indicates consistent TCE concentrations that are below 1 µg/L. Time series plots for groundwater samples collected from monitoring well WNB-14 indicates an overall decrease in TCE since the start-up of WATS in mid-1998. TCE concentrations decreased from 3.9 µg/L in 2010 to 0.22 J µg/L in 2011 and continue to demonstrate an overall decreasing trend. The time series plot for groundwater samples collected from monitoring well WU4-19 indicate a stable, minor cycling of TCE concentrations since the start-up of WATS in mid-1998 through 2005. Although WU4-19 was not sampled in 2006 or 2007, sampling resumed in 2008 and TCE concentrations have shown a fluctuating but generally decreasing trend along the leading edge of the plume.

TCE, cis-1,2-DCE, PCE, and VC trend analysis for groundwater samples collected from selected monitoring wells completed within the lower portion of the A aquifer is included in Section 2.4.1.

Step 6 – Interpret Actual Capture

The extent of the TCE plume in the upper and lower portions of the A aquifer is considered sufficiently well defined (Step 1) throughout the target capture zone (Step 2). Potentiometric surface maps (Step 3) were used to develop capture zone maps (Step 4).

The efficiency of WATS and its resulting capture zones to ultimately achieve remedial objectives (Step 1) are demonstrated by the declining TCE concentration trends in groundwater samples collected from monitoring wells completed within the upper and lower portions of the A aquifer (Step 5 and Section 2.4.1.2). For the majority of monitoring wells, TCE concentration trends are asymptotic or decreasing in groundwater samples collected from monitoring wells completed within the upper and lower portions of the A aquifer wells and located downgradient of the WATS extraction wells. However, based on the sampling of additional monitoring wells by the Navy and MEW between 2008 and 2011, as well as additional monitoring wells sampled by NASA in 2008, it appears concentrations of TCE may extend beyond the historically considered leading edge of the plume. Furthermore, as long as there is contaminant flow from a continuing upgradient source (south of U.S. Highway 101) into IR Site 28 that is above the cleanup standards, the remedial objective to restore groundwater quality to cleanup standards cannot be achieved.

2.3.3 Hydraulic Gradient

The groundwater flow direction in the upper and lower portions of the A aquifer is generally to the north-northeast (Figures 2-53 through 2-56). A localized groundwater depression in the upper and lower portions of the A aquifer occurs immediately north of Hanger 1 (TtEC 2006). Hydraulic gradients are approximately 0.003 ft/ft for the upper portion of the A aquifer immediately north of the inflection and approximately 0.007 ft/ft south of the localized groundwater depression. The change in groundwater gradient appears related to natural conditions and is not a result of pumping from the extraction wells. The change in gradient reflects the same general change in slope of the surface topography that occurs north of Hangar 1. A decrease in gradient is indicative of the movement of groundwater from an area of lower transmissivity to an area of higher transmissivity. Transmissivity is a function of hydraulic conductivity and aquifer thickness. Therefore, the higher transmissivity area would either have a thicker or more contiguous aquifer and/or higher hydraulic conductivity. It is believed that the surficial geology changes in this general area are from flood basin to estuary deposits. This surficial geology would explain the change in gradient as floodplain deposits would be characterized by channels of limited areal extent that contain higher hydraulic conductivity sands and gravels surrounded by lower hydraulic conductivity silts and clays. Estuary deposits would have contiguous layers of sand that could have higher transmissivity.

Potentiometric surface maps of the upper and lower portions of the A aquifer for March and September 2010 (Figures 2-53 through 2-56) illustrate the effects from WATS and RGRP extraction wells on the direction of groundwater flow similar to those depicted in the annual reports from 1999 to 2003 (FWENC 2002, 2003a, 2003b; TtFW 2004a). However, beginning in 2004 (TtFW 2005b) and continuing throughout 2011, there is a notable change to the direction of groundwater flow in the upper and lower portions of the A aquifer in the vicinity of extraction wells EA2-2 and EA2-3. Extraction well EA2-3 was installed in January 2004. The combined pumping of extraction wells EA2-2 and EA2-3 has created larger areas of radial flow toward these wells. The area in the immediate vicinity of 90A and W9-43 completed within the upper portion of the A aquifer continues to indicate a water-level response to pumping of the lower portion of the A aquifer (Figures 2-53 and 2-54). The response in upper portion of the A aquifer wells to extracting water from the lower portion of the A aquifer is evidence of the interconnection of the two portions of the A aquifer.

2.4 Analytical Results

This section summarizes and evaluates the analytical results from the 2011 IR Site 28 annual sampling event. Contaminant groundwater plumes at IR Site 28 were evaluated to assess current conditions and changes that have taken place from previous years. TCE, cis-1,2-DCE, PCE, and VC were evaluated.

Analytical data for the 2011 IR Site 28 annual sampling event are provided in Table 2-5. Appendix C provides the chain-of-custody documentation, data validation packages, case narratives, and laboratory analytical summary sheets (on compact disc only). Quality assurance/quality control (QA/QC) evaluation of analytical data is presented in Appendix D.

This report incorporates analytical data supplied by the MEW companies and NASA in the evaluation of contaminant groundwater plumes at IR Site 28. Analytical data from the RGRP are not provided in tables but are shown on various figures. It has been assumed that the MEW and NASA analytical data are acceptable for use.

In 2008, monitoring wells 14D24A, 14D26A, 14D36A, and 14D39A were added to the Navy's annual sampling program, monitoring wells WT14-1, W14-3, W9-16, W89-2, W89-03A-R, W89-04A-R, W89-5, W89-8, W89-9, and W89-13B1-R were sampled by MEW, and extraction well NASA-2A and monitoring wells 11M17A, 11M21A, 11N21A, 11N22A, and 11N26A were sampled by NASA. Data collected from all of these wells improved the plume contouring and chemical data evaluation. The Navy and MEW continued sampling of their respective wells in 2011. However, in 2011 NASA 2A and 14D26A were removed from the sampling program because they provided data that were duplicative of nearby wells that are sampled (11N22A and 14D24A).

2.4.1 Chemical Data Evaluation and Trend Analysis in Upper and Lower Portion of A Aquifer

Analytical data for the 2011 IR Site 28 annual sampling event are provided in Table 2-5. Analytical data for TCE, cis-1,2-DCE, PCE, and VC are summarized in this section. TCE plume maps for the upper and lower portions of the A aquifer were discussed in Section 2.3.2. Upper and lower portions of the A aquifer plume maps for cis-1,2-DCE, PCE, and VC are provided in the following sections. VOC plume maps were developed using the method described in Section 2.3.2.

Historical groundwater analytical data for TCE, cis-1,2-DCE, PCE, and VC from 1992 through 2011 for samples collected from all IR Site 28 monitoring wells currently sampled by the Navy as part of the annual groundwater monitoring are provided in Table 2-6. A subset of these monitoring wells was selected to evaluate VOC concentration trends. Monitoring wells were selected according to the *Final West-Side Aquifers Treatment System Long-Term Groundwater Monitoring Plan* (TtFW 2004b). The list of wells was approved by the EPA. Time series graphs of VOC concentrations for actively monitored, listed wells are provided in Figures 2-75 through 2-110. Trend analysis and interpretation were based on a visual evaluation of the historical time series VOC concentration trend graphs.

2.4.1.1 TCE Evaluation

Upper Portion of the A Aquifer – TCE Plume

The regional TCE plume in the upper portion of the A aquifer extends downgradient (north) from south of U.S. Highway 101 (Figure 2-6). The regional plume has an axis that generally trends south to north, with two main lobes north of U.S. Highway 101: the eastern lobe through the WATS capture area and a smaller western lobe west of the WATS capture area. The plume is similar in shape and extent to the TCE plume maps prepared since 2003. However, monitoring wells added to the Navy and MEW sampling programs since 2008 have better defined the extent of each lobe.

Monitoring wells 14D36A and 14D39A have better defined the leading edge of the eastern lobe of the TCE plume. Analytical data collected from monitoring well 14D24A provided a potential connection to TCE concentrations detected in monitoring well 95A, indicating a separate plume downgradient of the WATS capture area (Figure 2-6). However, the lack of sampling results from many of the NASA wells in 2011 has limited the ability to contour TCE concentrations downgradient of WATS (Figure 2-6).

Monitoring wells WT14-1 and W14-3 have better defined the eastern edge of eastern lobe of the TCE plume. Monitoring wells W89-8 and W9-16 have better defined the area between the eastern and western lobes. Monitoring wells W89-2, W89-03A-R, W89-04A-R, W89-5, and W89-9 have better defined the western lobe. Additionally, TCE concentrations detected in W89-9 suggests that the areal extent along the leading edge of the western lobe have increased, where groundwater may be drawn eastward by extraction well REG-7A to connect with the eastern lobe (Figure 2-6). The eastern groundwater plume periphery has higher concentrations than the western periphery. TCE concentrations during 2011 in wells W89-1 and W89-2 suggested the reconnection of the southern portions of the eastern and western plume lobes, indicating increased upgradient migration of impacted groundwater from the MEW study area.

The highest TCE concentration in 2011 samples collected from groundwater monitoring wells installed in the upper portion of the A aquifer at IR Site 28 is from monitoring well W9-2. The reported TCE concentration in 2011 was 2,100 µg/L, which is within the historic range for this well. Monitoring well W9-2 is located approximately 750 ft west of Hangar 1.

Lower Portion of the A Aquifer – TCE Plume

The regional plume extends downgradient (north) from south of U.S. Highway 101. There are at least two main lobes north of U.S. Highway 101 (Figure 2-7): the eastern lobe through the WATS capture area and a western lobe west of the WATS capture area. The 2011 TCE plume in the lower portion of the A aquifer at IR Site 28 is similar in shape and extent to the TCE plume contoured in 2010 and is generally similar in shape and extent to the 2011 TCE plume in the overlying upper portion of the A aquifer.

However, monitoring wells added to the RGRP sampling program in 2008 have better defined the extent of each lobe.

Monitoring wells WU4-7 and W9-41 improved delineation of the interior of the eastern lobe of the TCE plume, whereas monitoring wells W89-13B1-R, W89-14, and WU4-13 have better defined the western lobe of the TCE plume. Similar to the Upper A aquifer, the eastern groundwater plume periphery has higher concentrations than the western. The low TCE concentrations reported from monitoring wells W89-11 and W89-12 suggest a separation between the eastern and western lobes of the TCE plume.

The highest TCE concentration in 2011 samples collected from groundwater monitoring wells installed in the lower portion of the A aquifer at IR Site 28 was from monitoring well W9-14 (4,000 µg/L), which is an increase in the TCE concentration reported in 2010 (1,900 J µg/L). In the lower portion of the A aquifer, the capture zone appears to encompass the VOC plumes except, potentially, for the TCE and cis-1,2-DCE plume areas furthest downgradient and near the southeast portion of Hangar 1.

2.4.1.2 TCE Trends

Historical TCE data are included in Table 2-6 and in time series concentration graphs (Figures 2-75 through 2-110).

Upper Portion of the A Aquifer – TCE Trends

The historical time series TCE concentration plots prepared for groundwater samples collected from 21 monitoring wells sampled in 2011 and completed within the upper portion of the A aquifer are provided in Figures 2-75 through 2-100. Concentrations of TCE were not detected in groundwater samples from 8 out of 21 monitoring wells. A decreasing trend of TCE concentrations was indicated in 13 out of 21 wells (Figures 2-75, 2-78, 2-80, 2-81, 2-82, 2-83, 2-86, 2-87, 2-88, 2-91, 2-92, 2-96, and 2-98). Stable TCE concentrations since at least the start of WATS operation were indicated in 7 out of 21 monitoring wells (Figures 2-76, 2-77, 2-84, 2-89, 2-90, 2-94, and 2-97). An increasing long-term trend of TCE concentrations was indicated in 1 out of 21 monitoring wells, with the exception of the 2010 and 2011 results, which showed short-term decreases (Figure 2-95).

Monitoring wells W9SC-7 (Figure 2-85), WU4-8 (Figure 2-93), WWR-1 (Figure 2-99), and WWR-2 (2-100), were not sampled during the sampling event conducted in September 2011. These wells were optimized out of the sampling program in early 2011 (ERS-JV 2011). Wells W9-18 and W9-42 were sampled as part of the treatability studies in June 2011 (Shaw 2012); however, they were inadvertently left off the sampling event conducted in September 2011. For this reason, data from W9-18 and W9-42 are not included as part of the plume delineation discussed in this report but are discussed in the Final Technical Memorandum (Shaw 2012). In samples collected during the treatability study in June 2011, TCE was undetected in well W9-18 and detected at a concentration of 4.7 µg/L in well W9-42.

Lower Portion of the A Aquifer – TCE Trends

The historical time series TCE concentration plots prepared for groundwater samples collected from nine monitoring wells completed within the lower portion of the A aquifer are provided in Figures 2-101 through 2-110. Monitoring well 80B1 (Figure 2-101) was not sampled in 2011. A decreasing trend of TCE concentrations was indicated in eight out of nine monitoring wells (Figures 2-102, 2-103, 2-104, 2-105, 2-106, 2-107, 2-108, and 2-109). An increasing long-term trend of TCE concentrations was indicated in monitoring well WU4-15 (Figure 2-110).

2.4.1.3 Cis-1,2-DCE Evaluation

Upper Portion of the A Aquifer – cis-1,2-DCE Plume

Similar to the TCE plume, the cis-1,2-DCE plume extends downgradient (north) from south of U.S. Highway 101. The regional plume has an axis that generally trends south to north with the plume centered over the WATS capture area (Figure 2-111). The 2011 cis-1,2-DCE plume in the upper portion of the A aquifer at IR Site 28 is similar in shape to the cis-1,2-DCE plume mapped in 2010. In addition, monitoring wells added to the Navy and RGRP sampling programs since 2008 have better defined the extent of the cis-1,2-DCE plume.

Monitoring wells 14D36A and 14D39A have better defined the leading edge of the cis-1,2-DCE plume. Analytical data collected from monitoring well 14D24A provided a potential connection to concentrations detected in monitoring well 95A, indicating a separate plume downgradient of the WATS capture area (Figure 2-111). This downgradient cis-1,2-DCE plume is similar in areal extent to the downgradient TCE plume discussed in Section 2.4.1.1.

Monitoring wells WT14-1 and W14-3 have better defined the eastern edge of the cis-1,2-DCE plume originating south of U.S. Highway 101. Monitoring wells W9-16, W89-2, W89-1, W89-03A-R, W89-04A-R, W89-5, W89-8, and W89-9 have better defined the southwestern portion of the cis-1,2-DCE plume (Figure 2-111).

The highest cis-1,2-DCE concentration in 2011 samples collected from groundwater monitoring wells installed in the upper portion of the A aquifer at IR Site 28 was from monitoring well WNX-2. The cis-1,2-DCE concentration reported from this well in September 2011 was 1,300 µg/L. This well is located in the same general area as monitoring well 28OW-17, which was sampled in 2010 and had the highest concentrations of cis-1,2-DCE within IR Site 28 between 2010.

Lower Portion of the A Aquifer – cis-1,2-DCE Plume

The shape and areal extent of the cis-1,2-DCE plume in the lower portion of the A aquifer is characterized by a generally south-to-north trending axis (Figure 2-112). A continuous lobe of groundwater containing cis-1,2-DCE greater than 100 µg/L extends from off-site to the south through the WATS treatment area. Monitoring wells added to the RGRP sampling program in 2008 have better defined the extent of the cis-1,2-DCE plume and support the elongated 100 µg/L cis-1,2-DCE isoconcentration contour originating off-site from the south.

Monitoring wells W89-11, W89-12, W89-13B1-R, W89-14, WU4-12, and WU4-13 have better defined the western portion of the cis-1,2-DCE plume (Figure 2-112).

The highest cis-1,2-DCE concentration in wells installed in the lower portion of the A aquifer was from well W9-8 (2,400 µg/L). This concentration was consistent with historical cis-1,2-DCE data from this well. In the lower portion of the A aquifer, the capture zone appears to encompass the VOC plumes except, potentially, for the TCE and cis-1,2-DCE plume areas furthest downgradient and near the southeast portion of Hangar 1.

The 28OW wells were sampled in June 2011, however, these data are not included in the data set discussed in this report. Additionally, the June 2011 data for these wells were not used in the evaluation or delineation of the plumes reported in this document. Data from the September 2011 monitoring event were used for plume delineation. These data are presented and discussed in Shaw's 2012 Technical Memorandum.

2.4.1.4 Cis-1,2-DCE Trends

Historical cis-1,2-DCE data are included in Table 2-6 and on time series graphs (Figures 2-75 through 2-110).

Upper Portion of the A Aquifer – cis-1,2-DCE Trends

The historical time series graphs for cis-1,2-DCE concentrations in 21 monitoring wells completed within the upper portion of the A aquifer are provided in Figures 2-75 through 2-100. A decreasing trend of cis-1,2-DCE concentrations was indicated in 4 out of 21 monitoring wells (Figures 2-75, 2-88, 2-91, and 2-96). Stable cis-1,2-DCE concentrations since at least the start of WATS operation were indicated in 15 out of 21 monitoring wells (Figures 2-76, 2-78, 2-80, 2-81, 2-82, 2-83, 2-84, 2-86, 2-87, 2-89, 2-90, 2-92, 2-94, 2-95, and 2-98). An increasing long-term trend of cis-1,2-DCE concentrations was indicated in 2 out of 21 monitoring wells (W9-2 and WU4-21) from the upper portion of the A aquifer (Figures 2-77 and 2-97). Well WU4-21 is located on the eastern edge of the plume and had relatively low concentrations of cis-1,2-DCE (18 µg/L).

Monitoring wells W9SC-7 (Figure 2-85), WU4-8 (Figure 2-93), WWR-1 (Figure 2-99), and WWR-2 (2-100), were not sampled during the sampling event conducted in September 2011. These wells were optimized out of the sampling program in early 2011 (ERS-JV 2011). Wells W9-18 and W9-42 were sampled as part of the treatability studies in June 2011 (Shaw 2012); however, they were inadvertently left off the sampling event conducted in September 2011. For this reason, data from W9-18 and W9-42 are not included as part of the plume delineation discussed in this report but are discussed in the Final Technical Memorandum (Shaw 2012). In samples collected during the treatability study in June 2011, cis-1,2-DCE was detected at concentrations of 6.8 µg/L and 84 µg/L in wells W9-18 and W9-42, respectively.

Lower Portion of the A Aquifer – cis-1,2-DCE Trends

The historical time series plots for cis-1,2-DCE concentrations of groundwater samples collected from 9 monitoring wells completed within the lower portion of the A aquifer are provided in Figures 2-101 through 2-110. Monitoring well 80B1 (Figure 2-101) was not sampled in 2011. A decreasing trend of cis-1,2-DCE concentrations was indicated in two out of nine monitoring wells completed within the lower portion of the A aquifer (Figures 2-102 and 2-108). Stable cis-1,2-DCE concentrations since at least the start of WATS operation were indicated in three out of nine monitoring wells (Figures 2-105, 2-106, and 2-107). An increasing long-term trend of cis-1,2-DCE concentrations was indicated in four out of nine monitoring wells (Figures 2-103, 2-104, 2-109, and 2-110).

2.4.1.5 PCE Evaluation

Upper Portion of the A Aquifer – PCE Plume

The Moffett PCE plume is located southwest of Hangar 1 and is limited in extent compared to other VOCs in groundwater. The PCE plume in the upper portion of the A aquifer trends in a north-south direction and is similar in shape and extent to the 2010 PCE plume. 28OW wells were sampled in June

2011 and the results are not included in this report but rather, are discussed in Shaw's 2012 Treatability Technical Memorandum. The highest PCE concentration was reported in extraction well EA1-1 at 290 µg/L in 2011, which was lower than the 2010 value of 550 µg/L.

PCE concentrations detected in a sample collected from monitoring well 72A (3.0 µg/L) in 2011 indicate PCE near Highway 101 and Ellis Street in the southeastern corner of the base (Figure 2-113). Concentrations have decreased from 5.4 µg/L, in 2008, to below the cleanup standard for PCE. Analytical data for this monitoring well from 2004 (7.9 µg/L) to the present indicate a decreasing trend (Weiss 2009).

Lower Portion of the A Aquifer – PCE Plume

The elongated shape of the 2011 PCE plume above 5 µg/L in the lower portion of the A aquifer is similar in shape and extent to 2010 although its length is shorter due to a lower PCE reporting limit achieved for well W29-7.

The highest PCE concentration in the September 2011 samples collected from groundwater monitoring wells completed in the lower portion of the A aquifer at IR Site 28 was from well W9-20 (340 µg/L). This concentration is lower than the maximum PCE concentration reported in 2010 (10,000 µg/L for 28OW-23). Well 28OW-23 was sampled in June 2011 as part of the Treatability Study but the results are not included as part of the plume delineation discussed in this report.

2.4.1.6 PCE Trends

Historical PCE data are included in Table 2-6 and for select wells on time series graphs (Figures 2-75 through 2-110).

Upper Portion of the A Aquifer – PCE Trends

Historical time series PCE concentration plots prepared for groundwater samples collected from 21 monitoring wells completed within the upper portion of the A aquifer are provided on Figures 2-75 through 2-100. Seven of these monitoring wells, W9SC-1, W9-31, W9-37, W9-45, W9SC-14, W29-4, and WIC-1, are located within 100 feet of the PCE plume footprint and have historically been used for long-term evaluation of concentration trends for the upper portion of the A aquifer (Figure 2-113).

A decreasing trend of PCE concentrations was indicated in one out of the seven evaluated monitoring wells completed in the upper portion of the A aquifer (Figures 2-92). An increasing trend of PCE concentrations were indicated in six out of the seven evaluated monitoring wells (Figures 2-81, 2-82, 2-83, 2-84, 2-87 and 2-90).

Monitoring wells W9SC-7 (Figure 2-85), WU4-8 (Figure 2-93), WWR-1 (Figure 2-99), and WWR-2 (2-100), were not sampled during the sampling event conducted in September 2011. These wells were optimized out of the sampling program in early 2011 (ERS-JV 2011). Wells W9-18 and W9-42 were sampled as part of the treatability studies in June 2011 (Shaw 2012); however, they were inadvertently left off the sampling event conducted in September 2011. For this reason, data from W9-18 and W9-42 are not included as part of the plume delineation discussed in this report. In samples collected during the treatability study in June 2011, PCE was undetected in well W9-18 and detected at concentration of 8.4 µg/L in well W9-42.

Lower Portion of the A Aquifer – PCE Trends

Historical time series PCE concentration plots prepared for groundwater samples collected from nine monitoring wells completed within the lower portion of the A aquifer are provided in Figures 2-101 through 2-110. Three monitoring wells, W9-14, W9-20, and W9-21, are located in or within 100 feet of the PCE plume footprint that are also used for long-term evaluation of concentration trends for the lower portion of the A aquifer (Figure 2-114). Monitoring well 80B1 (Figure 2-101) was not sampled in 2011. Stable PCE concentrations were indicated in two of the three monitoring wells (Figures 2-102 and 2-104). Increasing PCE concentrations were indicated in W9-14 (Figure 2-103).

2.4.1.7 VC Evaluation

Upper Portion of the A Aquifer - VC Plume

The areal extent of VC detected in wells completed within the upper portion of the A aquifer is illustrated in Figure 2-115. A portion of the VC plume appears to originate near the Former Building 88 area, and the plume extends to the north. 28OW wells were sampled in June 2011; however, they are not included in the data set discussed in this report. These data are discussed in Shaw's 2012 Technical Memorandum.

The sample collected from well W89-2, located near the southern site border, had a VC concentration of 2.8 µg/L, which is lower than the 2010 value of 11 µg/L. VC concentrations detected in well W89-2 are likely associated with a plume originating south of U.S. Highway 101 (Figure 2-115).

The highest VC concentration in groundwater samples collected from groundwater monitoring wells installed in the upper portion of the A aquifer at IR Site 28 in 2011 is in the sample from monitoring well W9-37, located downgradient of Former Building 88. The reported VC concentration in 2011 was 750 µg/L in the sample from well W9-37. This concentration is an increase from the 2010 concentration for this well (410 µg/L J). Previously, the highest VC concentration in the upper portion of the A aquifer was 5,800 µg/L, which was reported in well W9-18 during the June 2010 sampling to support the treatability study. In June 2011, the VC concentration in W9-18 decreased to 15 µg/L. This sample was collected in conjunction with the treatability study (Shaw 2012), and was not used in the plume delineation discussed in this report.

Lower Portion of the A Aquifer – VC Plume

The 2011 VC plume in the lower portion of the A aquifer is similar in shape and areal extent relative to the plume reported in 2010 in the northern portion of the site. The aerial extent and concentration of VC in the southern portion decreased significantly in 2011 from 2010 due to lower concentrations in wells 68B1, W14-5, W89-11, and W89-12. The concentrations in the south of the site are likely associated with a plume originating south of U.S. Highway 101 (Figure 2-116).

The highest VC concentration in 2011 samples collected from groundwater monitoring wells was from well W29-7 (510 µg/L). This is lower than the highest concentration in 2010 from monitoring well 28OW-4 (7,700 µg/L). 28OW wells were sampled in June 2011 as part of the treatability study; however, they are not included in the data set discussed in this report. These data are discussed in Shaw's 2012 Technical Memorandum.

2.4.1.8 VC Trends

Historical VC data are included in Table 2-6 and on time series graphs (Figures 2-75 through 2-110).

Upper Portion of the A Aquifer – VC Trends

The historical VC time series concentration graphs prepared for groundwater samples collected from 21 monitoring wells completed within the upper portion of the A aquifer are provided in Figures 2-75 through 2-100. Monitoring wells W9-18 (Figure 2-79), W9SC-7 (Figure 2-85), WU4-8 (Figure 2-93), WWR-1 (Figure 2-99), and WWR-2 (2-100), were not sampled in 2011. A decreasing trend of VC concentrations was indicated in 1 out of 21 monitoring wells evaluated within the upper portion of the A aquifer (Figure 2-75). Stable VC concentrations since the start of WATS operation were indicated in 11 out of 21 monitoring wells evaluated within the upper portion of the A aquifer (Figures 2-77, 2-78, 2-81, 2-84, 2-86, 2-88, 2-90, 2-94, 2-95, 2-96, and 2-98). An increasing long-term trend of VC concentrations was indicated in 9 out of 21 monitoring wells within the upper portion of the A aquifer (Figures 2-76, 2-80, 2-82, 2-83, 2-87, 2-89, 2-91, 2-92, and 2-97). The increasing long-term VC concentration may be the result of TCE and PCE degradation. All of the monitoring wells with increasing VC concentrations also have stable or decreasing TCE and PCE concentrations since the start of WATS operation.

Monitoring wells W9SC-7 (Figure 2-85), WU4-8 (Figure 2-93), WWR-1 (Figure 2-99), and WWR-2 (2-100), were not sampled during the sampling event conducted in September 2011. These wells were optimized out of the Sampling Program in early 2011 (ERS-JV 2011). However, W9-18 and W9-42 were sampled as part of the treatability studies in June 2011 (Shaw 2012). Data from W9-18 and W9-42 are not included as part of the plume delineation discussed in this report.

Lower Portion of the A Aquifer – VC Trends

The historical VC time series concentration plots prepared for groundwater samples collected from 9 monitoring wells completed within the lower portion of the A aquifer are provided in Figures 2-101 through 2-110. A decreasing trend of VC concentrations was indicated in one out of nine monitoring wells evaluated within the lower portion of the A aquifer (Figure 2-108). Stable VC concentrations were indicated in three out of nine monitoring wells (Figures 2-102, 2-105, and 2-109). An increasing long-term trend of VC concentrations was indicated in five out of nine monitoring wells evaluated within the lower portion of the A aquifer (Figures 2-103, 2-104, 2-106, 2-107, and 2-110). The increasing VC concentrations may be due to TCE and PCE degradation.

2.4.2 Chemical Data Evaluation in B2

In 2011, groundwater samples were collected from five monitoring wells completed in the B2 aquifer (45B2, W88-1, W9-12, W9-15, and W9-40). Analytical data for the 2011 WATS annual sampling event are provided in Table 2-5. Analytical data for TCE, cis-1,2-DCE, PCE, and VC are summarized in this section. Historical groundwater analytical data for TCE, cis-1,2-DCE, PCE, and VC from 1992 through 2011 for samples collected from B2 aquifer monitoring wells currently sampled by the Navy are provided in Table 2-6.

TCE was detected in samples from monitoring wells 45B2, W88-1, W9-12, and W9-40 at concentrations of 0.13 J μg/L, 3,600 μg/L, 0.24 J μg/L, 0.28 J μg/L, respectively. Cis-1,2-DCE was detected in samples from monitoring wells W88-1 and W9-40 at concentration of 6,600 μg/L and 0.26 J μg/L . PCE was detected in the sample from monitoring well W88-1 at a concentration of 1,300 μg/L. VC was detected in samples from monitoring wells W88-1 and W9-40 at concentrations of 450 μg/L and 7.2 μg/L, which are above the respective ROD cleanup standards for VC. The reported concentrations of TCE, cis-1,2-DCE, PCE, and VC from W88-1 were higher than reported in 2009 and 2010 and exceeded the respective ROD cleanup standards. The detected VOC concentration in monitoring well W9-40 was above ROD standards and remained consistent with historical results from that well. All results from W9-12 were below ROD cleanup standards.

No concentrations of TCE, cis-1,2-DCE, PCE, or VC were detected in samples collected from monitoring wells W9-15. These results are consistent with historical results.

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3.0 EAST-SIDE AQUIFER TREATMENT SYSTEM

This section provides a description of EATS and an evaluation of 2011 groundwater elevation and annual groundwater chemical analytical results. EATS was taken off-line in July 2003 as part of implementing the *Final East-Side Aquifer Treatment System Evaluation Work Plan* (FWENC 2003b). The work plan was implemented to evaluate plume stability, COC rebound, natural attenuation, and the efficiency of HRC® in remediating plume hot spots. HRC® was injected into the subsurface in two areas of IR Site 26; between wells W43-2 and EXW-1 and just upgradient of WU5-14 and WU5-15, in early 2005. The *Final Site 26, East-Side Aquifer Treatment System Evaluation Report* details the results of this work plan (TtEC 2008b) and the *Final Site 26 Technical Memorandum (Optimization Evaluation)* evaluates additional remedial technologies (TtEC 2008c). As recommended in the Optimization Evaluation, a work plan was developed to field test two technologies at IR Site 26. The *Final Work Plan Abiotic/Biotic Treatment and Phytoremediation Treatability Study* (Shaw 2009) was submitted in April 2009 and details the implementation of combined abiotic/biotic treatment using EHC®. The treatability study commenced in May 2009 and was completed in October 2011 (Shaw 2011a).

EATS remained off-line through the 2011 reporting period. Therefore, EATS extraction treatment system operations and maintenance and hydraulic control/capture zone analyses are not included in this report.

3.1 SYSTEM DESCRIPTION AND PERFORMANCE

EATS began operating on January 26, 1999. EATS consists of five extraction wells piped to a treatment system located north of Hangar 3. All of the extraction wells (EXW-1 through EXW-5) are completed in the upper portion of the A aquifer. Upper portion of the A aquifer EATS area extraction and monitoring wells are shown on Figure 3-1. Contaminated groundwater was pumped from the extraction wells and treated to remove contaminants before being discharged to the Moffett storm drain system. EATS consists of two major unit operations designed to remove influent VOCs from groundwater: an air stripper and liquid-phase GAC unit in series.

EATS operated from January 1999 until July 2003. During that time, EATS processed 67,050,786 gallons of extracted groundwater and removed approximately 23.65 pounds of VOCs.

3.2 GROUNDWATER ELEVATION DATA

Base-wide groundwater elevation data were collected in March and September 2011. Groundwater elevation gauging is coordinated with MEW companies and NASA so that all gauging is conducted on a single day. Table 3-1 provides the Navy groundwater elevation data for IR Site 26 wells measured in 2011. These elevations were calculated by converting depth to water measurements to a common datum in feet above msl.

Hydrographs were prepared from the groundwater elevation data to aid in the evaluation of site-specific trends. The hydrographs are provided on Figures 3-2 through 3-17. Selections of monitoring wells for hydrograph presentation were based on the methodology described in Section 2.3.2, Step 3. Seasonal groundwater elevation trends for 2011 appear consistent with the trends described in previous reports (FWENC 2002, 2003a; TtFW 2004a, 2005a, 2005b; TtEC 2006; T N & Associates, Inc. [TN&A] 2007, 2008; SES-TECH 2009; ESE-TECH 2010; and ERS-JV 2011) showing an annual wet and dry season.

Historically, the groundwater levels in monitoring wells completed in the upper portion of the A aquifer have not shown a well-defined response when EATS was pumping (TtEC 2006). Similarly, groundwater levels in the lower portion of the A aquifer and B2 aquifer zone have not shown a response to pumping of the upper portion of the A aquifer extraction wells. Groundwater levels in most of the wells completed in the upper and lower portions of the A aquifer and B2 aquifer zone appear to have remained generally stable or increased slightly since EATS was taken off-line on July 2, 2003 (Figures 3-2 through 3-17). In 2011, groundwater levels were slightly higher than previous years during the wet season, though generally within the historical range for most wells.

Groundwater elevations generally appear to fluctuate with precipitation levels. Most groundwater elevations in monitoring wells continue to exhibit seasonal fluctuations. The highest groundwater elevations typically occur at the end of the wet season (March). The lowest groundwater elevations typically occur at the end of the dry season/beginning of the wet season (September).

Potentiometric Surface Map

Potentiometric surface maps (Figures 3-18 and 3-19) were prepared to evaluate flow directions and hydraulic gradients in the upper portion of the A aquifer. Potentiometric surface maps were generated using groundwater elevation data collected during the March and September base-wide groundwater gauging events by the same method described in Section 2.3.2, Step 3.

Because EATS remained off-line during 2011, the direction of groundwater flow in the upper portion of the A aquifer at IR Site 26 was influenced by the groundwater depression associated with pumping at Building 191 and its associated network of ditches and drains (Figures 3-18 and 3-19). The direction of groundwater flow in the southern portion of the area is toward the north; in the northern portion of the area, groundwater flow is north-northwest, toward the groundwater depression in the vicinity of Building 191.

North of the intersection of Marriage Road and Macon Road, the hydraulic gradient was approximately 0.003 ft/ft in March 2011 and 0.002 ft/ft in September 2011. South of the intersection, the gradient was approximately 0.003 ft/ft in March 2011 and 0.003 ft/ft in September 2011. The hydraulic gradient in the upper portion of the A aquifer generally decreased from south to north, similar to the hydraulic gradient at IR Site 28. A decrease in gradient is indicative of the movement of groundwater from an area of lower transmissivity to an area of higher transmissivity. Transmissivity is a function of hydraulic conductivity and aquifer thickness. Therefore, the higher transmissivity area would either have a thicker or more contiguous aquifer and/or higher hydraulic conductivity. It is believed that the surficial geology changes in this general area from flood basin to estuary deposits. This surficial geology would explain the change in gradient as flood plain deposits would be characterized by channels of limited areal extent that contain higher hydraulic conductivity sands and gravels surrounded by lower hydraulic conductivity silts and clays. Estuary deposits would have contiguous layers of sand that could have higher transmissivity.

3.3 Analytical Results

Groundwater monitoring of both the northern and southern plumes occurred during 2011. Analytical results are summarized in this section.

The 2011 groundwater concentrations for IR Site 26 (southern plume) COCs were evaluated against the cleanup standards in the OU5 ROD (Navy 1996). The COCs for IR Site 26, as specified in the OU5 ROD

(Navy 1996), are TCE, 1,2-DCE, PCE, VC, 1,1-DCE, and 1,2-DCA. 1,2-DCE is composed of two isomers: cis-1,2-DCE and trans-1,2-dichloroethene (trans-1,2-DCE), which are reported separately by the laboratory. The vast majority of 1,2-DCE at EATS is made up of cis-1,2-DCE. Thus, the evaluation in this report focuses on cis-1,2-DCE.

A treatability study was performed in the area of IR Site 26 around EXW-1 and WU5-24 (Shaw 2011a). As part of this treatability study, five observation wells were installed in the immediate vicinity. The wells were screened at different depth intervals with the deepest screen interval from 28 to 38 feet bgs. These wells and two others (WU5-24 and EXW-1) were sampled four times in 2009, three times in 2010, and four times in 2011. The material injected as part of the treatability study has significantly reduced concentrations of TCE and PCE in the study area. However, VC and cis-1,2-DCE concentrations have been increasing in some of the observation wells as a result of the injections.

3.3.1 Chemical Data Evaluation and Trend Analysis (Southern Plume)

Analytical data for the 2011 IR Site 26 annual sampling event are presented in Table 3-2. Appendix C provides the chain-of-custody documentation, data validation packages, case narratives, and laboratory analytical summary sheets (on compact disc only). A QA/QC evaluation of the analytical data is presented in Appendix D.

TCE within the upper portion of the A aquifer has been historically depicted as two distinct plumes: a southern and a northern plume. The southern plume originates near the northeast corner of Hangar 3 and extends approximately 700 feet north of the intersection of Macon Road and Marriage Road. This plume includes two areas with TCE above the ROD cleanup standard (Figure 3-30). The northern plume is located near the northern end of Zook Road. However, TCE concentrations in the northern plume decreased to below the 5 μg/L cleanup standard in 2008 and have not been contoured on Figure 3-30. For the EATS southern plume area, analytical data for each COC are summarized below. Northern plume data are summarized in Section 3.3.2.

Available historical analytical data for TCE, cis-1,2-DCE, PCE, and VC from 1992 through 2011 for IR Site 26 area wells currently sampled by the Navy are presented in Table 3-3. Groundwater monitoring wells were selected to evaluate VOC concentration trends at IR Site 26, as described in Section 2.4.1. The list of 10 wells was approved by the EPA. Time series graphs of VOC concentration for the select wells are presented in Figures 3-20 through 3-29. Nine of these wells are located in the southern plume and one is in the northern plume. Trend analysis and interpretation were based on a visual inspection of the nine southern plume historical concentration trend graphs.

3.3.1.1 TCE Evaluation

The general location of the southern TCE plume area in the upper portion of the A aquifer had remained approximately the same from 1998, the baseline year, to 2008. However, in 2009 and 2010, concentrations decreased significantly around extraction well EXW-1 and was likely due to the treatability study (Shaw 2011a). In 2011 VOC concentrations remained stable. It appears that the southern plume may no longer be contiguous downgradient between the northeast corner of Hangar 3 to the intersection of Marriage Road and Macon Road. Although the EATS extraction wells have been off-line since July 2003, the general shape and location of the plume in 2011 appears to have decreased in areal extent and/or is stable when compared to the 2005 through 2008 depictions (TtFW 2005b; TN&A 2007, 2008; and SES-TECH 2009).

In 2011, the highest concentration of TCE in the upper portion of the A aquifer was reported as 24 μg/L in the groundwater sample collected from monitoring well W43-2. The highest TCE concentration reported in 2010 was 24 J μg/L, which was also collected from well W43-2. TCE concentrations reported in groundwater samples collected in 2011 were generally consistent with those from 2010.

The four groundwater monitoring wells completed in the lower portion of the A aquifer that were sampled in 2011 are W6-2, WU5-11, WU5-12, and WU5-13. TCE was not reported in all four wells. TCE will continue to be monitored to evaluate the long-term trend in the lower portion of the A aquifer and to follow up on TCE reported in WU5-13 at 1.1 μg/L in 2010.

3.3.1.2 TCE Trends

Historical TCE data are included in Table 3-3. The historical time series TCE concentration plots prepared for groundwater samples collected from southern plume monitoring wells completed in the upper portion of the A aquifer are provided in Figures 3-20 through 3-29. A decreasing trend of TCE concentrations was indicated in 5 out of 10 wells (Figures 3-20, 3-21, 3-24, 3-25, and 3-27). Stable TCE concentrations were indicated in 5 out of 10 monitoring wells (Figure 3-22, 3-23, 3-26, 3-28, and 3-29). These long-term trends are consistent with previous interpretations (TtFW 2004a, 2005a, 2005b; FWENC 2002, 2003a; TtEC 2006; TN&A 2007, 2008; and SES-TECH 2011). The EATS TCE plume has remained stable and decreased in areal extent since July 2003 when EATS was taken off-line.

TCE was not detected in the lower portion of the A aquifer and historically, TCE analytical results for the lower portion of the A aquifer have been consistently below the 5 μg/L cleanup standard. Therefore, the groundwater cleanup standard for TCE has not been exceeded for the lower portion of the A aquifer.

3.3.1.3 Cis-1,2-DCE Evaluation

The shape and location of the upper portion of the A aquifer cis-1,2-DCE plume areas have remained relatively stable compared to the 2010 plume. One portion of the cis-1,2-DCE plume is adjacent to the intersection of Marriage Road and Macon Road and extends between extraction wells EXW-4 and WU5-25 (Figure 3-31). Another portion of the plume is near the northeastern corner of Hangar 3, in the area of extraction well EXW-1. This portion of the plume has decreased in areal extent and is likely due to the treatability study (Shaw 2011a). There is also a small plume near extraction well EXW-2.

In 2011, the highest concentration of cis-1,2-DCE in the upper portion of the A aquifer was reported as 26 μg/L in groundwater samples collected from monitoring wells WU5-2. This is consistent with the concentration of cis-1,2,-DCE of 21 μg/L in 2010 and 31 μg/L in 2011. Cis-1,2-DCE concentrations reported in groundwater samples collected in 2011 were generally consistent with those from 2010.

Of the four lower A aquifer wells sampled in 2011, cis-1,2-DCE was not reported. Cis-1,2-DCE will continue to be monitored to evaluate the long-term trend in the lower portion of the A aquifer.

3.3.1.4 Cis-1,2-DCE Trends

Historical cis-1,2-DCE data are included in Table 3-3 and on time series concentration graphs (Figures 3-20 through 3-29).

Visual inspection of historical concentration graphs for 4 out of 10 evaluated southern plume monitoring wells show a long-term trend of decreasing cis-1,2-DCE concentrations to below the 6 µg/L cleanup standard or to non-detect levels in the upper portion of the A aquifer (Figures 3-20, 3-22, 3-24, and 3-29). A stable trend of cis-1,2-DCE concentrations was indicated in 5 of 10 wells (Figures 3-21, 3-23, 3-25, 3-26, and 3-28). An increasing trend of cis-1,2-DCE concentrations was indicated in one well (Figure3-27); however, the concentration is still below the 6 µg/L cleanup standard.

Cis-1,2-DCE was not detected in the lower portion of the A aquifer in 2011, and except for monitoring well WU5-13 in 2010, all analytical results historically for the lower portion of the A aquifer have been consistently below the 6 µg/L cleanup standard. The concentration of cis-1,2-DCE reported for the 2010 groundwater sample from WU5-13 was only the third detectable result for cis-1,2-DCE for this well and the only exceedance of the ROD cleanup standard.

3.3.1.5 PCE Evaluation

The shape and location of the 2011 PCE plume remained relatively stable compared to the 2010 plume and is likely due to the treatability study (Shaw 2011a). The extent of PCE at concentrations greater than the cleanup standard of 5 µg/L is limited to the northeast corner of Hangar 3 near extraction well EXW-1 (Figure 3-32).

In 2011, the highest concentration of PCE in the upper portion of the A aquifer was reported as 50 µg/L in the groundwater sample collected from monitoring well W43-2. PCE concentrations reported in groundwater samples collected in 2011 were generally consistent with those from 2010 (52 µg/L). This well is located upgradient of the TS and was not effected by the application of EHC®.

PCE was detected in the groundwater sample from WU5-11 at a trace concentration of 0.19 J but was not detected at or above the laboratory reporting limit (0.5 to 1.0 µg/L) in samples from the other three monitoring wells completed in the lower portion of the A aquifer. These results are consistent with historical data.

3.3.1.6 PCE Trends

Historical PCE data are included in Table 3-3 and on time series concentration graphs (Figures 3-20 through 3-29).

Samples collected from 3 of the 10 evaluated southern plume monitoring wells show a long-term trend of decreasing PCE concentrations to below the 5 µg/L cleanup standard or to non-detect levels in the upper portion of the A aquifer (Figures 3-22, 3-23, and 3-24). Samples collected from 6 of the 10 monitoring wells show a long term trend of stable PCE concentrations (Figure 3-20, 3-25, 3-26, 3-27, 3-28, and 3-29). These long-term trends are consistent with previous interpretations (TtFW 2004a, 2005a, 2005b; FWENC 2002, 2003a; TtEC 2006; TN&A 2007, 2008; SES-TECH 2009, SES-TECH 2010, and ERS-JV 2011b). The EATS PCE plume has decreased in areal extent since July 2003 when EATS was taken off-line.

All PCE analytical results for the lower portion of the A aquifer have been consistently below the 5 µg/L cleanup standard. Therefore, the groundwater cleanup standard for PCE has not been exceeded for the lower portion of the A aquifer.

3.3.1.7 VC Evaluation

The shape and location of the 2011 VC plume remained relatively stable compared to the 2010 plume. The extent of VC in the upper portion of the A aquifer at concentrations greater than the cleanup standard of 0.5 µg/L is shown on Figure 3-33.

In 2011, the highest concentration of VC in the upper portion of the A aquifer was reported as 14 µg/L in the groundwater sample collected from monitoring well W4-14. VC concentrations reported in groundwater samples collected in 2011 were generally similar to or lower than those from 2010.

Of the four lower A aquifer wells sampled in 2011, VC was not detected in any of the wells. In 2010, the groundwater sample from WU5-13 contained a VC concentration of 0.67 µg/L which was the only time that this well exceeded the VC cleanup standard of 0.5 µg/L. VC will continue to be monitored to evaluate the long-term trend in the lower portion of the A aquifer.

3.3.1.8 VC Trends

Historical VC data are included in Table 3-3 and on time series concentration graphs (Figures 3-20 through 3-29).

Visual inspection of historical concentration graphs for 3 out of 10 evaluated southern plume monitoring wells show a long-term trend of decreasing VC concentrations in the upper portion of the A aquifer since operation of EATS (Figures 3-20, 3-24, and 3-29). Groundwater samples from 4 of the 10 monitoring wells showed a long-term of trend of generally stable VC concentrations (Figures 3-22, 3-25, 3-26, and 3-28). Groundwater samples from 3 of the 10 monitoring wells showed a long-term of trend of increasing VC concentrations (Figures 3-21, 3-23, and 3-27). VC concentrations from these same wells exhibit a decreasing trend in concentrations. This decrease and stability in TCE, along with an increase in VC, appear to be a result of continued dechlorination effects associated with the pilot studies in the EATS area.

VC concentrations reported from monitoring wells in the lower portion of the A aquifer have been generally below the cleanup standard and remained that way in 2011. Samples from monitoring wells WU5-11 and WU5-13 have sporadically contained detectable VC concentrations exceeding the cleanup standard.

3.3.1.9 1,1-DCE Evaluation

1,1-DCE was detected in six of the groundwater samples collected from wells completed in the upper portion of the A aquifer during the 2011 annual sampling event. Concentrations of 1,1-DCE ranged from 0.16 J µg/L in well W3-21 to 0.74 J µg/L in well W19-4 (Table 3-2). There were no detections of 1,1-DCE above the laboratory reporting limit in the four groundwater samples collected from wells completed in the lower portion of the A aquifer. All 1,1-DCE analytical results for monitoring wells sampled at IR Site 26 were below the 6 µg/L cleanup standard.

3.3.1.10 1,2-DCA Evaluation

The compound 1,2-DCA was detected in 7 of the groundwater samples collected from wells completed in the upper portion of the A aquifer during the 2011 annual sampling event. Concentrations of 1,2-DCA ranged from 0.28 J µg/L in well WU5-23 to 0.63 µg/L in well WU5-20. The reported 1,2-DCA concentration in the sample from wells WU5-2, WU5-20 and WU5-21 were all above the California Maximum Contaminant Level of 0.5 µg/L. These values are similar to the 2010 results.

1,2-DCA was not detected in groundwater samples from the four wells completed in the lower portion of the A aquifer.

3.3.1.11 Trans-1,2-DCE Evaluation

Trans-1,2-DCE was detected above laboratory quantitation limits in 21 of the groundwater samples from monitoring wells completed in the upper portion of the A aquifer during the 2011 sampling event. The detections ranged from 0.14 J µg/L in well WU5-20 to 5.0 µg/L in well W4-11. These values are similar to the 2010 results.

Trans-1,2-DCE was not detected in the four groundwater samples collected from wells completed in the lower portion of the A aquifer.

3.3.2 Northern Plume

Groundwater monitoring wells WU5-8, WU5-9, and WU5-4 were identified in the *EATS Long-Term Groundwater Monitoring Plan* (PRC Environmental Management, Inc. [PRC] 1997) for monitoring COCs in the northern plume. During 2011, only sampling at WU5-4 occurred in conformance with the well field optimization plan presented in the SAP (ERS-JV 2011). The sample collected from WU5-4 in September 2011 had cis-1,2-DCE, PCE, VC, 1,1-DCE, 1,2-DCA, and trans-1,2-DCE concentrations all below the laboratory reporting limits. TCE was detected at 4.0 µg/L, which is below the TCE cleanup standard of 5 µg/L. Concentrations of all analytes in samples from wells in the northern plume have not been above their respective cleanup standard during the last four years of sampling.

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4.0 OTHER 2011 ACTIVITIES

This section describes activities related to WATS and EATS that were conducted during the 2011 reporting period.

4.1 WATS IR SITE 28 TREATABILITY STUDY AND REGIONAL GROUNDWATER FEASIBILITY STUDY

On November 21, 2008, the *Draft West-Side Aquifers Treatment System Site 28 Optimization Evaluation Report* was submitted for regulatory agency review (SES-TECH 2008). The optimization report recommended the implementation of pilot tests of alternative groundwater cleanup technologies, as well as other system modifications. No formal comments to the draft optimization report have been received. The Navy performed an investigation in the Former Building 88 area to determine if there were continuing sources of PCE contamination to groundwater (TtEC 2008a). This investigation indicated potential sources in the Former Building 88 footprint and in a traffic island near Former Building 126 (Traffic Island Area) along a sewer alignment downstream from the building location. The Navy began planning treatability studies in the potential source areas identified near the Former Building 88 area.

On March 12, 2010, the *Final Work Plan In Situ Anaerobic Biotic/Abiotic Treatability Study, IR Site 28* was submitted (Shaw 2010). This report describes the technical approach and activities to perform a treatability study in the upper and lower portions of the A aquifer in three areas of IR Site 28 near the Former Building 88 area. The final results of the are discussed in the *Final Technical Memorandum, In-Situ Anerobic Biotic/Abiotic Treatability Study, Installation Restoration, Site 28* (Shaw 2012). The results of the Navy pilot tests, along with other results of individual optimization evaluations by other MEW companies, will be incorporated in a Site-Wide Groundwater Feasibility Study for the regional plume.

Prior to conducting the treatability study, a hot spot characterization investigation was performed to further define the lateral and vertical extent of the highest chlorinated ethene (CE) contamination and to confirm the presence of absence of dense non-aqueous phase liquid (DNAPL). DNAPL was not identified during the investigations. The treatability study included injection of lactate with bioaugmentation at 10 injection points from 35 to 60 feet bgs in the Former Building 88 Area. Six observation wells (28OW-19 through 28OW-24) were installed in this area to monitor these injections. EHC® was injected in four locations from 10 to 30 feet bgs in the monitoring well W9-18 Area. Six observations wells (28OW-13 through 28OW-18) were also installed in this area to monitor the results of the test. Emulsified vegetable oil with bioaugmentation was injected at 20 locations from 10 to 50 feet bgs and five injection points from 50 to 65 feet bgs. Twelve observation wells (28OW-01 through 28OW-12) were installed in the Traffic Island Area to monitor the effectiveness of the treatability test in this location.

In October 2010, the EPA announced a meeting to discuss the path forward for EPA's completion of the Site-Wide Groundwater Feasibility Study. This report was previously being prepared by the MEW Regional Groundwater Remediation Program in cooperation with the Consent Decree parties and 106 Order respondents (MEW Companies), Navy, and NASA. The Navy, NASA and the MEW Companies had previously prepared draft optimization evaluations for each of their facilities to the regulatory agencies. The Navy is participating in the All Parties meeting and technical workgroup meetings that are being held by the EPA. The EPA is planning to issue the draft Site-Wide Groundwater Feasibility Study in Spring 2012.

4.2 EATS Treatability Study and Focused Feasibility Study

The Navy completed its optimization evaluation of IR Site 26 in August 2008 (TtEC 2008c). This document evaluated remedial technologies that could potentially result in groundwater at IR Site 26 attaining the cleanup standards in the OU5 ROD (Navy 1996) within a reasonable time. The report recommended that combined abiotic/biotic treatment using EHC® and phytoremediation be field tested at IR Site 26.

As recommended in the optimization evaluation, a work plan for treatability studies was developed to implement and evaluate these technologies in attaining the cleanup standards for IR Site 26. The *Final Work Plan Abiotic/Biotic Treatment and Phytoremediation Treatability Study* (Shaw 2009) was submitted in April 2009. Due to stakeholder concerns regarding implementation of phytoremediation near the active runways, this portion of the project has been put on hold.

The abiotic/biotic treatment pilot test was conducted in the area of highest VOC concentrations within the southern lobe of the VOC plume in the upper portion of the A aquifer at IR Site 26, adjacent to the northeast corner of Hangar 3. For the pilot test, a proprietary product was used that provides both abiotic and biotic treatment processes in one chemical agent. The product, EHC®, a proprietary product of Adventus, was injected in a slurry of potable water into the upper portion of the A aquifer using direct push technology. To generate data necessary to achieve the project objectives, groundwater monitoring and sampling was performed before and after the slurry injection during several events. Related activities included monitoring well installation, groundwater monitoring and sampling, laboratory analysis, and data reduction and evaluation, to assess the progress of the remediation and the feasibility of the treatment technology for further application.

The treatability study commenced in May 2009 and the last groundwater sampling event for evaluation of the treatability study was completed in June 2011. The treatability study reduced the concentrations of CE and TCE; however, the concentrations of DCE and VC increased in the downgradient wells. A technical memorandum describing the activities performed and results of the or remediating TCE was prepared (Shaw 2012). This memorandum recommended additional groundwater monitoring to evaluate the potential for continued degradation of VC, precipitation of arsenic during establishment of aerobic conditions, and to monitor for rebound of CE within and downgradient of the treatment area. This groundwater monitoring was conducted, and the last sampling occurred, in October 2011. The Navy prepared a draft FFS (Shaw 2011b) to evaluate other potential remedial alternatives along with the current remedy of groundwater extraction and treatment. Data from the treatability study were incorporated into the Draft FFS (Shaw 2011b).

4.3 Comparison of PDB Sampling versus Low-Flow Sampling

In accordance with the 2011 SAP (ERS-JV 2011) and the December 2010 email approval from the USEPA and Water Board, 21 wells or approximately 20 percent of wells at IR Sites 26 and 28 were sampled using passive diffusion bags (PDBs) in addition to the conventional low-flow purge and sample method in 2011. The purpose of this study was to evaluate the effectiveness and comparability of data from PDBs to the conventional low-flow sampling method. The Navy undertook this study as part of their on-going efficiency and optimization process. The advantage to the PDB technology is that for a long-term VOC monitoring plan, it is often more cost effective and generates less waste than the low-flow method. If the PDB results are demonstrated to provide data that are comparable to the low-flow method, the Navy intends to switch to using the PDB method over low-flow as a cost-saving measure.

The PDB sampling methodology followed the procedures and plans outlined in the 2011 SAP, as amended based on comments from the USEPA and Water Board. The wells selected for dual sampling consisted of wells covering a variety of conditions including wells with historically low to moderate to high VOC concentrations and wells screened in the Upper A, Lower A, and B2 aquifers at both Sites 26 and 28. They consisted of 10 short-screened wells (wells with screened intervals from 3 to 10 feet long) and 11 long-screened wells (wells with screened intervals from 15 to 40 feet). PDB samples were retrieved a minimum of 14 days after deployment. Low-flow purging and sampling was performed at the same interval as placement of the PDBs to allow for comparison of results from similar sampling intervals in the well. PDBs were retrieved slowly from each of the wells to minimize disturbance to the water column. Upon retrieval of the PDB and transfer to the appropriate container (typically within 10 minutes), low-flow purging was initiated in the well. PDB samples were placed in sample containers and handled and analyzed the same as the low-flow samples. A PDB source blank was collected and analyzed to evaluate potential VOC contamination of the pre-filled PDBs from the manufacturer through shipping to the site.

A comparison of VOC concentrations detected from the PDB and low-flow samples is presented below.

4.3.1 PDB and Low-Flow Sample Results and Variation

Analytical results of the 21 PDB and low-flow sample pairs are presented in Table 4-1. This table presents all of the compounds included in the EPA Method 8260B analyte list for this project. Relative percent differences (RPDs) between the low-flow and PDB VOC concentration results were calculated to determine the variation between the sampling methods. The RPDs could be calculated for 106 data pairs for instances where both results were above the method detection limit (i.e., not U-flagged or UJ-flagged). The median RPD for these pairs was 19 percent, indicating a generally good correlation and low variation between the sampling methods. For comparison, the criteria for field duplicates from the same well during a sampling event is an RPD of 30 percent so the difference between the PDBs and low-flow results are within the accepted precision criteria for this project. The following additional observations were made between the 2011 PDB and low-flow data sets:

- There were only 16 of 106 pairs with RPDs greater than 100 percent with a maximum RPD of 198 percent (TCE for W9-33).
- Results from wells W9-33 and W9-20 exhibited the majority (9 of the 16 instances) of the results with RPDs greater than 100 percent. Both of these wells had long screen intervals (at least 15 feet).
- Of the 106 pairs, there were 40 instances (38 percent) where the low-flow result was higher than the PDB, 58 instances (55 percent) where the PDB result was higher than the low-flow, and 8 instances (7 percent) where the PDB and low-flow results were equal.
- There were 40 instances where one sampling method reported a detectable result while the other was non-detectable. Of these 40 instances, 33 (83 percent) were cases where the reporting limit for the non-detect sample was higher than the detected value for the corresponding sample, so this indicates no significant difference between results.

The above observations indicate that there may be some bias for higher results for the PDBs when compared to the low-flow results, but the difference is minimal based on the precision between the two methods.

In addition to comparing PDB and low-flow results for the 2011 monitoring event, this comparison was extended to determine the variation from year to year for low-flow monitoring. This was performed to determine if the variation between low-flow and PDB results was within the normal range of results experienced between annual events. Table 4-2 compares the RPD of the 2011 low-flow and PDB results, to the RPD of the 2011 low-flow and 2010 low-flow results. Of the 106 low-flow and PDB pairs displayed in Table 4-1, 52 of those also had 2010 results showing detected VOC concentrations. Thus those overlapping 52 RPDs are compared in Table 4-2. The following observations were made between the comparison of 2010 and 2011 low-flow results and the comparison of 2011 PDB and 2010 low-flow results:

- The maximum RPD for the 2010 low-flow and 2011 low-flow data was 199 percent (cis-1,2-DCE in well W9SC-13) while the minimum RPD was 0 percent and the median RPD was 21percent.
- In comparison, the maximum RPD between the PDB and 2010 low-flow sampling was 198 percent (TCE in well W9-33), while the minimum value was 0 percent and the median value was 28 percent.
- Of the 52 pairs, there were 5 instances where the RPDs were equal to one another (9 percent), 18 instances where the PDB RPD was higher than the 2010 low-flow RPD (35 percent), and 29 instances where the 2010 low-flow RPD was greater than that of the PDB RPD (56 percent).

Based on this comparison the variation in precision observed between annual sampling events at the site is similar to what was observed.

Figure 4-1a displays 2011 low-flow and PDB RPD values versus 2011 low-flow concentrations while Figure 4-1b shows 2011 low-flow and 2010 low-flow RPD values versus 2011 low-flow concentrations. Figure 4-1a shows a slight trend for PDB results being greater than low-flow results when detected concentrations are low (less than 15 µg/L), but overall, the data scatter on the graphs further enforces that no significant bias exists between PDB, 2011 low-flow and 2010 low-flow results.

In summary, analysis of the variation between the individual PDB/low-flow pairs generally showed a low variation based on RPD within the data set, and similar variation to the precision observed between annual monitoring events.

4.3.2 Graphical Data Analysis

Graphs of low-flow versus PDB data results for TCE, PCE, cis-1,2-DCE and VC are shown in Figure 4-2. These graphs display the relationship between concentration results from the two sampling methods. The graphs include a line showing the 1:1 relationship expected if the sampling methods produced identical concentration results. The graphs also include the 95 percent confidence intervals calculated using linear regression analysis. The confidence intervals, which are linear on an arithmetic scale, appear curved on the logarithmic scales used in the graphs. For these graphs, all data pairs are shown except for instances where a pair was non-detect with unequal reporting limits. In all other cases, non-detect results were graphed using half of the reporting limit.

The graphs illustrate a generally linear relationship between the PDB and low-flow results, clustering near the 1:1 ratio. Cis-1,2-DCE and PCE exhibited the least scatter and TCE the most. Each of the four graphs show two PDB/low-flow data pairs falling beyond the 95 percent confidence intervals, representing approximately 10 percent of the data set. The 1:1 linear relationship indicates that the two sampling methods produced data that are comparable at the 95 percent confidence interval with a generally low level of statistical outliers. R squared values were 0.35, 0.76, 0.51 and 0.70 for TCE, PCE, cis-1,2-DCE and Vinyl Chloride respectively.

Box plots were prepared to show the relationship of the PDB and low-flow result populations (Figures 4-3 and 4-4). These charts show the median, 25 and 75 percent quartiles, range and outliers for TCE, PCE, cis-1,2-DCE and VC results for both PDB and low-flow methods. As shown in Figure 4-3, the medians and quartile ranges for these analytes were close and overlapping, indicating that the PDB and low-flow concentration populations were similar. Figure 4-4 shows box plots comparing TCE, PCE, cis-1,2-DCE and VC results for PDB and low-flow results from short-screened and long-screened wells. The median and quartile ranges for the short-screened wells were very similar, indicating that these populations were comparable. For the long-screened wells, the box plots indicate more variation between the populations but they are still quite similar.

Therefore, graphical analysis comparing individual data pairs and data populations indicate a strong correlation between the PDB and low-flow results.

4.3.3 Statistical Hypothesis Testing

The Wilcoxon-Mann-Whitney (WMW) test, also called the Wilcoxon Rank Sum test, was used to perform a statistical comparison between the low-flow and PDB VOC concentration result populations. The WMW test is a non-parametric statistical hypothesis test for assessing whether two groups of independent observations have different means/medians. In this case, the WMW test was used to assess whether the PDB and low-flow methods produced results that tend to be similar or different from the other. This test does not require that the observations (chemical concentrations) are normally distributed, and is applicable to the size of the data sets from the study. Comparison testing was performed using the statistical program ProUCL developed by the EPA. Values below the method detection limit were not used in this analysis due to a large variation in method detection limits which would skew the results of the testing. Results from the analysis performed using ProUCL is include in Appendix E within this report.

Due to the time required to setup the dataset for these analyses the testing was done for the four main chemicals of concern: TCE, PCE, cis-1,2-DCE, and VC. Analyses were run using data from three scenarios – all of the PDB/low-flow pairs, only the short-screened wells, and only the long-screened wells. A confidence coefficient (alpha) of 0.05 was used in the analysis. Based on the small sample size of each data set, the output from each WMW test in ProUCL is an approximate P-value that is compared to the confidence coefficient to evaluate the hypothesis test (i.e., if the approximate P-value is greater than the alpha value then the hypothesis is not rejected and the PDB and low-flow data sets are similar)

As shown in Table 4-3 and the output from ProUCL included in Appendix E, approximate WMW test P-values for each of the four VOCs in each of the three scenarios ranged from 0.32 to 0.96. These results are above 0.05 which indicates that the null hypothesis, that the PDB mean is equal to the low-flow mean, should not be rejected for all scenarios. In addition, the approximate P-values are greater than 0.1, which provides further confidence in the results of the comparison testing.

In conclusion, statistical hypothesis testing indicates that VOC concentration data from the PDB and low-flow sampling methods are similar and do not exhibit a significant bias.

4.4 ADDITIONAL WATS NPDES ANALYSIS

In accordance with the NPDES permit, triennial testing for Title 22 metals was performed during the fourth quarter of 2010. Sampling indicated the presence of copper, a NPDES trigger compound, in the effluent stream. In accordance with Provisions VI.C.7 and VI.C.8 of the NPDES permit, both the influent and effluent were sampled and analyzed three times during the first quarter of 2011.

In addition, receiving water was also sampled during the first quarter for salinity and hardness in accordance with the NPDES permit. Although below the trigger concentration of 4.7 µg/L, the January 2011 effluent sample was detected at a concentration of 4.1 µg/L. Effluent concentrations for copper exceeded the trigger concentration in February and March at concentrations of 6.9 and 5.5 µg/L respectively. In accordance with Provision VI.C.8, monitoring of the system effluent for copper was accelerated to a quarterly basis beginning in the second quarter of 2011. The trigger concentration for copper was exceeded during the second and third quarter at concentrations of 4.9 and 6.0 µg/L, respectively. However, during the fourth quarter of 2011, the trigger concentration was not exceeded. In a letter dated January 26, 2012 to the Water Board, the Navy requested no further sampling for the 'trigger compound" be implemented for subsequent sampling events. Several reasons to support the removal of copper from the analyte list were provided in the letter. Concurrence from the Water Board is pending.

5.0 PROBLEMS ENCOUNTERED

During the fourth quarter of 2010, the triennial testing for Title 22 metals was conducted as required by the NPDES permit. Analytical results at this time indicated the presence of the trigger compound (copper) in the effluent stream. Based on this 2010 data point, both the influent and effluent were sampled and analyzed several times during 2011. The last quarter of 2011 did not indicate an exceedance of the trigger compound and a request for no further sampling was submitted to the Water Board. A response is pending.

Difficulties were encountered during well gauging activities. There have been consistent issues during the gauging of wells WU4-2 and W9-13. WU4-2 has an obstruction at roughly 4.0 feet bgs and the well casing for W9-13 has been covered by concrete which prevents the well head from being opened.

During the September 2011 groundwater monitoring activities, it was noted that well 165A was not functional due to an excessive accumulation of silt in the well casing. The sample was collected but not analyzed.

No other problems were encountered during groundwater monitoring or well gauging activities at IR Sites 26 and 28.

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6.0 TECHNICAL ASSESSMENT

This section provides the technical assessment developed from the 2011 analysis performed for WATS and EATS areas.

6.1 IR SITE 28

WATS is functioning as intended. The volume of groundwater extracted since WATS start-up in 1998 is approximately 428,415,994 gallons. The volume of groundwater extracted during 2011 is approximately 22,332,164 gallons. The mass of VOCs removed since the WATS start-up is approximately 5,291.5 pounds. The mass of VOCs removed during 2011 is approximately 247 pounds. All 2011 WATS effluent water samples were below NPDES permit limits prior to discharge of the treated groundwater.

The majority of historical time series plots graphically illustrate the trend of decreasing or stable VOC concentrations for groundwater samples collected from monitoring wells installed in the upper and lower portions of the A aquifer that are downgradient of the target capture zone. The potentiometric surface maps for the upper and lower portions of the A aquifer were prepared using the March and September 2011 water level data. Maps showing the distributions of TCE, cis-1,2-DCE, PCE, and VC in the upper and lower portions of the A aquifer were prepared (Figures 2-6, 2-7, and 2-111 through 2-116). A comparison of 2010 and 2011 data indicates that contaminant plumes were relatively stable with minor changes in the shape and/or extent of the TCE, cis-1,2-DCE, PCE, and VC plumes in the upper and lower portions of the A aquifer.

Dissolved VOCs in the regional plume continue to migrate into IR Site 28 with groundwater underflow from upgradient source areas. The upgradient source is contributing contaminants at concentrations greater than cleanup standards. In addition, based on the sampling of additional monitoring wells by the Navy and MEW in 2008 through 2011 as well as additional monitoring wells sampled by NASA in 2008, it appears concentrations of TCE may extend beyond the historically considered leading edge of the plume. The Navy completed targeted investigation and in-situ bioremediation pilot tests in specific areas in the Former Building 88 area and vicinity (Shaw 2010).

The 2011 capture zone maps (Figures 2-57, 2-58, 2-59 and 2-60) indicate the groundwater extraction system intercepted most of the VOC contamination in the target zone. In the upper portion of the A aquifer, the capture zone appears to encompass the VOC plumes except for potentially the eastern portion of the TCE, cis-1,2-DCE, and VC plumes east and southeast of Hangar 1. In the lower portion of the A aquifer, the capture zone appears to encompass the VOC plumes except for potentially the TCE and cis-1,2-DCE plumes' furthest downgradient reach and eastern portion east and southeast of Hangar 1. Optimization efforts for regional plume capture will be evaluated in the Site-Wide Feasibility Study currently being prepared by the EPA concurrent with the Navy's treatability study. The results of the Navy treatability study, along with other results of the individual optimization evaluations for other sites, will be incorporated in a Site-Wide Groundwater Feasibility Study for the regional plume.

6.2 IR SITE 26

EATS was taken off-line in July 2003. EATS remained off-line throughout the 2011 reporting period. The mass of VOCs removed since start-up in 1999 is approximately 23.65 pounds. A technical memorandum was prepared summarizing the results to date of the treatability study that was completed at IR Site 26 (Shaw 2011a). An evaluation of groundwater extraction and treatment was presented in this memorandum and, based on this evaluation, it was recommended that a FFS be performed to compare the current remedy with alternative remedial actions that could implemented to attain the ROD cleanup goals in a more effective and efficient manner. The draft FFS was issued to the agencies for comment in November 2011 (Shaw 2011b). The results of the final round of groundwater samples will be included in the draft final FFS report.

7.0 CONCLUSIONS AND RECOMMENDATIONS

This section presents conclusions and recommendations developed from the 2011 analysis performed for WATS and EATS.

7.1 IR SITE 28

WATS continues to function as intended. The 2011 capture zone maps indicate the groundwater extraction system intercepted most of the VOC contamination in the target zone. In the upper portion of the A aquifer, the capture zone appears to encompass the VOC plumes except for potentially the eastern portion of the TCE, cis-1,2-DCE, and VC plumes east and southeast of Hangar 1. In the lower portion of the A aquifer, the capture zone appears to encompass the VOC plumes except for potentially the TCE and cis-1,2-DCE plumes' furthest downgradient reach and eastern portion east and southeast of Hangar 1. Optimization efforts for regional plume capture will be evaluated in the Site-Wide Feasibility Study currently being prepared by EPA concurrent with the Navy's on-going treatability study. The results of the Navy treatability study, along with other results of the individual optimization evaluations for other sites, will be incorporated in a Site-Wide Groundwater Feasibility Study for the regional plume.

The reduction in operation of EA1-1 and EA1-2 in 2010 and 2011 did not appear to significantly reduce the overall capture zone. Additionally, it is apparent that the capture zone for EA1-3 was small and redundant and its effectiveness appeared to be minimal. The effectiveness of EA1-3 was largely overshadowed by the operation of extraction wells EA2-2 and EA1-4.

Analytical data collected from wells in September and October 2011 indicate that TCE continues to be the most prevalent VOC captured by WATS, followed in mass by cis-1,2-DCE, PCE, and VC. In the lower portion of the A aquifer, the mass removal rate for cis-1,2-DCE was greater than for TCE.

Analytical data collected from wells in September 2011 indicate that TCE, cis-1,2-DCE, PCE, and VC plumes in the upper and lower portions of the A aquifer have remained relatively stable with minor changes in the shape and/or extent since 2010. VOC concentration-time plots generally indicate stable and decreasing concentrations in wells on the plume periphery, demonstrating adequate plume control. In 2010, treatability study wells near Former Building 88 were included in the plume analysis, resulting in the better definition of the eastern portion of the VOC plumes. Additionally, if NASA resumed sampling NASA wells NASA-2A, 11M17A, 11M21A, 11N21A, and 11N22A, which were last sampled in 2008, it would provide data to better define TCE concentrations in the upper portion of the A aquifer downgradient of the WATS capture area. NASA-2A was not sampled in 2011.

A study testing the use of PDBs to collect groundwater samples for VOC analysis was performed during 2011. The test was performed to evaluate the effectiveness of using PDBs in place of conventional low-flow purge and sampling techniques. The results of the test indicated a significant correlation between the VOC results from PDB samplers and samples collected using the low-flow method. Statistical analysis of individual paired results and aggregate results support the conclusion that both methods yield VOC concentrations that are comparable to historical results. The study supports implementing PDB sampling for VOC analysis for all wells at the site. This will result in improved cost-effectiveness for the monitoring program while maintaining data quality and compliance with the ROD.

7.2 IR SITE 26

EATS remained off-line during the 2011 reporting period. It is recommended to continue monitoring IR Site 26 wells in the southern plume area as scheduled (Section 9.0) and evaluate the effectiveness of the treatability study (Shaw 2009). The results of the treatability study are incorporated in the Draft FFS prepared for IR Site 26 (Shaw 2011b). As with IR Site 28, the annual groundwater sampling program should be modified to include full implementation of PDBs for sampling for VOC analysis.

8.0 FOLLOW-UP ACTIONS

The EPA completed its second five-year review for the regional plume, which included IR Site 28 in September 2009 (EPA 2009). The Navy also completed its five-year review which included IR Sites 26 and 28 (Navy 2010). The progress toward completing recommendations from the first five-year review for IR Sites 26 and 28, as well as those presented in the second five-year reviews, is described in Appendix A.

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9.0 UPCOMING WORK IN 2012 AND PLANNED FUTURE ACTIVITIES

Monitoring and reporting activities planned for IR Sites 26 and 28 in 2012 are listed in Table 9-1.

Activities planned for IR Site 26 include base-wide water level gauging to be conducted in March and September 2012, and annual groundwater sampling to be conducted in September 2012. In addition, the Navy conducted a treatability study to evaluate the effectiveness of combined biotic/abiotic treatment using EHC® (Shaw 2009). The treatability study commenced in May 2009 and was completed in October 2011. The draft FFS was issued to the agencies for comment in November 2011 (Shaw 2011b). The results of the final round of groundwater samples will be included in the draft final FFS report.

Operation and maintenance of WATS at IR Site 28 will continue in 2012. A base-wide water level gauging event was conducted in March 2012, and a second gauging event will be conducted in September 2012 in coordination with the MEW companies and NASA as part of continued regional plume monitoring efforts. The 2012 annual groundwater sampling event will be conducted in September 2012. A draft Optimization Evaluation of the WATS was submitted for regulatory review and comment in November 2008. The optimization report recommended the implementation of pilot tests of alternative groundwater cleanup technologies, as well as other system modifications. The Navy is currently conducting targeted investigation and in-situ bioremediation pilot tests in specific areas in the Former Building 88 area and vicinity (Shaw 2010). Wells EA1-1 and EA1-2 are currently offline but are expected to be online again in April 2012. The results of the Navy pilot tests, along with other results of the individual optimization evaluations by the MEW Companies, will be incorporated in a Site-Wide Groundwater Feasibility Study for the regional plume.

As discussed in the SAP (ERS-JV 2011), modifications to the groundwater sampling program are proposed for 2012. Three wells monitoring the northern plume (WU5-4, WU5-8, and WU5-9) have been requested to be changed to a biennial sampling frequency in this report (Section 7.2). These three wells, if concurrence is granted by regulatory agency partners, would be sampled next in 2012.
Another potential modification of the sampling program in 2012 is the shift from low-flow samplers to PDB samplers. The results of the PDB and low-flow study from 2011 support the implementation of the PDB sampling method for VOC analysis for all wells at the site. The low-flow sampling method will be retained for samples that will be analyzed for metals and TPHp.

The condition of extraction wells associated with the WATS was assessed during routine operations and maintenance and it was determined that some of the wells may require re-development to address the biofouling. Additionally, during the well gauging events, several wells were not easily accessible owing to obstructions encountered in the well casing. Well maintenance activities including re-development of wells and replacement of pumps to address these issues will take place in 2012.

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TABLES

TABLE 1-1

HYDROSTRATIGRAPHY

Unit	Unit Subdivision	Range of Approximate Depths (feet bgs)	
		Top	Bottom
A	Upper portion of A (A) aquifer	0 to 13	15 to 35
	Lower portion of A (B1) aquifer	15 to 45	45 to 77
A/B	A/B (A/B2) aquitard	45 to 65	60 to 85
B	B2 (B2) aquifer zone	60 to 80	95 to 135
	(B2/B3) aquitard	95 to 105	99 to 111
	B3 (B3) aquifer zone	99 to 130	115 to 160
B/C	B/C (B3/C) aquitard	115 to 140	155 to 180
C	Unknown/undefined	155 to 160	250
Deep	Unknown/undefined	Generally deeper than 250	

Note:
The equivalent aquifer/aquitard designations for the MEW study area are in parentheses.

Abbreviations and Acronyms:
bgs – below ground surface

TABLE 1-2

IR SITES 26 AND 28 MONITORING AND REPORTING SUMMARY FOR 2011

Event	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
WATS NPDES Sampling	X	X	X	X	X	X	X	X	X	X	X	X
WATS NPDES Reporting	X			X			X			X		
EATS NPDES Sampling[a]												
EATS NPDES Reporting[a]												
Basewide Well Gauging			X						X			
Annual Groundwater Sampling for IR Sites 26 and 28									X	X		
2010 Annual Groundwater Report for IR Sites 26 and 28						X						

Note:

[a] EATS was turned off on July 2, 2003 and its operational status placed on standby. No NPDES sampling or reporting is necessary.

Abbreviations and Acronyms:

EATS - East-Side Aquifer Treatment System

NPDES - National Pollutant Discharge Elimination System

WATS - West-Side Aquifers Treatment System

TABLE 2-1

WATS AVERAGE MONTHLY FLOW RATES 2011

TIME PERIOD		SYSTEM	EA1-1[1]	EA1-2[1]	EA1-3	EA1-4	EA1-5	EA1-6	EA2-1	EA2-2	EA2-3	H1 SUMP	EV5
January 2011 (1/1/11 to 1/28/11)	TIME OPERATING	99.6%	0.0%	0.0%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	100.0%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	43.12	0.00	0.00	1.39	1.07	1.32	0.97	15.78	15.73	3.15	5.54	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	42.93	0.00	0.00	1.38	1.07	1.31	0.97	15.71	15.66	3.14	5.54	0.00
February 2011 (1/29/11 to 2/25/11)	TIME OPERATING	99.4%	0.0%	0.0%	99.4%	99.4%	99.4%	99.4%	99.4%	99.4%	99.4%	100%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	46.78	0.00	0.00	1.47	1.13	1.36	0.96	14.92	15.31	3.13	6.80	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	46.50	0.00	0.00	1.46	1.12	1.35	0.95	14.84	15.21	3.11	6.80	0.00
March 2011 (2/26/11 to 3/25/11)	TIME OPERATING	99.7%	0.0%	0.0%	99.7%	99.7%	99.1%	99.1%	99.7%	99.7%	99.7%	100%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	45.78	0.00	0.00	0.89	1.09	1.41	1.02	14.99	15.13	3.23	9.44	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	45.64	0.00	0.00	0.89	1.09	1.40	1.01	14.94	15.08	3.22	9.44	0.00
April 2011 (3/26/11 to 4/29/11)	TIME OPERATING	97.0%	0.0%	0.0%	97.0%	97.0%	97.0%	97.0%	97.0%	97.0%	97.0%	100%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	47.35	0.00	0.00	1.29	0.92	1.56	0.88	14.91	15.01	2.77	8.62	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	45.94	0.00	0.00	1.25	0.89	1.52	0.85	14.47	14.56	2.68	8.62	0.00
May 2011 (4/30/11 to 5/27/11)	TIME OPERATING	99.7%	0.0%	0.0%	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	99.9%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	47.73	0.00	0.00	1.35	1.01	1.54	0.91	14.94	15.14	2.68	8.53	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	47.58	0.00	0.00	1.35	1.01	1.54	0.91	14.90	15.10	2.67	8.52	0.00
June 2011 (5/28/11 to 6/24/11)	TIME OPERATING	99.7%	0.0%	0.0%	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	100%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	46.08	0.00	0.00	0.94	0.93	1.51	0.73	14.93	15.00	2.57	8.26	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	45.94	0.00	0.00	0.93	0.93	1.51	0.73	14.88	14.96	2.57	8.26	0.00
July 2011 (6/25/11 to 7/29/11)	TIME OPERATING	99.5%	0.0%	0.0%	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%	100.0%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	43.16	0.00	0.00	1.22	0.91	1.58	0.86	14.99	15.09	2.56	3.49	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	42.95	0.00	0.00	1.22	0.91	1.58	0.86	14.92	15.02	2.55	3.49	0.00
August 2011 (7/30/11 to 8/26/11)	TIME OPERATING	99.7%	0.0%	0.0%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	100%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	41.48	0.00	0.00	1.31	0.94	1.43	0.84	14.83	15.01	2.46	2.74	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	41.36	0.00	0.00	1.31	0.94	1.42	0.84	14.76	14.94	2.45	2.74	0.00
September 2011 (8/27/11 to 9/30/11)	TIME OPERATING	99.3%	0.0%	0.0%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	100%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	38.01	0.00	0.00	1.14	0.93	1.40	0.87	14.84	15.04	2.37	3.60	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	37.74	0.00	0.00	1.13	0.92	1.39	0.86	14.73	14.93	2.35	3.60	0.00
October 2011 (10/1/11 to 10/28/11)	TIME OPERATING	99.3%	0.0%	0.0%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	99.3%	100.0%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	39.75	0.00	0.00	1.27	1.04	1.48	0.88	14.77	15.08	2.50	2.85	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	39.46	0.00	0.00	1.26	1.03	1.47	0.87	14.66	14.96	2.48	2.85	0.00
November 2011 (10/29/11 to 11/25/11)	TIME OPERATING	98.1%	0.0%	0.0%	98.1%	98.1%	98.1%	98.1%	98.1%	98.1%	98.1%	100.0%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	38.49	0.00	0.00	1.20	0.94	1.44	0.89	14.92	14.98	2.48	3.03	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	37.75	0.00	0.00	1.17	0.92	1.41	0.87	14.63	14.69	2.43	3.03	0.00
December 2011 (11/26/11 to 12/30/2011)	TIME OPERATING	97.7%	0.0%	0.0%	97.7%	97.7%	97.7%	97.7%	97.7%	97.7%	97.7%	100%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	39.63	0.00	0.00	1.28	0.96	1.48	0.89	14.95	15.02	2.54	2.83	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	38.73	0.00	0.00	1.25	0.93	1.45	0.87	14.61	14.68	2.48	2.83	0.00

Notes:

Individual well flow rates may not add up to total system flow rate due to flow meter error.

[1] Well EA1-1 and EA1-2 were offline in 2011

Water collected in EV5 bypasses its flow meter and discharges into the H1 Sump for recording.

Abbreviations and Acronyms:

EV5 - Electrical Vault 5
gpm - gallons per minute
H1 SUMP - Hangar 1 Sump
WATS - West-Side Aquifers Treatment System

TABLE 2-2

WATS MONTHLY EXTRACTION TOTALS 2011

TIME PERIOD	TOTAL EXTRACTED (gallons)										
	SYSTEM	EA1-1	EA1-2	EA1-3	EA1-4	EA1-5	EA1-6	EA2-1	EA2-2	EA2-3	H1 SUMP	EV5 [a]
January 2011 (1/1/11 to 1/28/11)	1,730,994	0	0	55,750	43,000	52,896	39,097	633,282	631,499	126,505	223,337	0
February 2011 (1/29/11 to 2/25/11)	1,875,042	0	0	58,849	45,101	54,433	38,431	598,151	613,454	125,431	274,343	0
March 2011 (2/26/11 to 3/25/11)	1,840,383	2	2	35,915	43,823	56,516	40,656	602,552	608,116	129,765	380,440	0
April 2011 (3/26/11 to 4/29/11)	2,315,445	0	0	63,090	44,864	76,376	42,912	729,341	733,817	135,237	434,431	0
May 2011 (4/30/11 to 5/27/11)	1,918,561	0	0	54,443	40,578	61,957	36,666	600,786	608,695	107,815	343,543	0
June 2011 (5/28/11 to 6/24/11)	1,852,314	0	0	37,607	37,546	60,802	29,265	600,084	603,134	103,462	332,997	0
July 2011 (6/25/11 to 7/29/11)	2,164,903	0	0	61,383	45,709	79,460	43,188	751,996	757,160	128,482	175,928	0
August 2011 (7/30/11 to 8/26/11)	1,667,530	0	0	52,659	37,710	57,403	33,855	595,082	602,309	98,607	110,558	0
September 2011 (8/27/11 to 9/30/11)	1,902,033	0	0	56,831	46,480	70,155	43,318	742,564	752,619	118,397	181,649	0
October 2011 (10/1/11 to 10/28/11)	1,590,878	0	0	50,842	41,719	59,074	35,039	591,143	603,369	99,940	115,099	0
November 2011 (10/29/11 to 11/25/11)	1,521,945	0	0	47,279	37,223	56,906	35,130	590,011	592,494	97,952	122,267	0
December 2011 (11/26/11 to 12/30/2011	1,952,146	0	0	63,118	47,057	72,912	44,039	736,312	740,078	124,931	142,468	0
2011 Total	22,332,174	2	2	637,766	510,810	758,890	461,596	7,771,304	7,846,744	1,396,524	2,837,060	0
Since Startup [b]	428,415,994	1,093,573	60,857,782	21,580,008	9,635,288	19,019,310	8,473,180	92,827,511	92,969,333	28,907,583	51,563,290	5,188,555

Notes:

Individual well flow rates may not add up to total system flow rate due to flow meter error.

Well EA1-1 was offline in 2011

Well EA1-2 was offline in 2011

[a] Water collected in EV5 bypasses its flow meter and discharges into the H1 Sump for recording.

[b] System start-up was November 26, 1998. H1 SUMP and EV5 began operation in 1995.

Abbreviations and Acronyms:

EV5 - Electrical Vault 5

H1 SUMP - Hangar 1 Sump

WATS - West-Side Aquifers Treatment System

TABLE 2-3

2011 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 24, 2011 (ft msl)	September 15, 2011 (ft msl)
EA1-1	Upper A	N/A	13.67
EA1-2	Upper A	N/A	14.16
EA1-3	Upper A	9.29	8.26
EA1-4	Upper A	5.85	3.99
EA1-5	Upper A	3.48	2.41
EA1-6	Upper A	-3.65	-0.81
EA2-1	Lower A	-10.32	-13.08
EA2-2	Lower A	-7.44	-9.59
EA2-3	Lower A	2.86	0.16
ERM-1	Upper A	24.94	23.28
ERM-2	Upper A	25.94	22.38
ERM-3	Upper A	26.10	22.34
MCH-10LA	Upper A	15.50	13.21
MCH-11UA	Lower A	18.61	15.81
MCH-1UA	Upper A	22.76	21.19
MCH-2LA	Lower A	22.74	21.20
MCH-3UA	Upper A	24.22	21.74
MCH-4LA	Lower A	24.75	22.24
MCH-5UA	Upper A	19.10	16.81
MCH-6LA	Lower A	16.70	14.79
MCH-7UA	Upper A	16.00	13.34
MCH-8LA	Lower A	15.29	13.06
MCH-9UA	Upper A	12.11	9.07
PIC-1	Upper A	11.75	6.82
PIC-10	Upper A	12.87	12.67
PIC-11	Upper A	13.41	12.46
PIC-12	Upper A	13.49	12.54
PIC-13	Upper A	13.50	12.54
PIC-14	Upper A	13.49	12.58
PIC-15	Upper A	13.16	13.03
PIC-16	Upper A	12.02	11.40
PIC-17	Upper A	12.48	11.28
PIC-18	Upper A	11.50	11.24
PIC-19	Upper A	12.57	11.38
PIC-2	Upper A	12.06	11.85
PIC-20	Upper A	11.67	10.60
PIC-21	Upper A	11.87	10.78
PIC-22	Upper A	11.85	10.79
PIC-23	Lower A	11.89	10.79
PIC-24	Lower A	12.87	12.24
PIC-25	Lower A	13.24	12.30
PIC-26	Lower A	13.31	12.29
PIC-27	Upper A	12.96	12.16
PIC-28	Upper A	13.25	12.45
PIC-29	Upper A	13.22	12.31

TABLE 2-3

2011 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 24, 2011 (ft msl)	September 15, 2011 (ft msl)
PIC-3	Upper A	12.11	11.56
PIC-30	Upper A	13.31	11.47
PIC-31	Upper A	11.80	10.97
PIC-32	Upper A	12.59	11.26
PIC-4	Upper A	11.92	10.93
PIC-5	Upper A	11.98	10.60
PIC-6	Upper A	13.36	12.21
PIC-7	Upper A	13.25	12.41
PIC-8	Upper A	13.33	12.31
PIC-9	Upper A	13.36	12.34
PZA1-1A	Upper A	15.10	13.95
PZA1-1B	Upper A	15.30	14.36
PZA1-1C	Upper A	14.95	13.88
PZA1-1D	Upper A	14.70	13.84
PZA1-1E	Upper A	14.70	14.03
PZA1-2A	Upper A	15.24	14.02
PZA1-2B	Upper A	15.26	14.06
PZA1-2C	Upper A	15.31	14.10
PZA1-2D	Upper A	15.17	13.98
PZA1-3A	Upper A	9.74	8.76
PZA1-3B	Upper A	9.96	8.88
PZA1-3C	Upper A	10.02	8.90
PZA1-3D	Upper A	9.83	8.84
PZA1-4B	Upper A	6.25	4.19
PZA1-4C	Upper A	6.55	4.39
PZA1-4D	Upper A	5.85	3.94
PZA1-5A	Upper A	7.04	4.92
PZA1-5B	Upper A	7.00	4.83
PZA1-5C	Upper A	7.48	5.11
PZA1-5D	Upper A	6.55	4.78
PZA1-6A	Upper A	9.36	8.27
PZA1-6B	Upper A	9.40	8.27
PZA1-6C	Upper A	9.48	8.26
PZA2-1A	Lower A	2.37	1.10
PZA2-1B	Lower A	4.44	2.22
PZA2-1C	Lower A	8.24	7.23
PZA2-1D	Lower A	9.60	8.63
PZA2-2A	Lower A	2.12	0.62
PZA2-2B	Lower A	5.97	4.81
PZA2-2C	Lower A	6.98	5.85
PZA2-2D	Lower A	4.61	3.05
PZA2-4E	Lower A	4.56	2.57
PZNX-2	Upper A	N/A	14.62
UST29-MW01	Upper A	4.56	2.86
UST29-MW02	Upper A	3.95	2.88

TABLE 2-3

2011 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 24, 2011 (ft msl)	September 15, 2011 (ft msl)
UST3-MW-01	Upper A	4.46	3.68
UST3-MW-02	Upper A	4.22	3.15
UST85-MW02	Upper A	13.43	14.31
UST85-MW03	Upper A	14.84	14.75
W12-20	Upper A	2.07	N/A
W12-6	Lower A	2.68	-0.11
W14-1	Lower A	25.43	23.40
W14-10[a]	C	26.99	23.18
W14-11	Upper A	25.82	22.35
W14-12	Upper A	26.49	23.05
W14-13	Upper A	25.39	22.07
W14-2	Upper A	26.12	22.50
W14-3	Upper A	26.83	23.60
W14-4[a]	C	25.66	22.24
W14-5	B	26.51	24.14
W14-6	B	25.85	23.51
W20-01	Upper A	4.56	2.51
W29-1	Lower A	6.35	4.61
W29-2	Lower A	8.19	7.01
W29-3	Upper A	9.40	8.28
W29-4	B	11.30	10.24
W29-5	B	6.98	5.59
W29-7	Lower A	6.38	4.57
W29-8	Lower A	8.60	6.81
W56-1	B	11.08	10.13
W56-2	Upper A	N/A	10.89
W58-1	Lower A	26.67	24.14
W60-1	Upper A	22.75	20.91
W60-2	Upper A	23.55	21.60
W8-1	Lower A	2.82	-0.57
W8-11	Lower A	2.65	2.39
W8-2	Lower A	2.34	-0.75
W8-3	Upper A	24.04	21.04
W8-4	Upper A	2.77	-0.46
W8-6	Lower A	2.43	-0.59
W8-8	Upper A	2.42	-1.14
W88-1	Lower A	15.18	14.05
W88-2	Lower A	6.72	5.85
W88-3	Upper A	9.67	7.95
W89-1	Upper A	24.33	22.61
W89-10	Upper A	12.33	10.97
W89-11	Lower A	24.97	23.36
W89-12	Lower A	25.36	23.70
W89-14	Upper A	20.46	19.98
W89-2	Lower A	24.46	22.43

TABLE 2-3

2011 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 24, 2011 (ft msl)	September 15, 2011 (ft msl)
W89-5	Upper A	19.79	18.91
W89-6	B	20.08	19.85
W89-7	B	19.01	18.20
W89-8	Lower A	15.22	13.94
W89-9	Upper A	12.95	11.76
W9-1	Upper A	9.86	8.96
W9-10	Upper A	6.64	5.03
W9-11	Upper A	6.56	4.68
W9-12	Upper A	15.58	14.78
W9-13	Upper A	12.92	N/A
W9-14	Lower A	14.53	13.43
W9-15	Upper A	13.48	12.20
W9-16	Upper A	17.33	16.37
W9-17	Upper A	15.71	14.71
W9-18	Lower A	14.59	13.68
W9-19	Lower A	16.20	15.48
W9-2	Upper A	12.00	10.98
W9-20	Upper A	12.51	11.24
W9-21	Upper A	13.37	12.45
W9-22	Upper A	7.71	6.51
W9-23	Upper A	10.29	9.29
W9-24	Upper A	6.06	4.52
W9-25	Upper A	10.00	8.68
W9-26	Upper A	6.86	5.55
W9-27	Upper A	7.74	6.13
W9-28	Upper A	8.05	7.01
W9-29	Lower A	14.83	13.84
W9-3	Lower A	21.47	21.47
W9-30	Upper A	16.00	15.13
W9-31	Upper A	8.99	8.07
W9-33	Upper A	13.72	11.48
W9-34	Upper A	13.00	11.90
W9-35	Upper A	11.91	10.86
W9-36	B	14.09	12.94
W9-37	B	16.16	15.16
W9-39	B	9.54	8.73
W9-4	Upper A	7.55	5.74
W9-40	Upper A	15.32	14.23
W9-42	Lower A	15.25	14.14
W9-43	Lower A	7.76	5.48
W9-44	Lower A	14.95	14.18
W9-45	Upper A	13.03	12.33
W9-47	Upper A	10.66	9.40
W9-5	Upper A	8.77	7.25
W9-7	Upper A	12.14	11.10

TABLE 2-3

2011 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 24, 2011 (ft msl)	September 15, 2011 (ft msl)
W9-8	Upper A	13.74	12.74
W9-9	Upper A	11.56	10.35
W9SC-1	Upper A	9.01	8.39
W9SC-11	Upper A	10.26	9.37
W9SC-12	Lower A	11.25	10.11
W9SC-13	Upper A	11.05	9.68
W9SC-14	Upper A	15.52	14.53
W9SC-15	Lower A	15.25	14.45
W9SC-16	Upper A	15.22	14.69
W9SC-17	Upper A	16.87	15.06
W9SC-18	Upper A	9.04	8.46
W9SC-2	Upper A	8.97	8.14
W9SC-20	Lower A	16.69	15.49
W9SC-21	Upper A	16.78	16.03
W9SC-3	Lower A	8.99	8.19
W9SC-4	Upper A	8.99	8.35
W9SC-5	Upper A	8.99	8.08
W9SC-7	Upper A	8.59	7.47
W9SC-8	Lower A	8.34	7.37
WIC-1	Upper A	13.29	12.22
WIC-10	Lower A	11.89	10.84
WIC-11	Upper A	11.89	11.12
WIC-12	Lower A	11.90	10.86
WIC-2	Upper A	12.54	11.26
WIC-3	Upper A	12.14	11.04
WIC-4	Upper A	12.19	11.07
WIC-5	Upper A	12.36	12.25
WIC-6	Upper A	12.80	12.32
WIC-7	Upper A	13.17	12.27
WIC-8	Upper A	13.09	12.17
WIC-9	Upper A	11.79	11.37
WNB-1	Upper A	-0.82	-2.96
WNB-10	Upper A	-0.85	-2.85
WNB-11	Upper A	-0.61	-1.82
WNB-12	Lower A	0.96	-0.75
WNB-13	Lower A	-0.84	N/A
WNB-14	Lower A	7.85	5.91
WNB-26	Lower A	0.40	-2.20
WNB-7	Lower A	1.14	-0.71
WNB-8	Upper A	0.36	N/A
WNX-1	Upper A	13.32	13.85
WNX-2	Upper A	15.59	13.85
WNX-3	Upper A	15.14	15.00
WNX-4	Upper A	15.73	14.62
WSI-1	Upper A	27.39	25.30

TABLE 2-3

2011 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 24, 2011 (ft msl)	September 15, 2011 (ft msl)
WSI-2	Upper A	24.46	23.40
WSI-3	Upper A	22.06	20.02
WSI-4	Upper A	2.99	3.12
WT14-1	Upper A	21.11	18.58
WT41A-1	Upper A	17.58	16.46
WT87-1	Upper A	14.92	14.05
WU4-1	Upper A	23.61	22.03
WU4-10	Lower A	N/A	11.13
WU4-11	Upper A	N/A	11.55
WU4-12	Lower A	15.91	14.64
WU4-13	Lower A	12.10	11.68
WU4-14	Lower A	5.97	3.96
WU4-15	Upper A	5.17	4.74
WU4-16	Lower A	9.45	7.81
WU4-17	Upper A	9.42	8.39
WU4-18	Lower A	3.97	1.13
WU4-19	Lower A	5.49	2.92
WU4-2	Lower A	21.65	N/A
WU4-21	Upper A	6.25	4.56
WU4-24	Lower A	9.83	10.32
WU4-25	Upper A	12.07	10.90
WU4-3	Upper A	17.16	17.21
WU4-4	Upper A	18.54	15.81
WU4-5	Lower A	24.61	22.98
WU4-7	Upper A	17.90	16.06
WU4-8	Upper A	6.93	3.93
WU4-9	Upper A	6.28	5.65
WWR-1	Upper A	15.28	14.06
WWR-2	Upper A	17.17	15.54
WWR-3	Upper A	18.38	16.92

Note:

[a] artesian well

Abbreviations & Acronyms:

ft - feet

IR - installation restoration

msl - mean sea level

N/A - not accessible

TABLE 2-4

WATS EXTRACTION WELL
WATER LOSS CALCULATIONS
(PREPARED WITH 2004 PUMPING TEST DATA)

Extraction Well	Pumping Rate (gpm)	Actual Drawdown (ft)	Theoretical Drawdown (ft)	Difference (ft)	Well Loss as Percent of Drawdown
EA1-2	17.1	5.23	4.21	1.02	20
EA1-3	3.3	2.61	1.29	1.32	51
EA1-4	2.2	1.71	0.86	0.85	50
EA1-5	2.3	3.18	0.99	2.19	69
EA1-6	1.9	7.64	2	5.64	74
EA2-1	17	8.79	7.66	1.13	13
EA2-2	22	10.95	9.84	1.11	10
EA2-3	17	18	7.45	10.55	59

Abbreviations and Acronyms:
ft – feet
gpm – gallons per minute
WATS – West-Side Aquifers Treatment System

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:	Units	ROD Cleanup Standard	2011IR280114C33A	2011IR280114D05A	2011IR280114D12A	2011IR280114D24A
Location:			14C33A	14D05A	14D12A	14D24A
Sample Date:			09/19/2011	10/06/2011	09/19/2011	09/16/2011
1,1,1-Trichloroethane	µg/L	200	5.0 U	100 U	50 U	5.0 U
1,1-Dichloroethane	µg/L	5.0	1.0 UJ	**8.1 J**	**7.3 J**	1.6
1,1-Dichloroethene	µg/L	6.0	1.0 U	**9.5 J**	3.8 J	0.55 J
1,2-Dichlorobenzene	µg/L	600*	5.0 U	100 U	50 U	5.0 U
1,2-Dichloroethane	µg/L	0.5*	0.50 U	10 U	5.0 U	0.50 U
2-Butanone	µg/L	NE	5.0 U	100 U	50 U	5.0 U
2-Hexanone	µg/L	NE	5.0 U	100 U	50 U	5.0 U
4-Methyl-2-Pentanone	µg/L	NE	5.0 U	100 U	50 U	5.0 U
Acetone	µg/L	NE	10 U	200 U	100 U	10 U
Benzene	µg/L	1.0*	0.50 U	10 U	5.0 U	0.50 U
Chloroethane	µg/L	NE	5.0 U	100 U	50 U	5.0 U
Chloroform	µg/L	100	5.0 U	100 U	50 U	5.0 U
Chloromethane	µg/L	NE	5.0 U	100 U	50 U	5.0 U
cis-1,2-Dichloroethene	µg/L	6.0	0.30 J	**530**	**310**	**60**
Ethylbenzene	µg/L	300*	5.0 U	100 U	50 U	5.0 U
Freon 113	µg/L	1,200*	5.0 U	100 UJ	50 U	5.0 U
Tetrachloroethene	µg/L	5.0	1.0 U	20 U	2.5 J	0.17 J
Toluene	µg/L	150*	5.0 U	100 U	50 U	5.0 U
trans-1,2-Dichloroethene	µg/L	10	2.0 U	3.8 J	3.5 J	2.6
Trichloroethene	µg/L	5.0	1.0 U	**120**	**22**	**23**
Vinyl acetate	µg/L	NE	5.0 U	100 UJ	50 U	5.0 U
Vinyl chloride	µg/L	0.5	0.33 J	**160**	**5.1**	0.32 J
Xylenes (total)	µg/L	1,750*	5.0 U	100 U	50 U	5.0 U

Sample Number:	Units	ROD Cleanup Standard	2011IR2801W915	2011IR2801W919	2011IR2801W92	2011IR2801W920
Location:			W9-15	W9-19	W9-2	W9-20
Sample Date:			09/19/2011	09/19/2011	09/16/2011	09/20/2011
1,1,1-Trichloroethane	µg/L	200	5.0 U	5.0 UJ	250 U	120 U
1,1-Dichloroethane	µg/L	5.0	1.0 U	**11**	**19 J**	**10 J**
1,1-Dichloroethene	µg/L	6.0	1.0 U	0.87 J	**31 J**	**31**
1,2-Dichlorobenzene	µg/L	600*	5.0 U	5.0 U	250 U	120 U
1,2-Dichloroethane	µg/L	0.5*	0.50 U	0.50 U	25 U	12 U
2-Butanone	µg/L	NE	5.0 U	1.2 J	250 U	120 U
2-Hexanone	µg/L	NE	5.0 U	0.20 J	250 U	120 U
4-Methyl-2-Pentanone	µg/L	NE	5.0 U	5.0 U	250 U	120 U
Acetone	µg/L	NE	10 U	10 U	500 UJ	250 U
Benzene	µg/L	1.0*	0.50 U	0.50 U	25 U	12 U
Chloroethane	µg/L	NE	5.0 U	5.0 U	250 U	120 U
Chloroform	µg/L	100	5.0 U	5.0 U	250 U	120 U
Chloromethane	µg/L	NE	5.0 U	5.0 U	250 U	120 U
cis-1,2-Dichloroethene	µg/L	6.0	1.0 U	**30**	**860**	**1500**
Ethylbenzene	µg/L	300*	5.0 U	5.0 U	250 U	120 U
Freon 113	µg/L	1,200*	5.0 U	5.0 U	25 J	27 J
Tetrachloroethene	µg/L	5.0	1.0 U	1.0 U	50 U	**340**
Toluene	µg/L	150*	5.0 U	5.0 U	250 U	120 U
trans-1,2-Dichloroethene	µg/L	10	2.0 U	1.0 J	5.7 J	**13 J**
Trichloroethene	µg/L	5.0	1.0 U	0.20 J	**2100**	**1700**
Vinyl acetate	µg/L	NE	5.0 U	5.0 U	250 U	120 U
Vinyl chloride	µg/L	0.5	0.50 U	**36**	25 U	**43**
Xylenes (total)	µg/L	1,750*	5.0 U	5.0 U	250 U	120 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:	**Units**	**ROD**	**2011IR280114D31A2**	**2011IR280114D36A**	**2011IR280114D36AD**	**2011IR280114D39A**
Location:		**Cleanup**	**14D31A2**	**14D36A**	**14D36A (Dup)**	**14D39A**
Sample Date:		**Standard**	**09/16/2011**	**09/19/2011**	**09/19/2011**	**09/16/2011**
1,1,1-Trichloroethane	µg/L	200	5.0 U	5.0 U	5.0 U	50 U
1,1-Dichloroethane	µg/L	5.0	0.61 J	4.2 J	4.2 J	10 U
1,1-Dichloroethene	µg/L	6.0	1.0 U	2.6	2.6	10 U
1,2-Dichlorobenzene	µg/L	600*	5.0 U	5.0 U	5.0 U	50 U
1,2-Dichloroethane	µg/L	0.5*	0.50 U	0.50 UJ	0.23 J	5.0 U
2-Butanone	µg/L	NE	0.51 J	5.0 U	5.0 U	50 U
2-Hexanone	µg/L	NE	5.0 U	5.0 U	5.0 U	50 U
4-Methyl-2-Pentanone	µg/L	NE	5.0 U	5.0 U	5.0 U	50 U
Acetone	µg/L	NE	10 U	10 U	10 U	100 U
Benzene	µg/L	1.0*	0.50 U	0.50 U	0.50 U	5.0 U
Chloroethane	µg/L	NE	5.0 U	5.0 U	5.0 U	50 U
Chloroform	µg/L	100	5.0 U	5.0 U	5.0 U	50 U
Chloromethane	µg/L	NE	5.0 U	5.0 U	5.0 U	50 U
cis-1,2-Dichloroethene	µg/L	6.0	0.49 J	**42**	**42**	10 U
Ethylbenzene	µg/L	300*	5.0 U	5.0 U	5.0 U	50 U
Freon 113	µg/L	1,200*	5.0 U	0.68 J	0.76 J	50 U
Tetrachloroethene	µg/L	5.0	1.0 U	0.88 J	0.81 J	10 U
Toluene	µg/L	150*	5.0 U	5.0 U	5.0 U	50 U
trans-1,2-Dichloroethene	µg/L	10	2.0 U	0.50 J	0.53 J	20 U
Trichloroethene	µg/L	5.0	0.26 J	**13**	**14**	10 U
Vinyl acetate	µg/L	NE	5.0 U	5.0 U	5.0 U	50 U
Vinyl chloride	µg/L	0.5	0.50 U	**1.1**	**1.2**	5.0 U
Xylenes (total)	µg/L	1,750*	5.0 U	5.0 U	5.0 U	50 U

Sample Number:	**Units**	**ROD**	**2011IR2801W921**	**2011IR2801W922**	**2011IR2801W924**	**2011IR2801W931**
Location:		**Cleanup**	**W9-21**	**W9-22**	**W9-24**	**W9-31**
Sample Date:		**Standard**	**09/19/2011**	**09/20/2011**	**09/19/2011**	**09/20/2011**
1,1,1-Trichloroethane	µg/L	200	25 UJ	5.0 U	5.0 U	250 U
1,1-Dichloroethane	µg/L	5.0	1.1 J	1.2	**6.9**	**7.1 J**
1,1-Dichloroethene	µg/L	6.0	2.6 J	1.0 U	1.0 U	50 U
1,2-Dichlorobenzene	µg/L	600*	25 U	5.0 U	5.0 U	250 U
1,2-Dichloroethane	µg/L	0.5*	2.5 U	0.50 U	0.50 U	25 U
2-Butanone	µg/L	NE	25 U	5.0 U	5.0 U	250 U
2-Hexanone	µg/L	NE	25 U	5.0 U	5.0 U	250 U
4-Methyl-2-Pentanone	µg/L	NE	25 U	5.0 U	5.0 U	250 U
Acetone	µg/L	NE	50 U	10 U	10 U	500 U
Benzene	µg/L	1.0*	2.5 U	0.50 U	0.19 J	25 U
Chloroethane	µg/L	NE	25 U	5.0 U	5.0 U	250 U
Chloroform	µg/L	100	25 U	5.0 U	5.0 U	250 U
Chloromethane	µg/L	NE	25 U	5.0 U	5.0 U	250 U
cis-1,2-Dichloroethene	µg/L	6.0	**200**	2.0	**21**	**1200**
Ethylbenzene	µg/L	300*	25 U	5.0 U	5.0 U	250 U
Freon 113	µg/L	1,200*	25 U	5.0 U	5.0 U	250 U
Tetrachloroethene	µg/L	5.0	5.0 U	1.0 U	1.0 U	50 U
Toluene	µg/L	150*	25 U	5.0 U	5.0 U	250 U
trans-1,2-Dichloroethene	µg/L	10	1.0 J	0.16 J	1.7 J	100 U
Trichloroethene	µg/L	5.0	1.3 J	0.22 J	1.0 U	50 U
Vinyl acetate	µg/L	NE	25 U	5.0 UJ	5.0 U	250 U
Vinyl chloride	µg/L	0.5	**18**	**6.9**	**76**	**210**
Xylenes (total)	µg/L	1,750*	25 U	5.0 U	5.0 U	250 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:		**ROD**	**2011IR280114D39AD**	**2011IR280145B2**	**2011IR2801EA11**	**2011IR2801EA11D**
Location:	**Units**	**Cleanup**	**14D39A (Dup)**	**45B2**	**EA1-1**	**EA1-1 (Dup)**
Sample Date:		**Standard**	**09/16/2011**	**09/16/2011**	**09/20/2011**	**09/20/2011**
1,1,1-Trichloroethane	µg/L	200	50 U	5.0 U	10 U	10 U
1,1-Dichloroethane	µg/L	5.0	10 U	1.0 U	2.6	2.8
1,1-Dichloroethene	µg/L	6.0	10 U	1.0 U	2.0 U	2.0 U
1,2-Dichlorobenzene	µg/L	600*	50 U	5.0 U	10 U	10 U
1,2-Dichloroethane	µg/L	0.5*	5.0 U	0.50 U	1.0 U	1.0 U
2-Butanone	µg/L	NE	50 U	0.53 J	0.91 J	10 UJ
2-Hexanone	µg/L	NE	50 U	5.0 U	10 U	10 U
4-Methyl-2-Pentanone	µg/L	NE	50 U	5.0 U	10 U	10 U
Acetone	µg/L	NE	100 U	2.5 J	20 U	20 U
Benzene	µg/L	1.0*	5.0 U	0.50 U	1.0 U	1.0 U
Chloroethane	µg/L	NE	50 U	5.0 U	10 U	10 U
Chloroform	µg/L	100	50 U	5.0 U	2.2 J	2.1 J
Chloromethane	µg/L	NE	50 U	5.0 U	10 U	10 U
cis-1,2-Dichloroethene	µg/L	6.0	10 U	1.0 U	**32**	**34**
Ethylbenzene	µg/L	300*	50 U	5.0 U	10 U	10 U
Freon 113	µg/L	1,200*	50 U	5.0 U	17	17
Tetrachloroethene	µg/L	5.0	10 U	1.0 U	**290**	**280**
Toluene	µg/L	150*	50 U	5.0 U	10 U	10 U
trans-1,2-Dichloroethene	µg/L	10	20 U	2.0 U	4.0 U	4.0 U
Trichloroethene	µg/L	5.0	10 U	0.13 J	**92**	**94**
Vinyl acetate	µg/L	NE	50 U	5.0 U	10 U	10 U
Vinyl chloride	µg/L	0.5	5.0 U	0.50 U	1.0 U	1.0 U
Xylenes (total)	µg/L	1,750*	50 U	5.0 U	10 U	10 U

Sample Number:		**ROD**	**2011IR2801W933**	**2011IR2801W934**	**2011IR2801W937**	**2011IR2801W940**
Location:	**Units**	**Cleanup**	**W9-33**	**W9-34**	**W9-37**	**W9-40**
Sample Date:		**Standard**	**09/20/2011**	**09/20/2011**	**09/16/2011**	**09/19/2011**
1,1,1-Trichloroethane	µg/L	200	100 U	100 U	50 U	5.0 UJ
1,1-Dichloroethane	µg/L	5.0	3.5 J	**10 J**	**10**	1.6
1,1-Dichloroethene	µg/L	6.0	4.8 J	3.3 J	3.5 J	1.0 U
1,2-Dichlorobenzene	µg/L	600*	100 U	100 U	50 U	5.0 U
1,2-Dichloroethane	µg/L	0.5*	10 U	10 U	5.0 U	0.50 U
2-Butanone	µg/L	NE	100 U	100 U	50 U	5.0 U
2-Hexanone	µg/L	NE	100 U	100 U	50 U	5.0 U
4-Methyl-2-Pentanone	µg/L	NE	100 U	100 U	50 U	5.0 U
Acetone	µg/L	NE	200 U	200 U	100 UJ	10 U
Benzene	µg/L	1.0*	10 U	10 U	5.0 U	0.50 U
Chloroethane	µg/L	NE	100 U	100 U	50 U	5.0 U
Chloroform	µg/L	100	100 U	100 U	50 U	5.0 U
Chloromethane	µg/L	NE	100 U	100 U	50 U	5.0 U
cis-1,2-Dichloroethene	µg/L	6.0	**550**	**560**	**710**	0.26 J
Ethylbenzene	µg/L	300*	100 U	100 U	50 U	5.0 U
Freon 113	µg/L	1,200*	100 U	8.1 J	13 J	5.0 U
Tetrachloroethene	µg/L	5.0	20 U	20 U	10 U	1.0 U
Toluene	µg/L	150*	100 U	100 U	50 U	5.0 U
trans-1,2-Dichloroethene	µg/L	10	40 U	2.5 J	4.8 J	0.11 J
Trichloroethene	µg/L	5.0	**13 J**	**29**	10 U	0.28 J
Vinyl acetate	µg/L	NE	100 UJ	100 UJ	50 U	5.0 U
Vinyl chloride	µg/L	0.5	**23**	**340**	**750**	**7.2**
Xylenes (total)	µg/L	1,750*	100 U	100 U	50 U	5.0 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number: Location: Sample Date:	Units	ROD Cleanup Standard	2011IR2801EA12 EA1-2 09/20/2011	2011IR2801EA12D EA1-2 (Dup) 09/20/2011	2011IR2801EA13 EA1-3 09/20/2011	2011IR2801EA14 EA1-4 09/20/2011
1,1,1-Trichloroethane	µg/L	200	1.3 J	1.2 J	25 U	50 U
1,1-Dichloroethane	µg/L	5.0	3.3	3.2	**7.1**	**11**
1,1-Dichloroethene	µg/L	6.0	0.66 J	0.54 J	4.0 J	**8.2 J**
1,2-Dichlorobenzene	µg/L	600*	5.0 U	10 U	25 U	50 U
1,2-Dichloroethane	µg/L	0.5*	0.50 U	1.0 U	2.5 U	5.0 U
2-Butanone	µg/L	NE	0.46 J	10 UJ	25 U	50 U
2-Hexanone	µg/L	NE	5.0 U	10 U	25 U	50 U
4-Methyl-2-Pentanone	µg/L	NE	5.0 U	10 U	25 U	50 U
Acetone	µg/L	NE	10 U	20 U	50 U	100 U
Benzene	µg/L	1.0*	0.50 U	1.0 U	2.5 U	5.0 U
Chloroethane	µg/L	NE	5.0 U	10 U	25 U	50 U
Chloroform	µg/L	100	0.14 J	10 UJ	25 U	50 U
Chloromethane	µg/L	NE	5.0 U	10 U	25 U	50 U
cis-1,2-Dichloroethene	µg/L	6.0	**43**	**39**	**210**	**480**
Ethylbenzene	µg/L	300*	5.0 U	10 U	25 U	50 U
Freon 113	µg/L	1,200*	1.9 J	2.1 J	25 U	4.1 J
Tetrachloroethene	µg/L	5.0	0.31 J	2.0 UJ	5.0 U	10 U
Toluene	µg/L	150*	5.0 U	10 U	25 U	50 U
trans-1,2-Dichloroethene	µg/L	10	0.28 J	0.22 J	1.3 J	2.5 J
Trichloroethene	µg/L	5.0	**69**	**67**	**160**	3.9 J
Vinyl acetate	µg/L	NE	5.0 U	10 U	25 U	50 U
Vinyl chloride	µg/L	0.5	0.50 U	1.0 U	**23**	**5.2**
Xylenes (total)	µg/L	1,750*	5.0 U	10 U	25 U	50 U

Sample Number: Location: Sample Date:	Units	ROD Cleanup Standard	2011IR2801W944 W9-44 09/19/2011	2011IR2801W945 W9-45 09/19/2011	2011IR2801W97 W9-7 09/16/2011	2011IR2801W98 W9-8 09/19/2011
1,1,1-Trichloroethane	µg/L	200	100 U	50 UJ	100 U	250 U
1,1-Dichloroethane	µg/L	5.0	**11 J**	**6.0 J**	**6.6 J**	**17 J**
1,1-Dichloroethene	µg/L	6.0	**15 J**	**13**	20 U	**50**
1,2-Dichlorobenzene	µg/L	600*	100 U	50 U	100 U	250 U
1,2-Dichloroethane	µg/L	0.5*	10 U	5.0 U	10 U	25 U
2-Butanone	µg/L	NE	100 U	50 U	100 U	250 U
2-Hexanone	µg/L	NE	100 U	50 U	100 U	250 U
4-Methyl-2-Pentanone	µg/L	NE	100 U	50 U	100 U	250 U
Acetone	µg/L	NE	200 U	100 U	200 UJ	500 U
Benzene	µg/L	1.0*	10 U	5.0 U	10 U	25 U
Chloroethane	µg/L	NE	100 U	50 U	100 U	250 U
Chloroform	µg/L	100	100 U	50 U	100 U	250 U
Chloromethane	µg/L	NE	100 U	50 U	100 U	250 U
cis-1,2-Dichloroethene	µg/L	6.0	**440**	**190**	**740**	**2400**
Ethylbenzene	µg/L	300*	100 U	50 U	100 U	250 U
Freon 113	µg/L	1,200*	14 J	5.2 J	5.8 J	28 J
Tetrachloroethene	µg/L	5.0	2.8 J	**13**	20 U	50 U
Toluene	µg/L	150*	100 U	50 U	100 U	250 U
trans-1,2-Dichloroethene	µg/L	10	4.2 J	20 U	**56**	**19 J**
Trichloroethene	µg/L	5.0	**830**	**400**	**11 J**	50 U
Vinyl acetate	µg/L	NE	100 U	50 U	100 U	250 U
Vinyl chloride	µg/L	0.5	10 U	5.0 U	**38**	**360**
Xylenes (total)	µg/L	1,750*	100 U	50 U	100 U	250 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:	Units	ROD Cleanup Standard	2011IR2801EA15	2011IR2801EA16	2011IR2801EA21	2011IR2801EA22
Location:			EA1-5	EA1-6	EA2-1	EA2-2
Sample Date:			09/20/2011	09/19/2011	09/20/2011	09/20/2011
1,1,1-Trichloroethane	μg/L	200	10 U	25 U	120 U	50 U
1,1-Dichloroethane	μg/L	5.0	3.4	3.8 J	**8.3 J**	**10**
1,1-Dichloroethene	μg/L	6.0	1.2 J	5.5	**22 J**	**16**
1,2-Dichlorobenzene	μg/L	600*	10 U	25 U	120 U	50 U
1,2-Dichloroethane	μg/L	0.5*	1.0 U	2.5 U	12 U	5.0 U
2-Butanone	μg/L	NE	10 U	25 U	120 U	50 U
2-Hexanone	μg/L	NE	10 U	25 U	120 U	50 U
4-Methyl-2-Pentanone	μg/L	NE	10 U	25 U	120 U	50 U
Acetone	μg/L	NE	20 U	50 U	250 U	100 U
Benzene	μg/L	1.0*	1.0 U	**1.8 J**	12 U	5.0 U
Chloroethane	μg/L	NE	10 U	25 U	120 U	50 U
Chloroform	μg/L	100	10 U	1.2 J	120 U	50 U
Chloromethane	μg/L	NE	10 U	25 U	120 U	50 U
cis-1,2-Dichloroethene	μg/L	6.0	**100**	**240**	**490**	**480**
Ethylbenzene	μg/L	300*	10 U	25 U	120 U	50 U
Freon 113	μg/L	1,200*	10 U	5.7 J	33 J	16 J
Tetrachloroethene	μg/L	5.0	2.0 U	5.0 U	**41**	10 U
Toluene	μg/L	150*	10 U	25 U	120 U	50 U
trans-1,2-Dichloroethene	μg/L	10	4.4	1.8 J	50 U	2.0 J
Trichloroethene	μg/L	5.0	**9.7**	**220**	**1600**	**770**
Vinyl acetate	μg/L	NE	10 U	4.0 J	120 U	50 U
Vinyl chloride	μg/L	0.5	**16**	**49**	**8.2 J**	**49**
Xylenes (total)	μg/L	1,750*	10 U	25 U	120 U	50 U

Sample Number:	Units	ROD Cleanup Standard	2011IR2801W99	2011IR2801WSC1	2011IR2801W9SC13	2011IR2801W9SC14
Location:			W9-9	W9SC-1	W9SC-13	W9SC-14
Sample Date:			09/16/2011	09/20/2011	09/16/2011	09/19/2011
1,1,1-Trichloroethane	μg/L	200	5.0 U	100 U	100 U	250 U
1,1-Dichloroethane	μg/L	5.0	0.38 J	**10 J**	**19 J**	**7.2 J**
1,1-Dichloroethene	μg/L	6.0	1.0 U	**8.5 J**	**16 J**	**7.6 J**
1,2-Dichlorobenzene	μg/L	600*	5.0 U	100 U	100 U	250 U
1,2-Dichloroethane	μg/L	0.5*	0.50 U	10 U	10 U	25 U
2-Butanone	μg/L	NE	0.67 J	100 U	100 U	250 U
2-Hexanone	μg/L	NE	5.0 U	100 U	100 U	250 U
4-Methyl-2-Pentanone	μg/L	NE	5.0 U	100 U	100 U	250 U
Acetone	μg/L	NE	4.5 J	200 U	200 UJ	500 U
Benzene	μg/L	1.0*	0.72	10 U	**11**	25 U
Chloroethane	μg/L	NE	5.0 U	100 U	100 U	250 U
Chloroform	μg/L	100	5.0 U	100 U	100 U	250 U
Chloromethane	μg/L	NE	5.0 U	100 U	100 U	250 U
cis-1,2-Dichloroethene	μg/L	6.0	0.32 J	**110**	**810**	**1200**
Ethylbenzene	μg/L	300*	0.95 J	100 U	100 U	250 U
Freon 113	μg/L	1,200*	5.0 U	5.4 J	100 U	250 U
Tetrachloroethene	μg/L	5.0	1.0 U	20 U	20 U	50 U
Toluene	μg/L	150*	5.0 U	100 U	100 U	250 U
trans-1,2-Dichloroethene	μg/L	10	2.0 U	40 U	3.9 J	100 U
Trichloroethene	μg/L	5.0	1.0 U	**640**	20 U	**68**
Vinyl acetate	μg/L	NE	5.0 U	100 UJ	100 U	250 U
Vinyl chloride	μg/L	0.5	**3.2**	10 U	**140**	**130**
Xylenes (total)	μg/L	1,750*	0.94 J	100 U	100 U	250 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:	**Units**	**ROD Cleanup Standard**	**2011IR2801EA23**	**2011IR2801UST29MW01**	**2011IR2801USTSSMW02**	**2011IR2801W2001**
Location:			**EA2-3**	**UST29-MW01**	**UST85-MW02**	**W20-01**
Sample Date:			**09/20/2011**	**09/19/2011**	**09/19/2011**	**09/19/2011**
1,1,1-Trichloroethane	µg/L	200	25 U	5.0 U	50 U	5.0 U
1,1-Dichloroethane	µg/L	5.0	4.4 J	0.22 J	1.9 J	0.19 J
1,1-Dichloroethene	µg/L	6.0	3.0 J	1.0 U	**8.6 J**	1.0 U
1,2-Dichlorobenzene	µg/L	600*	25 U	5.0 U	50 U	5.0 U
1,2-Dichloroethane	µg/L	0.5*	2.5 U	0.50 U	5.0 U	0.50 U
2-Butanone	µg/L	NE	25 U	5.0 U	50 U	5.0 U
2-Hexanone	µg/L	NE	25 U	5.0 U	50 U	5.0 U
4-Methyl-2-Pentanone	µg/L	NE	25 U	5.0 U	50 U	5.0 U
Acetone	µg/L	NE	50 U	10 U	100 U	10 U
Benzene	µg/L	1.0*	2.5 U	0.50 U	5.0 U	0.50 U
Chloroethane	µg/L	NE	25 U	5.0 U	50 U	5.0 U
Chloroform	µg/L	100	25 U	5.0 U	10 J	5.0 U
Chloromethane	µg/L	NE	25 U	5.0 U	50 U	5.0 U
cis-1,2-Dichloroethene	µg/L	6.0	**150**	0.72 J	**340**	1.1
Ethylbenzene	µg/L	300*	25 U	5.0 U	50 U	5.0 U
Freon 113	µg/L	1,200*	1.9 J	5.0 U	50 U	5.0 U
Tetrachloroethene	µg/L	5.0	5.0 U	1.0 U	10 U	1.0 U
Toluene	µg/L	150*	25 U	5.0 U	50 U	5.0 U
trans-1,2-Dichloroethene	µg/L	10	1.9 J	2.0 U	1.8 J	2.0 U
Trichloroethene	µg/L	5.0	**39**	1.0 U	**120**	1.0 U
Vinyl acetate	µg/L	NE	25 U	5.0 U	50 U	5.0 U
Vinyl chloride	µg/L	0.5	**17**	0.50 U	5.0 U	0.50 U
Xylenes (total)	µg/L	1,750*	25 U	5.0 U	50 U	5.0 U

Sample Number:	**Units**	**ROD Cleanup Standard**	**2011IR2801W9SC15**	**2011IR2801W9SC3**	**2011IR2801WK1**	**2011IR2801WNB14**
Location:			**W9SC-15**	**W9SC-3**	**WIC-1**	**WNB-14**
Sample Date:			**09/19/2011**	**09/20/2011**	**09/19/2011**	**09/16/2011**
1,1,1-Trichloroethane	µg/L	200	500 U	120 U	50 U	5.0 U
1,1-Dichloroethane	µg/L	5.0	**10 J**	14 J	3.9 J	1.2
1,1-Dichloroethene	µg/L	6.0	**32 J**	34	4.3 J	1.0 U
1,2-Dichlorobenzene	µg/L	600*	500 U	120 U	50 U	5.0 U
1,2-Dichloroethane	µg/L	0.5*	50 U	12 U	5.0 U	0.50 U
2-Butanone	µg/L	NE	500 U	120 U	50 U	5.0 U
2-Hexanone	µg/L	NE	500 U	120 U	50 U	5.0 U
4-Methyl-2-Pentanone	µg/L	NE	500 U	120 U	50 U	5.0 U
Acetone	µg/L	NE	1000 U	250 U	100 U	10 U
Benzene	µg/L	1.0*	50 U	12 U	5.0 U	0.50 U
Chloroethane	µg/L	NE	500 U	120 U	50 U	5.0 U
Chloroform	µg/L	100	500 U	120 U	50 U	5.0 U
Chloromethane	µg/L	NE	500 U	120 U	50 U	5.0 U
cis-1,2-Dichloroethene	µg/L	6.0	**320**	**1100**	**150**	**8.3**
Ethylbenzene	µg/L	300*	500 U	120 U	50 U	5.0 U
Freon 113	µg/L	1,200*	49 J	12 J	50 U	5.0 U
Tetrachloroethene	µg/L	5.0	**120**	25 U	3.6 J	0.14 J
Toluene	µg/L	150*	500 U	120 U	50 U	5.0 U
trans-1,2-Dichloroethene	µg/L	10	200 U	5.2 J	20 U	0.26 J
Trichloroethene	µg/L	5.0	**2100**	**1900 J**	**340**	0.22 J
Vinyl acetate	µg/L	NE	500 U	120 U	50 U	5.0 U
Vinyl chloride	µg/L	0.5	50 U	12 U	5.0 U	**11**
Xylenes (total)	µg/L	1,750*	500 U	120 U	50 U	5.0 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:		**ROD**	**2011IR2801W291**	**2011IR2801W292**	**2011IR2801W293**	**2011IR2801W294**
Location:	**Units**	**Cleanup**	**W29-1**	**W29-2**	**W29-3**	**W29-4**
Sample Date:		**Standard**	**09/20/2011**	**09/20/2011**	**09/20/2011**	**09/20/2011**
1,1,1-Trichloroethane	µg/L	200	5.0 U	25 UJ	100 U	100 U
1,1-Dichloroethane	µg/L	5.0	0.51 J	**6.9 J**	**12 J**	**7.2 J**
1,1-Dichloroethene	µg/L	6.0	1.0 U	5.0 UJ	**17 J**	**13 J**
1,2-Dichlorobenzene	µg/L	600*	5.0 U	25 UJ	100 U	100 U
1,2-Dichloroethane	µg/L	0.5*	0.50 U	2.5 UJ	10 U	10 U
2-Butanone	µg/L	NE	5.0 U	25 UJ	100 U	100 U
2-Hexanone	µg/L	NE	5.0 U	25 UJ	100 U	100 U
4-Methyl-2-Pentanone	µg/L	NE	5.0 U	3.9 J	100 U	100 U
Acetone	µg/L	NE	10 U	50 UJ	200 U	200 U
Benzene	µg/L	1.0*	0.50 U	0.85 J	10 U	10 U
Chloroethane	µg/L	NE	5.0 U	25 UJ	100 U	100 U
Chloroform	µg/L	100	5.0 U	25 UJ	100 U	100 U
Chloromethane	µg/L	NE	0.28 J	25 UJ	7.8 J	100 U
cis-1,2-Dichloroethene	µg/L	6.0	0.45 J	**58 J**	**630**	**370**
Ethylbenzene	µg/L	300*	5.0 U	25 UJ	100 U	100 U
Freon 113	µg/L	1,200*	5.0 U	25 UJ	12 J	100 U
Tetrachloroethene	µg/L	5.0	0.31 J	5.0 UJ	20 U	20 U
Toluene	µg/L	150*	5.0 U	25 UJ	100 U	100 U
trans-1,2-Dichloroethene	µg/L	10	2.0 U	10 UJ	6.9 J	2.7 J
Trichloroethene	µg/L	5.0	1.0 U	5.0 UJ	**680**	**340**
Vinyl acetate	µg/L	NE	5.0 UJ	25 UJ	100 U	100 U
Vinyl chloride	µg/L	0.5	0.50 U	**82 J**	**17**	10 U
Xylenes (total)	µg/L	1,750*	5.0 U	25 UJ	100 U	100 U

Sample Number:		**ROD**	**2011IR2801WNX2**	**2011IR2801WNX3**	**2011IR2801WU410**	**2011IR2801WU411**
Location:	**Units**	**Cleanup**	**WNX-2**	**WNX-3**	**WU4-10**	**WU4-11**
Sample Date:		**Standard**	**09/16/2011**	**09/16/2011**	**09/16/2011**	**09/16/2011**
1,1,1-Trichloroethane	µg/L	200	100 U	0.68 J	1.1 J	5.0 U
1,1-Dichloroethane	µg/L	5.0	**31**	3.9	**5.2**	0.30 J
1,1-Dichloroethene	µg/L	6.0	**30**	5.4	**6.7**	0.26 J
1,2-Dichlorobenzene	µg/L	600*	100 U	10 U	10 U	5.0 U
1,2-Dichloroethane	µg/L	0.5*	10 U	1.0 U	1.0 U	0.50 U
2-Butanone	µg/L	NE	100 U	10 U	10 U	5.0 U
2-Hexanone	µg/L	NE	100 U	10 U	10 U	5.0 U
4-Methyl-2-Pentanone	µg/L	NE	100 U	10 U	10 U	5.0 U
Acetone	µg/L	NE	200 UJ	20 UJ	20 UJ	10 UJ
Benzene	µg/L	1.0*	10 U	1.0 U	1.0 U	0.50 U
Chloroethane	µg/L	NE	100 U	10 U	10 U	5.0 U
Chloroform	µg/L	100	100 U	10 U	10 U	5.0 U
Chloromethane	µg/L	NE	100 U	10 U	10 U	5.0 U
cis-1,2-Dichloroethene	µg/L	6.0	**1300**	**210**	**120**	2.3
Ethylbenzene	µg/L	300*	100 U	10 U	10 U	5.0 U
Freon 113	µg/L	1,200*	100 U	1.5 J	2.0 J	5.0 U
Tetrachloroethene	µg/L	5.0	20 U	2.0 U	0.33 J	1.0 U
Toluene	µg/L	150*	100 U	10 U	10 U	5.0 U
trans-1,2-Dichloroethene	µg/L	10	3.8 J	0.89 J	0.58 J	2.0 U
Trichloroethene	µg/L	5.0	20 U	**170**	**100**	**8.2**
Vinyl acetate	µg/L	NE	100 U	10 U	10 U	5.0 U
Vinyl chloride	µg/L	0.5	**120**	0.63 J	0.62 J	0.50 U
Xylenes (total)	µg/L	1,750*	100 U	10 U	10 U	5.0 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:	Units	ROD Cleanup Standard	2011IR2801W295	2011IR2801W295D	2011IR2801W297	2011IR2801W562
Location:			W29-5	W29-5 (Dup)	W29-7	W56-2
Sample Date:			09/19/2011	09/19/2011	09/19/2011	09/16/2011
1,1,1-Trichloroethane	µg/L	200	50 U	50 U	0.27 J	5.0 U
1,1-Dichloroethane	µg/L	5.0	**8.4 J**	**10**	**17**	**19**
1,1-Dichloroethene	µg/L	6.0	10 U	10 U	**12**	1.0 U
1,2-Dichlorobenzene	µg/L	600*	50 U	50 U	5.0 U	5.0 U
1,2-Dichloroethane	µg/L	0.5*	5.0 U	5.0 U	0.74	3.7
2-Butanone	µg/L	NE	50 U	50 U	5.0 U	5.0 U
2-Hexanone	µg/L	NE	50 U	50 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	µg/L	NE	2.5 J	2.3 J	5.0 U	5.0 U
Acetone	µg/L	NE	100 U	100 U	10 U	10 UJ
Benzene	µg/L	1.0*	5.0 U	5.0 U	0.64	0.36 J
Chloroethane	µg/L	NE	50 U	50 U	5.0 U	5.0 U
Chloroform	µg/L	100	50 U	50 U	0.17 J	5.0 U
Chloromethane	µg/L	NE	50 U	50 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	µg/L	6.0	**48**	**50**	**1000**	4.8
Ethylbenzene	µg/L	300*	50 U	50 U	5.0 U	5.0 U
Freon 113	µg/L	1,200*	50 U	50 U	18	0.72 J
Tetrachloroethene	µg/L	5.0	10 U	10 U	1.0 U	1.0 U
Toluene	µg/L	150*	50 U	50 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	µg/L	10	20 U	20 U	4.1	1.7 J
Trichloroethene	µg/L	5.0	10 U	10 U	4.0	0.44 J
Vinyl acetate	µg/L	NE	50 U	50 U	0.45 J	1.2 J
Vinyl chloride	µg/L	0.5	**230**	**230**	**510**	**90**
Xylenes (total)	µg/L	1,750*	50 U	50 U	5.0 U	5.0 U

Sample Number:	Units	ROD Cleanup Standard	2011IR2801WU414	2011IR2801WU415	2011IR2801WU417	2011IR2801WU421
Location:			WU4-14	WU4-15	WU4-17	WU4-21
Sample Date:			09/20/2011	09/19/2011	09/19/2011	09/19/2011
1,1,1-Trichloroethane	µg/L	200	100 U	10 U	5.0 U	5.0 U
1,1-Dichloroethane	µg/L	5.0	9.8 J	3.2	0.80 J	1.1 J
1,1-Dichloroethene	µg/L	6.0	7.7 J	2.8	1.0 U	0.40 J
1,2-Dichlorobenzene	µg/L	600*	100 U	10 U	5.0 U	5.0 U
1,2-Dichloroethane	µg/L	0.5*	10 U	1.0 U	0.67	0.50 U
2-Butanone	µg/L	NE	100 U	10 U	5.0 U	5.0 U
2-Hexanone	µg/L	NE	100 U	10 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	µg/L	NE	100 U	10 U	5.0 U	5.0 U
Acetone	µg/L	NE	200 U	20 U	12	10 U
Benzene	µg/L	1.0*	10 U	1.0 U	**8.6**	0.50 U
Chloroethane	µg/L	NE	100 U	10 U	1.9 J	5.0 U
Chloroform	µg/L	100	100 U	10 U	3.1 J	5.0 U
Chloromethane	µg/L	NE	100 U	10 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	µg/L	6.0	**520**	**56**	1.0 U	**18**
Ethylbenzene	µg/L	300*	100 U	10 U	0.36 J	5.0 U
Freon 113	µg/L	1,200*	100 U	10 U	5.0 U	5.0 U
Tetrachloroethene	µg/L	5.0	20 U	1.6 J	1.0 U	1.0 U
Toluene	µg/L	150*	100 U	10 U	0.36 J	5.0 U
trans-1,2-Dichloroethene	µg/L	10	3.2 J	0.60 J	2.0 U	0.28 J
Trichloroethene	µg/L	5.0	3.6 J	**15**	1.0 U	0.65 J
Vinyl acetate	µg/L	NE	100 U	10 U	5.0 U	5.0 U
Vinyl chloride	µg/L	0.5	**11**	**1.8**	**3.4**	**0.83**
Xylenes (total)	µg/L	1,750*	100 U	10 U	0.47 J	5.0 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:	**Units**	**ROD**	**2011IR2801W562D**	**2011IR2801W881**	**2011IR2801W881D**	**2011IR2801W910**
Location:		**Cleanup**	**W56-2 (Dup)**	**W88-1**	**W88-1 (Dup)**	**W9-10**
Sample Date:		**Standard**	**09/16/2011**	**09/19/2011**	**09/19/2011**	**09/19/2011**
1,1,1-Trichloroethane	µg/L	200	5.0 U	1000 UJ	1000 UJ	100 U
1,1-Dichloroethane	µg/L	5.0	**18**	200 U	200 U	**9.6 J**
1,1-Dichloroethene	µg/L	6.0	1.0 U	**39 J**	40 J	**6.2 J**
1,2-Dichlorobenzene	µg/L	600*	5.0 U	1000 U	1000 U	100 U
1,2-Dichloroethane	µg/L	0.5*	**3.7**	100 U	100 U	10 U
2-Butanone	µg/L	NE	5.0 U	1000 U	1000 U	100 U
2-Hexanone	µg/L	NE	5.0 U	1000 U	1000 U	100 U
4-Methyl-2-Pentanone	µg/L	NE	5.0 U	1000 U	1000 U	100 U
Acetone	µg/L	NE	10 UJ	2000 U	2000 U	200 U
Benzene	µg/L	1.0*	0.36 J	100 U	100 U	10 U
Chloroethane	µg/L	NE	5.0 U	1000 U	1000 U	100 U
Chloroform	µg/L	100	5.0 U	1000 U	1000 U	100 U
Chloromethane	µg/L	NE	5.0 U	1000 U	1000 U	100 U
cis-1,2-Dichloroethene	µg/L	6.0	4.9	**6600**	**6700**	**630**
Ethylbenzene	µg/L	300*	5.0 U	1000 U	1000 U	100 U
Freon 113	µg/L	1,200*	0.72 J	1000 U	1000 U	100 U
Tetrachloroethene	µg/L	5.0	1.0 U	**1300**	**1500**	20 U
Toluene	µg/L	150*	5.0 U	1000 U	1000 U	100 U
trans-1,2-Dichloroethene	µg/L	10	1.7 J	**27 J**	**34 J**	3.3 J
Trichloroethene	µg/L	5.0	0.48 J	**3600**	**3800**	2.9 J
Vinyl acetate	µg/L	NE	1.1 J	1000 U	1000 U	100 U
Vinyl chloride	µg/L	0.5	**84**	**450**	**470**	**99**
Xylenes (total)	µg/L	1,750*	5.0 U	1000 U	1000 U	100 U

Sample Number:	**Units**	**ROD**	**2011IR2801WU424**	**2011IR2801WU425**	**2011IR2801WU43**	**2011IR2801WU44**
Location:		**Cleanup**	**WU4-24**	**WU4-25**	**WU4-3**	**WU4-4**
Sample Date:		**Standard**	**09/19/2011**	**09/19/2011**	**09/16/2011**	**09/16/2011**
1,1,1-Trichloroethane	µg/L	200	5.0 U	5.0 U	10 U	250 U
1,1-Dichloroethane	µg/L	5.0	**5.7 J**	**8.4 J**	1.7 J	**5.7 J**
1,1-Dichloroethene	µg/L	6.0	1.4	2.8	2.8	**13 J**
1,2-Dichlorobenzene	µg/L	600*	5.0 U	5.0 U	10 U	250 U
1,2-Dichloroethane	µg/L	0.5*	0.50 U	0.50 U	1.0 U	25 U
2-Butanone	µg/L	NE	5.0 U	5.0 U	10 U	250 U
2-Hexanone	µg/L	NE	5.0 U	5.0 U	10 U	250 U
4-Methyl-2-Pentanone	µg/L	NE	5.0 U	5.0 U	10 U	250 U
Acetone	µg/L	NE	10 U	10 U	20 UJ	500 UJ
Benzene	µg/L	1.0*	0.50 U	0.50 U	1.0 U	25 U
Chloroethane	µg/L	NE	5.0 U	5.0 U	10 U	250 U
Chloroform	µg/L	100	5.0 U	5.0 U	10 U	250 U
Chloromethane	µg/L	NE	5.0 U	5.0 U	10 U	250 U
cis-1,2-Dichloroethene	µg/L	6.0	**9.9**	**32**	**95**	**90**
Ethylbenzene	µg/L	300*	5.0 U	5.0 U	10 U	250 U
Freon 113	µg/L	1,200*	5.0 U	5.0 U	4.8 J	21 J
Tetrachloroethene	µg/L	5.0	1.0 U	1.0 U	0.23 J	50 U
Toluene	µg/L	150*	5.0 U	5.0 U	10 U	250 U
trans-1,2-Dichloroethene	µg/L	10	0.29 J	2.0 U	0.45 J	100 U
Trichloroethene	µg/L	5.0	**12**	0.22 J	**240**	**2900**
Vinyl acetate	µg/L	NE	5.0 U	5.0 U	10 U	250 U
Vinyl chloride	µg/L	0.5	0.50 U	**0.65**	1.0 U	25 U
Xylenes (total)	µg/L	1,750*	5.0 U	5.0 U	10 U	250 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:	Units	ROD Cleanup Standard	2011IR2801W912	2011IR2801W914
Location:			W9-12	W9-14
Sample Date:			09/19/2011	09/19/2011
1,1,1-Trichloroethane	µg/L	200	5.0 U	1000 U
1,1-Dichloroethane	µg/L	5.0	1.0 U	200 U
1,1-Dichloroethene	µg/L	6.0	1.0 U	**46 J**
1,2-Dichlorobenzene	µg/L	600*	5.0 U	1000 U
1,2-Dichloroethane	µg/L	0.5*	0.50 U	100 U
2-Butanone	µg/L	NE	5.0 U	1000 U
2-Hexanone	µg/L	NE	5.0 U	1000 U
4-Methyl-2-Pentanone	µg/L	NE	5.0 U	1000 U
Acetone	µg/L	NE	10 U	2000 U
Benzene	µg/L	1.0*	0.50 U	100 U
Chloroethane	µg/L	NE	5.0 U	1000 U
Chloroform	µg/L	100	5.0 U	1000 U
Chloromethane	µg/L	NE	5.0 U	1000 U
cis-1,2-Dichloroethene	µg/L	6.0	1.0 U	**640**
Ethylbenzene	µg/L	300*	5.0 U	1000 U
Freon 113	µg/L	1,200*	5.0 U	**110 J**
Tetrachloroethene	µg/L	5.0	1.0 U	200 U
Toluene	µg/L	150*	5.0 U	1000 U
trans-1,2-Dichloroethene	µg/L	10	2.0 U	400 U
Trichloroethene	µg/L	5.0	0.24 J	**4000**
Vinyl acetate	µg/L	NE	5.0 U	1000 U
Vinyl chloride	µg/L	0.5	0.50 U	100 U
Xylenes (total)	µg/L	1,750*	5.0 U	1000 U

Sample Number:	Units	ROD Cleanup Standard	2011IR2801WU49	2011IR2801WWR3
Location:			WU4-9	WWR-3
Sample Date:			09/16/2011	09/16/2011
1,1,1-Trichloroethane	µg/L	200	5.0 U	2.7 J
1,1-Dichloroethane	µg/L	5.0	1.1	5.3
1,1-Dichloroethene	µg/L	6.0	0.15 J	**7.0**
1,2-Dichlorobenzene	µg/L	600*	5.0 U	5.0 U
1,2-Dichloroethane	µg/L	0.5*	0.50 U	0.50 U
2-Butanone	µg/L	NE	5.0 U	5.0 U
2-Hexanone	µg/L	NE	5.0 U	5.0 U
4-Methyl-2-Pentanone	µg/L	NE	5.0 U	5.0 U
Acetone	µg/L	NE	10 UJ	10 UJ
Benzene	µg/L	1.0*	0.50 U	0.50 U
Chloroethane	µg/L	NE	5.0 U	5.0 U
Chloroform	µg/L	100	5.0 U	0.15 J
Chloromethane	µg/L	NE	5.0 U	5.0 U
cis-1,2-Dichloroethene	µg/L	6.0	**15**	**97**
Ethylbenzene	µg/L	300*	5.0 U	5.0 U
Freon 113	µg/L	1,200*	5.0 U	3.1 J
Tetrachloroethene	µg/L	5.0	1.0 U	1.0 U
Toluene	µg/L	150*	5.0 U	5.0 U
trans-1,2-Dichloroethene	µg/L	10	0.99 J	0.32 J
Trichloroethene	µg/L	5.0	1.0	**39**
Vinyl acetate	µg/L	NE	5.0 U	5.0 U
Vinyl chloride	µg/L	0.5	0.50 U	0.33 J
Xylenes (total)	µg/L	1,750*	5.0 U	5.0 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 28

Notes:

Analytes not listed were not detected in any of the 2011 well samples above the laboratory reporting limits.

Bold values indicate concentrations greater than the Cleanup Standard for the COCs listed in the MEW ROD (EPA 1989).

Complete laboratory analytical data for November/December 2011 IR Site 26 and 28 event, including data validation, are provided on CD in Appendix C.

* - California maximum contaminant level. No ROD value established.

[§] - Sample collected by Shaw Environmental and Infrastructure, Inc.

Abbreviations and Acronyms:

µg/L - micrograms per liter
CD - compact disc
COC - chemical of concern
EPA - U.S. Environmental Protection Agency
IR - installation restoration
J - estimated result
MEW - Middlefield-Ellis-Whisman
NA - analyte not analyzed
NE - not established
ROD - Record of Decision
U - analyte not detected at or above laboratory reporting limit (value indicates the reporting limit)
UJ - analyte detected with an estimated laboratory reporting limit
VOC - volatile organic compound

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
14C33A	Upper A	3/12/1993	47	NA	1 U	NA
14C33A	Upper A	11/22/1993	14	NA	12	75
14C33A	Upper A	5/23/1994	NA	NA	NA	32
14C33A	Upper A	11/23/1994	3	NA	2.5 U	24
14C33A	Upper A	3/31/1995	3.7	NA	0.5 U	39
14C33A	Upper A	7/12/1995	3.2	NA	0.5 U	31
14C33A	Upper A	9/28/1995	3.1	NA	0.5 U	26
14C33A	Upper A	12/13/1995	2.8	NA	0.5 U	27
14C33A	Upper A	9/18/1996	2.6	150	2.5 U	22
14C33A	Upper A	3/17/1997	2.4	170	0.5 U	19
14C33A	Upper A	6/1/1997	1.8	0.5 U	0.5 U	0.5 U
14C33A	Upper A	12/12/1997	1.6	170	0.5 U	25
14C33A	Upper A	6/10/1998	1.6	160	0.5 U	34
14C33A	Upper A	3/25/1999	4	82	2.5 U	12
14C33A	Upper A	6/10/1999	0.8	83	0.5 U	87
14C33A	Upper A	6/24/1999	5 U	104	5 U	47
14C33A	Upper A	1/18/2000	5 U	105	5 U	60
14C33A	Upper A	6/15/2000	0.5 U	94	0.5 U	57
14C33A	Upper A	8/24/2000	16 B	72	1 U	44
14C33A	Upper A	11/30/2000	0.55 J	44	2 U	28
14C33A	Upper A	12/6/2001	0.5 U	65	0.5 U	46
14C33A	Upper A	12/7/2001	0.5 J	31	2 U	40
14C33A	Upper A	11/7/2002	2 U	4	2 U	13
14C33A	Upper A	12/17/2002	0.5 U	1.1	0.5 U	0.98
14C33A	Upper A	6/25/2003	0.5 U	6.5	0.5 U	13
14C33A	Upper A	12/8/2003	2 U	0.7 J	2 U	3
14C33A	Upper A	12/2/2004	2 U	0.2 J	2 U	0.4 J
14C33A	Upper A	12/7/2005	2 U	0.3 J	2 U	0.6
14C33A	Upper A	9/27/2006	0.5 U	0.67	0.5 U	0.5 U
14C33A	Upper A	11/17/2006	2 U	0.3 J	2 U	0.6
14C33A	Upper A	11/20/2007	2 U	0.8 J	2 U	0.4 J
14C33A	Upper A	11/24/2008	0.50 U	0.22 J	0.50 U	0.37 J
14C33A	Upper A	11/24/2009	0.50 U	0.24 J	0.5 U	0.41 J
14C33A	Upper A	11/23/2010	1.0 U	1.0 U	1.0 U	0.50 U
14C33A	Upper A	9/19/2011	1.0 U	0.30 J	1.0 U	0.33 J

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
14D05A	Upper A	3/26/1992	340	140	10 U	10 U
14D05A	Upper A	10/27/1992	360	180	40 U	40 U
14D05A	Upper A	3/12/1993	580	NA	1 U	NA
14D05A	Upper A	11/22/1993	320	NA	12	12
14D05A	Upper A	6/2/1994	630	NA	NA	NA
14D05A	Upper A	11/29/1994	290	NA	NA	20
14D05A	Upper A	9/27/1995	320	NA	0.5 U	17
14D05A	Upper A	3/14/1996	500	870	12 U	25 U
14D05A	Upper A	5/3/1996	730	970	12 U	25 U
14D05A	Upper A	6/26/1996	550	780	2.5 U	8
14D05A	Upper A	9/18/1996	510	1100	25 U	50 U
14D05A	Upper A	3/18/1997	420	1200	2.5 U	11
14D05A	Upper A	5/26/1997	880	1500	83 U	83 U
14D05A	Upper A	6/1/1997	540	0.5 U	0.5 U	0.5 U
14D05A	Upper A	7/30/1997	630 J	1200 J	6 UJ	9 J
14D05A	Upper A	12/17/1997	900	1700	2.5 U	7.1
14D05A	Upper A	6/9/1998	480	1400	13 U	13 U
14D05A	Upper A	3/24/1999	230	1230	5 U	63
14D05A	Upper A	6/10/1999	91	610	5 U	93
14D05A	Upper A	6/24/1999	250	1180	20 U	41
14D05A	Upper A	1/20/2000	220	1120	50 U	50
14D05A	Upper A	6/16/2000	370	1600	5 U	31
14D05A	Upper A	8/23/2000	660	2200	1 U	2.7
14D05A	Upper A	11/28/2000	560	1500	50 U	13 J
14D05A	Upper A	10/30/2001	190	1400	5 U	53
14D05A	Upper A	12/5/2001	15	430	2.5 U	58
14D05A	Upper A	12/7/2001	180	1200	2 U	38 J
14D05A	Upper A	12/7/2001	190	1100	2 U	20
14D05A	Upper A	11/7/2002	610	1900	2 U	6
14D05A	Upper A	11/7/2002	430	1900	2 UJ	7 J
14D05A	Upper A	12/20/2002	470	1500	0.5 U	29
14D05A	Upper A	12/10/2003	400	1700	2 U	8
14D05A	Upper A	12/17/2003	71	1500	12 U	56
14D05A	Upper A	11/30/2004	340 J	1400	10 U	35
14D05A	Upper A	12/7/2005	250	1500	2 U	63
14D05A	Upper A	9/27/2006	85	1200	0.5 U	200
14D05A	Upper A	11/17/2006	440 J	1500 J	2 U	4 J
14D05A	Upper A	11/16/2007	340	1100	2 U	16
14D05A	Upper A	11/16/2007	370	1200	2 U	15
14D05A	Upper A	11/24/2008	290	1100	2.5 U	39
14D05A	Upper A	11/24/2009	250	1100	0.50 U	87
14D05A	Upper A	11/22/2010	210	810	25 U	100
14D05A	Upper A	10/6/2011	120	530	20 U	160

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
14D12A	Upper A	3/26/1992	25	230	0.5 U	0.5 U
14D12A	Upper A	6/3/1992	45	0.6	1.1	10 U
14D12A	Upper A	8/31/1992	120	380	11	10 U
14D12A	Upper A	3/12/1993	150	NA	15	NA
14D12A	Upper A	11/22/1993	690	NA	33	25
14D12A	Upper A	5/27/1994	190	NA	13	20
14D12A	Upper A	11/29/1994	450	NA	21	22
14D12A	Upper A	12/1/1994	350	380	18	28
14D12A	Upper A	7/6/1995	430	NA	22	3
14D12A	Upper A	9/26/1995	160	NA	12	21
14D12A	Upper A	3/14/1996	370	420	21	20 U
14D12A	Upper A	9/18/1996	300	460	12	25 U
14D12A	Upper A	3/19/1997	310	640	13	7.2
14D12A	Upper A	5/27/1997	770	560	22 J	12 J
14D12A	Upper A	6/1/1997	400	0.5 U	0.5 U	0.5 U
14D12A	Upper A	7/30/1997	710 J	480 J	17 J	51 J
14D12A	Upper A	12/16/1997	780	740	19	16
14D12A	Upper A	6/10/1998	550	830	19	25
14D12A	Upper A	3/24/1999	1100	1050	19	55
14D12A	Upper A	6/10/1999	1200	390	27	74
14D12A	Upper A	6/24/1999	870	927	20	29
14D12A	Upper A	1/21/2000	830	900	50 U	54
14D12A	Upper A	6/16/2000	630	930	15	38
14D12A	Upper A	8/23/2000	500	820	8.2	34
14D12A	Upper A	11/28/2000	440	770	9.5 J	33
14D12A	Upper A	12/5/2001	250	740	7.2	9.9
14D12A	Upper A	12/7/2001	250	620	6	24
14D12A	Upper A	11/7/2002	270	800	8	25
14D12A	Upper A	12/17/2002	43	150	3.8	7.6
14D12A	Upper A	9/24/2003	240	1100	5.8	51
14D12A	Upper A	12/8/2003	200	780	6	37 J
14D12A	Upper A	11/30/2004	110	590	5	38
14D12A	Upper A	12/7/2005	70	520	5	25
14D12A	Upper A	11/17/2006	67 J	460 J	4 J	26
14D12A	Upper A	11/17/2006	70 J	470 J	5 J	23
14D12A	Upper A	11/20/2007	46	340	3	16
14D12A	Upper A	11/24/2008	27	250	2.4	12
14D12A	Upper A	11/23/2009	36	440	4.2 J	18
14D12A	Upper A	11/19/2010	30 J	360 J	10 UJ	6.8 J
14D12A	Upper A	9/19/2011	22	310	2.5 J	5.1
14D24A	Upper A	11/25/2008	53	110	0.20 J	0.98
14D24A	Upper A	11/23/2009	29	91	1.0 U	1.0 U
14D24A	Upper A	9/16/2011	23	60	0.17 J	0.32 J

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
14D26A1	Upper A	11/25/2008	24	43	0.50 U	0.94
14D26A1	Upper A	11/23/2009	6.7	1.3	0.50 U	0.50 U
14D26A1	Upper A	11/22/2010	18	20	1.0 U	0.90
14D28A	Upper A	1/12/1995	9.4 U	47 U	50 U	50 U
14D28A	Upper A	12/14/1995	12	NA	2.5	1.2
14D28A	Upper A	3/20/1997	30	110	3.8	0.5 U
14D28A	Upper A	6/1/1997	33	0.5 U	0.5 U	0.5 U
14D28A	Upper A	12/15/1997	30	130	3.2	1.2
14D28A	Upper A	6/9/1998	36	110	3.6	1.1
14D28A	Upper A	12/10/1998	35	130	3.2	1.5
14D28A	Upper A	6/9/1999	32	95	2.5	2.9
14D28A	Upper A	6/7/2001	19	74	3.4	2
14D28A	Upper A	8/30/2001	19	86	3	1.7
14D28A	Upper A	12/7/2001	17	67	3	3
14D28A	Upper A	9/10/2002	16	82	3.2	0.99
14D28A	Upper A	11/7/2002	17	65	4	2
14D28A	Upper A	6/24/2003	25	54	3.1	1.3
14D28A	Upper A	12/8/2003	17	62	3	2 J
14D28A	Upper A	12/2/2004	20 J	71 J	4 J	2 J
14D28A	Upper A	12/2/2004	21	66	4	2
14D28A	Upper A	12/7/2005	18	61	4	1
14D28A	Upper A	9/27/2006	20	53	3.7	0.89
14D28A	Upper A	11/17/2006	19	60 J	3	1
14D28A	Upper A	11/16/2007	18	50	3	1
14D28A	Upper A	11/24/2008	18	57	3.6	1.7
14D28A	Upper A	11/24/2008	19	59	3.7	2.1
14D28A	Upper A	11/23/2009	19	55	3.3	1.8
14D28A	Upper A	11/23/2010	18 J	54 J	3.0 J	1.2 J

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
14D31A2	Lower A	12/18/1997	1.1	1.3	0.5 U	0.67
14D31A2	Lower A	6/2/1998	1.1	1.1	0.5 U	0.5
14D31A2	Lower A	3/10/1999	1.1	1.6	0.5 U	0.5 U
14D31A2	Lower A	12/13/1999	0.5	0.5	0.5 U	0.5 U
14D31A2	Lower A	6/14/2000	1	1.8	0.5 U	0.5 U
14D31A2	Lower A	8/27/2001	1.7	2.9	0.5 U	0.5 U
14D31A2	Lower A	12/4/2001	1.8	2.8	0.5 U	0.5 U
14D31A2	Lower A	12/7/2001	0.3 J	0.7 J	2 U	2 U
14D31A2	Lower A	9/10/2002	1.9	2.5	0.5 U	0.5 U
14D31A2	Lower A	11/6/2002	2 U	0.8 J	2 U	0.5 U
14D31A2	Lower A	6/24/2003	1.4	0.82	0.5 U	0.5 U
14D31A2	Lower A	12/9/2003	2 U	1 J	2 U	0.5 UJ
14D31A2	Lower A	11/30/2004	2 U	1 J	2 U	0.5 U
14D31A2	Lower A	12/7/2005	0.3 J	1 J	2 U	0.5 U
14D31A2	Lower A	11/17/2006	0.3 J	1 J	2 U	0.5 U
14D31A2	Lower A	11/16/2007	2 U	0.2 J	2 U	0.5 U
14D31A2	Lower A	11/21/2008	0.47 J	1.4	0.50 U	0.50 U
14D31A2	Lower A	11/20/2009	0.23 J	0.55	0.50 U	0.50 U
14D31A2	Lower A	11/19/2010	1.0 U	1.0 U	1.0 U	0.50 U
14D31A2	Lower A	9/16/2011	0.26 J	0.49 J	1.0 U	0.50 U
14D36A	Upper A	11/24/2008	12	51	0.79	1.3
14D36A	Upper A	11/23/2009	15	53	0.92	1.6
14D36A	Upper A	11/23/2010	12	43	1.0 U	1.1
14D36A	Upper A	9/19/2011	13	42	0.88 J	1.1
14D39A	Upper A	11/21/2008	0.37 J	1.9	0.50 U	0.96
14D39A	Upper A	11/23/2009	0.13 J	0.28 J	0.50 U	0.39 J
14D39A	Upper A	11/19/2010	1.0 U	1.0 J	1.0 U	0.50 U
14D39A	Upper A	9/16/2011	10 U	10 U	10 U	5.0 U
165A	Upper A	12/8/2001	420	89	1 J	2 U
165A	Upper A	11/8/2002	490	99	1 J	0.5 U
165A	Upper A	12/11/2003	490 J	81	0.8 J	0.5 U
165A	Upper A	12/1/2004	390	78 J	0.6 J	0.3 J
165A	Upper A	12/9/2005	440	120	0.9 J	0.3 J
165A	Upper A	11/20/2006	480	130	0.7 J	0.3 J
165A	Upper A	11/19/2007	320	100	0.7 J	0.7
165A	Upper A	11/24/2008	300	130	0.63	0.50 U
165A	Upper A	11/20/2009	270	120	0.38 J	0.84 J
165A	Upper A	11/19/2010	350	150	20 U	10 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
45B2	B2	11/18/1992	1 U	1 U	1 U	1 U
45B2	B2	11/5/2002	2 U	2 U	2 U	0.5 U
45B2	B2	12/9/2003	2 U	2 U	2 U	0.5 UJ
45B2	B2	11/30/2004	2 U	2 U	2 U	0.5 U
45B2	B2	12/8/2005	2 U	2 U	2 U	0.5 U
45B2	B2	11/20/2006	2 U	2 UJ	2 U	0.5 U
45B2	B2	11/19/2007	2 U	2 U	2 U	0.5 U
45B2	B2	11/24/2008	0.50 U	0.50 U	0.50 U	0.50 U
45B2	B2	11/23/2009	0.50 U	0.50 U	0.50 U	0.50 U
45B2	B2	11/19/2010	1.0 U	1.0 U	1.0 U	0.50 U
45B2	B2	9/16/2011	0.13 J	1.0 U	1.0 U	0.50 U
46B1	Lower A	10/1/1992	1 U	1 U	1 U	1 U
46B1	Lower A	12/28/1992	2700	290	100 U	100 U
46B1	Lower A	7/22/1998	950	64	0.5 U	0.5 U
46B1	Lower A	1/12/1999	1900	360	6.3 U	6.3 U
46B1	Lower A	7/8/1999	2800	170	8.3 U	8.3 U
46B1	Lower A	12/23/1999	1600	97	6.3 U	6.3 U
46B1	Lower A	7/13/2000	1600	120	6.3 U	6.3 U
46B1	Lower A	12/15/2000	1900	280	8.3 U	8.3 U
46B1	Lower A	11/30/2001	1200	190	5 U	4.2 U
46B1	Lower A	12/12/2002	2000	490	5 U	5 U
46B1	Lower A	12/4/2003	1500	250	5 U	5 U
46B1	Lower A	12/2/2004	1700	210	13 U	13 U
46B1	Lower A	12/7/2005	910	180	6.3 U	6.3 U
46B1	Lower A	12/8/2005	1200	210	2 U	0.5 U
46B1	Lower A	12/6/2006	1300	220	2.5 U	2.5 U
46B1	Lower A	12/4/2007	940	230	7.1 U	7.1 U
46B1	Lower A	12/5/2008	840	170	7.1 U	7.1 U
46B1	Lower A	12/8/2009	780	270	3.1 U	3.1 U
46B1	Lower A	12/13/2010	560	160	2.5 U	2.5 U
46B1	Lower A	10/3/2011	580	180	5.0 U	5.0 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
47B1	Lower A	9/30/1992	28	20	1 U	1 U
47B1	Lower A	7/21/1998	4.2	17	0.5 U	0.5 U
47B1	Lower A	1/6/1999	13 U	13 U	13 U	13 U
47B1	Lower A	12/17/1999	1.2	4.7	0.5 U	0.5 U
47B1	Lower A	12/6/2000	1.6	4.7	0.5 U	0.5 U
47B1	Lower A	11/28/2001	2.6	6.2	0.5 U	0.5 U
47B1	Lower A	12/11/2002	3	7.3	0.5 U	0.5 U
47B1	Lower A	12/3/2003	1.6	2.5	0.5 U	0.5 U
47B1	Lower A	12/11/2003	2 J	2	2 U	0.5 U
47B1	Lower A	11/30/2004	1 J	2 J	2 U	0.5 U
47B1	Lower A	12/1/2004	2	8.4	0.5 U	0.5 U
47B1	Lower A	12/6/2005	1.6	7.1	0.5 U	0.5 U
47B1	Lower A	12/9/2005	2 J	8	2 U	0.2 J
47B1	Lower A	11/20/2006	2 J	7 J	2 U	0.5 U
47B1	Lower A	12/7/2006	1.9	11	0.5 U	0.5 U
47B1	Lower A	11/19/2007	1 J	9	2 U	0.2 J
47B1	Lower A	12/5/2008	4.4	11	0.5 U	0.5 U
47B1	Lower A	12/3/2009	2.1	13	0.5 U	0.5 U
47B1	Lower A	12/9/2010	2.3	12	0.5 U	0.5 U
47B1	Lower A	10/5/2011	3.4	3.4	0.5 U	0.5 U
65A	Upper A	9/9/1992	4400	450	100 U	100 U
65A	Upper A	7/9/1998	1600	170	5 U	5 U
65A	Upper A	7/10/1998	1800	190	5 U	5 U
65A	Upper A	1/19/1999	1800	140	6.3 U	6.3 U
65A	Upper A	7/8/1999	1300	140	4.2 U	4.2 U
65A	Upper A	12/29/1999	420	50	1.3 U	1.3 U
65A	Upper A	7/7/2000	820	93	3.6 U	3.6 U
65A	Upper A	12/15/2000	690	110	3.1 U	3.1 U
65A	Upper A	11/28/2001	590	99	2 U	2 U
65A	Upper A	12/17/2002	730	110	2 U	2 U
65A	Upper A	12/3/2003	530	67	2 U	2 U
65A	Upper A	12/7/2004	580	150	0.5 U	4
65A	Upper A	12/7/2005	560	110	3.1 U	3.1 U
65A	Upper A	12/8/2005	650	120	0.6 J	0.3 J
65A	Upper A	12/8/2006	570	140	4.2 U	4.2 U
65A	Upper A	12/3/2007	580	160	3.6 U	3.6 U
65A	Upper A	12/4/2008	510	160	1.3 U	1.3 U
65A	Upper A	12/8/2009	470	130	2.5 U	2.5 U
65A	Upper A	11/18/2010	410	150	2.5 U	2.5 U
65A	Upper A	10/3/2011	420	140	3.1 U	3.1 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
79B1	Lower A	9/29/1992	1 U	1 U	1 U	1 U
79B1	Lower A	7/17/1998	2.3	1.6	0.5 U	0.5 U
79B1	Lower A	1/8/1999	0.5	0.5 U	0.5 U	0.5 U
79B1	Lower A	12/18/1999	1.9	0.7	0.5 U	0.5 U
79B1	Lower A	12/11/2000	0.6	0.6	0.5 U	0.5 U
79B1	Lower A	11/27/2001	1	1.3	0.5 U	0.5 U
79B1	Lower A	12/6/2001	0.5 J	0.8 J	2 U	2 U
79B1	Lower A	12/6/2001	0.6 J	0.8 J	2 U	2 U
79B1	Lower A	12/11/2002	0.8	0.7	0.5 U	0.5 U
79B1	Lower A	12/3/2003	2.2	7.2	0.5 U	0.5 U
79B1	Lower A	12/9/2003	0.7 J	2 J	2 U	0.5 UJ
79B1	Lower A	12/1/2004	0.5 J	0.7 J	2 U	0.5 U
79B1	Lower A	12/2/2004	0.7	1.5	0.5 U	0.5 U
79B1	Lower A	12/7/2005	0.8	0.5 U	0.5 U	0.5 U
79B1	Lower A	12/8/2005	0.6 J	1 J	2 U	0.5 U
79B1	Lower A	11/21/2006	0.6 J	0.5 J	2 U	0.5 U
79B1	Lower A	12/7/2006	1.4	0.6	0.5 U	0.5 U
79B1	Lower A	11/19/2007	0.5 J	0.5 J	2 U	0.5 U
79B1	Lower A	12/1/2008	0.5 U	0.5 U	0.5 U	0.5 U
79B1	Lower A	12/3/2009	0.9	1.8	0.5 U	0.5 U
79B1	Lower A	12/9/2010	3.3	2.5	0.5 U	0.5 U
79B1	Lower A	9/30/2011	7.8	2.8	0.5 U	0.5 U
80B1	Lower A	9/30/1992	4200	100 U	100 U	100 U
80B1	Lower A	5/30/1997	2700	120 J	200 U	200 U
80B1	Lower A	8/5/1997	2600 D	120	15 J	17 U
80B1	Lower A	3/24/1999	2090	99	10 U	20 U
80B1	Lower A	6/23/1999	1130	87	20 U	10 U
80B1	Lower A	1/19/2000	1020	95	25 U	13 U
80B1	Lower A	8/22/2000	1000	930	20	180
80B1	Lower A	11/27/2000	900	550	6.5 J	88
80B1	Lower A	1/25/2002	1200	700	24	140
80B1	Lower A	11/8/2002	1400	440	12 J	55
80B1	Lower A	12/10/2003	520	160	3	0.5 U
80B1	Lower A	12/1/2004	1100	410	10	22
80B1	Lower A	12/6/2005	920	310	5	5
80B1	Lower A	11/20/2006	480 J	170 J	2 J	0.5
80B1	Lower A	11/19/2007	280	88	0.9 J	0.5
80B1	Lower A	11/19/2007	270	85	0.9 J	0.5 J
80B1	Lower A	11/25/2008	1000	320	2.9	5.0
80B1	Lower A	11/23/2009	450	150	1.4 J	5.0 U
80B1	Lower A	11/22/2010	780	250	20 U	10 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
81A	Upper A	11/5/1992	680	530	50 U	50 U
81A	Upper A	7/9/1998	510	610	2 U	2 U
81A	Upper A	1/19/1999	400	810	0.5 U	3
81A	Upper A	12/23/1999	260	950	3.6 U	4.9
81A	Upper A	12/4/2000	110	1100	3.2	3.1 U
81A	Upper A	11/28/2001	97	1200	3.6 U	3.6 U
81A	Upper A	12/17/2002	140	1200	2.5 U	2.5 U
81A	Upper A	12/4/2003	89	1400	7.1 U	7.1 U
81A	Upper A	4/6/2004	110	1700	0.5 U	3
81A	Upper A	4/27/2004	130	1900	0.5 U	3
81A	Upper A	5/11/2004	91	1600	0.5 U	5
81A	Upper A	6/14/2004	98	2000	0.5 U	7
81A	Upper A	7/13/2004	110	1700	0.5 U	5
81A	Upper A	7/13/2004	110	1700	0.5 U	6
81A	Upper A	8/16/2004	130	2000	0.5 U	3
81A	Upper A	11/15/2004	98	1700	1 U	3
81A	Upper A	12/2/2004	97	1800	10 U	13 U
81A	Upper A	12/7/2005	73	1700	13 U	13 U
81A	Upper A	12/8/2005	69	1900	2 U	2
81A	Upper A	12/6/2006	86	1800	17 U	17 U
81A	Upper A	12/4/2007	76	1900	17 U	17 U
81A	Upper A	12/5/2008	42	1500	10 U	10 U
81A	Upper A	12/8/2009	49	1800	5 U	5 U
81A	Upper A	11/16/2010	39	1500	10 U	10 U
81A	Upper A	10/3/2011	29	1600	17 U	17 U
87B1	Lower A	10/6/1992	45	36	1 U	1 U
87B1	Lower A	7/20/1998	38	1.1	0.5 U	0.5 U
87B1	Lower A	8/13/1998	36	1.1	0.5 U	0.5 U
87B1	Lower A	1/6/1999	43	1.1	0.5 U	0.5 U
87B1	Lower A	12/22/1999	51	1.1	0.5 U	0.5 U
87B1	Lower A	12/11/2000	63	1.2	0.5 U	0.5 U
87B1	Lower A	11/29/2001	57	1	0.5 U	0.5 U
87B1	Lower A	12/12/2002	70	1.2	0.5 U	0.5 U
87B1	Lower A	12/4/2003	71	1.5	0.5 U	0.5 U
87B1	Lower A	12/7/2004	74	1	0.5 U	0.5 U
87B1	Lower A	8/10/2005	84	1.1 J	5 U	0.5 U
87B1	Lower A	12/9/2005	86	1.2 J	5 U	0.5 U
87B1	Lower A	12/12/2005	58	1.5	0.5 U	0.5 U
87B1	Lower A	12/8/2006	76	1.3	0.5 U	0.5 U
87B1	Lower A	12/4/2007	62	1.2	0.5 U	0.5 U
87B1	Lower A	12/9/2008	66	0.8	0.5 U	0.5 U
87B1	Lower A	12/7/2009	56	1.1	0.5 U	0.5 U
87B1	Lower A	12/10/2010	5.4	0.6	0.5 U	0.5 U
87B1	Lower A	10/12/2011	5.4	0.50 U	0.50 U	0.50 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
EA1-1	Upper A	3/24/1999	672	1970	100	10 U
EA1-1	Upper A	6/23/1999	170	2690	50 U	25 U
EA1-1	Upper A	1/19/2000	460	1700	130	13 U
EA1-1	Upper A	8/21/2000	360	870	130	5 U
EA1-1	Upper A	11/30/2000	510	1100	210	25 U
EA1-1	Upper A	3/29/2001	609	1070	180 J	25 U
EA1-1	Upper A	7/18/2001	780	870	550	0.79
EA1-1	Upper A	12/5/2001	490 D	710 D	500 D	0.8 J
EA1-1	Upper A	11/8/2002	510	650	760	0.5 U
EA1-1	Upper A	12/10/2003	380	500	330	0.4 J
EA1-1	Upper A	4/6/2004	1300	610	560	0.8
EA1-1	Upper A	4/26/2004	450	500	30	0.7
EA1-1	Upper A	4/26/2004	460	460	26	0.6
EA1-1	Upper A	5/11/2004	350	310	5	0.6
EA1-1	Upper A	6/14/2004	450	320	7	1
EA1-1	Upper A	7/12/2004	540	270	43	0.9
EA1-1	Upper A	8/16/2004	610	360	83	1
EA1-1	Upper A	11/15/2004	630	380	220	1
EA1-1	Upper A	12/2/2004	490	440	59	1
EA1-1	Upper A	12/8/2005	320	750	90	0.9
EA1-1	Upper A	11/21/2006	1700	600 J	1300	0.5
EA1-1	Upper A	11/21/2006	830	290 J	580	0.4 J
EA1-1	Upper A	11/19/2007	690	510	740	1
EA1-1	Upper A	11/21/2008	1300	200	1300	2.5 U
EA1-1	Upper A	11/23/2009	560	550	1100	25 U
EA1-1	Upper A	11/22/2010	270	210	550	5.0 U
EA1-1	Upper A	9/20/2011	92	32	290	1.0 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
EA1-2	Upper A	3/24/1999	740	168	5 U	10 U
EA1-2	Upper A	6/23/1999	725	160	10 U	5 U
EA1-2	Upper A	1/19/2000	727	140	25 U	13 U
EA1-2	Upper A	8/22/2000	270	130	0.78 J	0.36 J
EA1-2	Upper A	11/27/2000	650	130 J	20 U	10 U
EA1-2	Upper A	3/29/2001	399	100	100 U	10 U
EA1-2	Upper A	7/18/2001	570	110	5 U	1.2
EA1-2	Upper A	12/7/2001	340	71	0.8 J	0.7 J
EA1-2	Upper A	11/8/2002	480	120	1 J	3
EA1-2	Upper A	12/10/2003	420	120	0.8 J	2
EA1-2	Upper A	12/2/2004	290	110	0.8 J	2
EA1-2	Upper A	12/2/2004	310	110	0.8 J	2
EA1-2	Upper A	12/8/2005	310	110	0.7 J	1
EA1-2	Upper A	11/21/2006	330	110	0.9 J	0.9 J
EA1-2	Upper A	11/16/2007	250	100	0.6J	1
EA1-2	Upper A	11/24/2008	240	120	0.59	1.1
EA1-2	Upper A	11/20/2009	270	140	0.65	1.2
EA1-2	Upper A	11/22/2010	130	75	5.0 U	2.5 U
EA1-2	Upper A	9/20/2011	69	43	0.31 J	0.50 U
EA1-3	Upper A	3/24/1999	2930	506	10 U	20 U
EA1-3	Upper A	6/23/1999	1800	410	50 U	25 U
EA1-3	Upper A	1/19/2000	2020	530	100 U	50 U
EA1-3	Upper A	8/23/2000	3300	360	36	12
EA1-3	Upper A	11/27/2000	1400	540	17 J	14 J
EA1-3	Upper A	3/29/2001	1970	617	16 J	25 U
EA1-3	Upper A	7/18/2001	1500	590	24	37
EA1-3	Upper A	12/6/2001	1100	420	8	20
EA1-3	Upper A	11/8/2002	1500	490	8	22
EA1-3	Upper A	12/10/2003	1200	530	8	25
EA1-3	Upper A	11/29/2004	890	470	5	51
EA1-3	Upper A	12/6/2005	960	580	4	37
EA1-3	Upper A	11/20/2006	1100 J	700 J	4	91 J
EA1-3	Upper A	11/16/2007	560	370	3	77
EA1-3	Upper A	11/21/2008	580	420	3.0	64
EA1-3	Upper A	11/23/2009	560	390	3	48
EA1-3	Upper A	11/22/2010	230	300	10 U	42
EA1-3	Upper A	9/20/2011	160	210	5.0 U	23

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
EA1-4	Upper A	3/24/1999	246	1100	5 U	62
EA1-4	Upper A	6/23/1999	33 J	1720	50 U	25 U
EA1-4	Upper A	1/19/2000	65	1050	12 J	13 U
EA1-4	Upper A	8/23/2000	190	810	13	18
EA1-4	Upper A	11/28/2000	100	800	11 J	30
EA1-4	Upper A	3/29/2001	127 J	873	250 U	17 J
EA1-4	Upper A	7/18/2001	84	1100	11	26
EA1-4	Upper A	1/25/2002	88	760	7	16
EA1-4	Upper A	11/7/2002	160	790	10	24
EA1-4	Upper A	12/10/2003	110	1000	8	20
EA1-4	Upper A	12/1/2004	100	750	7	24
EA1-4	Upper A	12/7/2005	95	660	7	27
EA1-4	Upper A	11/17/2006	170	680	7	29
EA1-4	Upper A	11/20/2007	120	570	5	32
EA1-4	Upper A	11/21/2008	88	490	4.5	30
EA1-4	Upper A	11/23/2009	64	500	3.5 J	20
EA1-4	Upper A	11/22/2010	5.8	40	1.5	0.50 U
EA1-4	Upper A	9/20/2011	3.9 J	480	10 U	5.2
EA1-5	Upper A	3/24/1999	37	665	5 U	244
EA1-5	Upper A	6/23/1999	80	452	10 U	220
EA1-5	Upper A	1/19/2000	87	470	25 U	200
EA1-5	Upper A	8/23/2000	130	730	13	34
EA1-5	Upper A	11/27/2000	56	340	10 U	170
EA1-5	Upper A	3/29/2001	60	321	50 U	97.6
EA1-5	Upper A	7/18/2001	56	310	5 U	240
EA1-5	Upper A	12/7/2001	54	260	0.5 J	130
EA1-5	Upper A	11/8/2002	60	240	0.4 J	96
EA1-5	Upper A	12/10/2003	32	210	0.4 J	68
EA1-5	Upper A	11/30/2004	22	200	0.2 J	72
EA1-5	Upper A	12/6/2005	15	210	2 U	61
EA1-5	Upper A	11/17/2006	19	190 J	2 U	46
EA1-5	Upper A	11/20/2007	13	150	0.1 J	38
EA1-5	Upper A	11/21/2008	12	120	0.16 J	35
EA1-5	Upper A	11/21/2008	12	120	0.13 J	37
EA1-5	Upper A	11/20/2009	13	190 J	0.50 U	33
EA1-5	Upper A	11/22/2010	9.9	100	2.0 U	20
EA1-5	Upper A	9/20/2011	9.7	100	2.0 U	16

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
EA1-6	Upper A	3/24/1999	1020	1350	5 U	65
EA1-6	Upper A	6/23/1999	41	1910	20 U	140
EA1-6	Upper A	1/19/2000	785	716	10 U	176
EA1-6	Upper A	8/23/2000	180	580	5 U	88
EA1-6	Upper A	11/28/2000	330	430	5 U	130
EA1-6	Upper A	3/29/2001	339	463	100 U	113
EA1-6	Upper A	7/18/2001	360	540	5 U	98
EA1-6	Upper A	12/5/2001	100 J	660 D	2 U	100 J
EA1-6	Upper A	11/7/2002	300	400	2 U	150
EA1-6	Upper A	12/10/2003	220	360	2 U	160
EA1-6	Upper A	4/6/2004	210	350	0.5 U	85
EA1-6	Upper A	4/27/2004	0.5 U	59	0.5 U	140
EA1-6	Upper A	5/10/2004	0.5 U	11	0.5 U	81
EA1-6	Upper A	6/15/2004	0.5 U	9	0.5 U	22
EA1-6	Upper A	7/13/2004	1	18	0.5 U	28
EA1-6	Upper A	8/17/2004	0.5 U	8	0.5 U	24
EA1-6	Upper A	8/17/2004	0.5 U	9	0.5 U	25
EA1-6	Upper A	11/16/2004	0.5 U	16	0.5 U	27
EA1-6	Upper A	11/30/2004	200	320	2 U	45
EA1-6	Upper A	12/7/2005	2 U	23	2 U	47
EA1-6	Upper A	11/17/2006	250	300	2 U	59
EA1-6	Upper A	11/16/2007	210	250	2 U	40
EA1-6	Upper A	11/16/2007	190 J	240	2 U	38
EA1-6	Upper A	11/21/2008	200	260	0.50 U	48
EA1-6	Upper A	11/24/2009	220	240	5.0 U	44
EA1-6	Upper A	11/19/2010	250 J	310 J	5.0 UJ	59 J
EA1-6	Upper A	9/19/2011	220	240	5.0 U	49

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
EA2-1	Lower A	3/24/1999	6240	190	50 U	100 U
EA2-1	Lower A	6/23/1999	6810	210	100	50 U
EA2-1	Lower A	8/23/2000	4100 J	370 J	65 J	0.72 J
EA2-1	Lower A	11/27/2000	4100	160	57 J	63 U
EA2-1	Lower A	3/29/2001	3670	390 J	69 J	50 U
EA2-1	Lower A	12/7/2001	3000	360	54	2 J
EA2-1	Lower A	11/8/2002	2800	470	49	3 J
EA2-1	Lower A	12/11/2003	3100 J	300	47	0.8
EA2-1	Lower A	12/11/2003	3200 J	270	44	0.8
EA2-1	Lower A	12/1/2004	2600	420	48	3
EA2-1	Lower A	12/8/2005	2400	500	47	3
EA2-1	Lower A	11/20/2006	2700	520	62 J	4 J
EA2-1	Lower A	11/19/2007	1900	460	43	6
EA2-1	Lower A	11/21/2008	2100	540	49	7.4
EA2-1	Lower A	11/23/2009	2000	600	55	6.5
EA2-1	Lower A	11/22/2010	1900	540	53	25 U
EA2-1	Lower A	9/20/2011	1600	490	41	8.2 J
EA2-2	Lower A	3/24/1999	1990	180	25 U	50 U
EA2-2	Lower A	6/23/1999	322	345	5 J	102
EA2-2	Lower A	1/19/2000	2000	420	100 U	50 U
EA2-2	Lower A	8/23/2000	1900	470	28	65
EA2-2	Lower A	11/27/2000	1700	420	25 J	73
EA2-2	Lower A	3/29/2001	1980	570	29 J	69
EA2-2	Lower A	7/18/2001	2000	270	26	31
EA2-2	Lower A	1/25/2002	1500	520	18	72 J
EA2-2	Lower A	11/8/2002	1700	490	18	71
EA2-2	Lower A	12/10/2003	1400	540	23	92 J
EA2-2	Lower A	12/1/2004	1300	560	21	58
EA2-2	Lower A	12/6/2005	1200	570	17	51
EA2-2	Lower A	11/20/2006	1300 J	710 J	16	80 J
EA2-2	Lower A	11/20/2007	1100	650	10	55
EA2-2	Lower A	11/21/2008	870	560	7.6	66
EA2-2	Lower A	11/23/2009	930	580	5.5 J	60
EA2-2	Lower A	11/22/2010	870	500	20 U	44
EA2-2	Lower A	9/20/2011	770	480	10 U	49
EA2-3	Lower A	11/30/2004	59	2	2 U	0.5 U
EA2-3	Lower A	12/6/2005	180	310	29	76
EA2-3	Lower A	11/21/2006	130	260	19	36 J
EA2-3	Lower A	11/20/2007	110	290	13	58
EA2-3	Lower A	11/21/2008	110	260	13	89
EA2-3	Lower A	11/23/2009	66	190	8	32
EA2-3	Lower A	11/22/2010	60	200	6.8	5.2
EA2-3	Lower A	9/20/2011	39	150	5.0 U	17

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
UST85-MW02	Upper A	2/23/2000	1100 D	360 D	7 U	3 U
UST85-MW02	Upper A	5/23/2000	660 E	250 D	4 U	2 U
UST85-MW02	Upper A	8/21/2000	520	310	1 J	2.5 U
UST85-MW02	Upper A	11/29/2000	630	350	25 U	13 U
UST85-MW02	Upper A	2/16/2001	850 D	NA	1.2	1.1
UST85-MW02	Upper A	12/5/2001	860 D	510 D	0.4 J	0.9 J
UST85-MW02	Upper A	11/5/2002	680	260	2 J	0.3 J
UST85-MW02	Upper A	12/10/2003	520	190	3	0.2 J
UST85-MW02	Upper A	4/6/2004	530	170	2	0.4 J
UST85-MW02	Upper A	4/26/2004	580	190	2	0.4 J
UST85-MW02	Upper A	5/11/2004	490	210	1	0.5 U
UST85-MW02	Upper A	6/14/2004	600	210	2	0.6
UST85-MW02	Upper A	6/14/2004	590	210	2	0.5
UST85-MW02	Upper A	7/12/2004	740	220	2	0.5
UST85-MW02	Upper A	8/16/2004	650	220	2	0.4 J
UST85-MW02	Upper A	11/15/2004	520	210	1	0.2 J
UST85-MW02	Upper A	11/15/2004	570	190	2	0.3 J
UST85-MW02	Upper A	12/2/2004	480	170	1 J	0.3 J
UST85-MW02	Upper A	12/8/2005	560	230	2 J	0.3 J
UST85-MW02	Upper A	11/21/2006	530	230 J	1 J	0.4 J
UST85-MW02	Upper A	11/20/2007	230	64	0.7 J	0.5 U
UST85-MW02	Upper A	11/25/2008	250	920	0.79 J	2.5 U
UST85-MW02	Upper A	11/23/2009	130	1500	2.5 U	2.5 U
UST85-MW02	Upper A	11/19/2010	210 J	840 J	20 UJ	10 UJ
UST85-MW02	Upper A	9/19/2011	120	340	10 U	5.0 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W29-1	Upper A	2/19/1992	25 U	NA	25 U	170
W29-1	Upper A	6/4/1992	21	NA	2	270
W29-1	Upper A	9/11/1992	50 U	NA	50 U	300
W29-1	Upper A	11/2/1992	130	470	50 U	100 U
W29-1	Upper A	6/4/1993	13	NA	0.9 J	110
W29-1	Upper A	6/5/1997	9 J	8 J	2 U	210 J
W29-1	Upper A	3/25/1999	0.9	1.5	0.5 U	2
W29-1	Upper A	6/24/1999	1 U	0.4 J	1 U	0.6
W29-1	Upper A	1/19/2000	0.4 J	21	5 U	75
W29-1	Upper A	8/23/2000	1.7	2.1 UJ	0.21 J	1.4
W29-1	Upper A	11/28/2000	5.2	23	0.39 J	1.2
W29-1	Upper A	1/25/2002	0.3 J	2 J	0.5 J	0.5 J
W29-1	Upper A	11/5/2002	2 U	2 U	2 U	0.5 U
W29-1	Upper A	6/25/2003	0.76	8.3	0.5 U	1.4
W29-1	Upper A	12/9/2003	0.7 J	0.9 J	2 U	3 J
W29-1	Upper A	12/18/2003	0.63	1.3	0.5 U	0.5 U
W29-1	Upper A	12/1/2004	0.6 J	0.8 J	2 U	1
W29-1	Upper A	12/8/2005	2 U	2 U	2 U	0.2 J
W29-1	Upper A	11/17/2006	0.8 J	0.6 J	0.3 J	0.5
W29-1	Upper A	11/17/2006	0.7 J	0.6 J	0.2 J	0.5
W29-1	Upper A	11/20/2007	0.4 J	0.5 J	0.3 J	0.5 U
W29-1	Upper A	11/24/2008	0.55	1.1	0.16 J	0.77
W29-1	Upper A	11/20/2009	0.27 J	0.38 J	0.50 U	0.33 J
W29-1	Upper A	11/23/2010	1.0 U	1.0 U	1.0 U	0.50 U
W29-1	Upper A	9/20/2011	1.0 U	0.45 J	0.31 J	0.50 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W29-2	Upper A	2/18/1992	12 U	NA	12 U	6.2 U
W29-2	Upper A	2/21/1992	7.6	NA	NA	NA
W29-2	Upper A	5/21/1992	38	NA	NA	NA
W29-2	Upper A	5/22/1992	88 J-K	NA	5 U	54
W29-2	Upper A	9/14/1992	47	28	10 U	44
W29-2	Upper A	6/1/1993	2 U	NA	2 U	2 U
W29-2	Upper A	6/2/1993	40	NA	NA	NA
W29-2	Upper A	9/15/1993	2	NA	5 U	5 U
W29-2	Upper A	9/23/1993	29	NA	NA	NA
W29-2	Upper A	3/1/1994	55	NA	4 U	11
W29-2	Upper A	8/26/1994	3 U	NA	3 U	24
W29-2	Upper A	3/6/1995	430	NA	3 U	3 U
W29-2	Upper A	12/10/2003	2 U	0.8 J	2 U	0.5 U
W29-2	Upper A	12/1/2004	2 U	0.6 J	2 U	2
W29-2	Upper A	12/6/2005	2 U	2 U	2 U	0.5 U
W29-2	Upper A	11/20/2006	2 U	2 UJ	2 U	0.5 U
W29-2	Upper A	11/19/2007	2 U	2 U	2 U	0.2 J
W29-2	Upper A	11/21/2008	0.50 U	0.39 J	0.50 U	0.50 U
W29-2	Upper A	11/23/2009	0.50 U	0.29 J	0.50 U	0.74
W29-2	Upper A	11/22/2010	5.0 U	93	5.0 U	92
W29-2	Upper A	9/20/2011	5.0 UJ	58 J	5.0 UJ	82 J

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W29-3	Upper A	3/2/1992	900	NA	25 U	12 U
W29-3	Upper A	5/29/1992	1600	NA	18	100 U
W29-3	Upper A	9/15/1992	680	NA	50 U	50 U
W29-3	Upper A	11/24/1992	6.4	4.1	1 U	1 U
W29-3	Upper A	6/3/1993	66	NA	2	2 U
W29-3	Upper A	9/15/1993	25 D	NA	0.6 J	2 U
W29-3	Upper A	2/24/1994	83 D	NA	1	0.8
W29-3	Upper A	8/24/1994	350	NA	4 U	8 UJ-H
W29-3	Upper A	5/27/1997	1600	1800	19 J	77 U
W29-3	Upper A	7/29/1997	1600 J	1500 J	16 J	8 UJ
W29-3	Upper A	3/25/1999	1940	480	30	50 U
W29-3	Upper A	6/23/1999	2850	684	20	10 U
W29-3	Upper A	1/19/2000	2360	490	30	13 U
W29-3	Upper A	11/28/2000	690	1100	7.3	2.5 U
W29-3	Upper A	10/29/2001	1700	1400	11	5 U
W29-3	Upper A	12/6/2001	2300	480	14	3
W29-3	Upper A	11/11/2002	1600	350	10 J	7
W29-3	Upper A	12/10/2003	1900	520	10	4
W29-3	Upper A	11/30/2004	1200	690	5 J	5
W29-3	Upper A	4/28/2005	1400 J	900 J	6.5	4
W29-3	Upper A	4/28/2005	1500 J	860 J	6.3	3.6
W29-3	Upper A	12/6/2005	1900	580	6	3
W29-3	Upper A	11/20/2006	1400	1200 J	5 J	6 J
W29-3	Upper A	11/19/2007	1100	830	3	5
W29-3	Upper A	11/24/2008	470	1200	1.4 J	54 J
W29-3	Upper A	11/24/2008	670	1300	2.0 J	40
W29-3	Upper A	11/23/2009	840	790	1.7	9.6
W29-3	Upper A	11/23/2010	830	530	25 U	13
W29-3	Upper A	9/20/2011	680	630	20 U	17

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W29-4	Upper A	2/14/1992	84	NA	5 U	2.5 U
W29-4	Upper A	6/4/1992	160	NA	5 U	10 U
W29-4	Upper A	9/14/1992	240	280	20 U	20 U
W29-4	Upper A	6/2/1993	230	NA	2 U	2 U
W29-4	Upper A	3/2/1995	490	NA	33 U	33 U
W29-4	Upper A	5/27/1997	49	730	28 U	28 U
W29-4	Upper A	7/29/1997	33 J	650 J	2 UJ	2 UJ
W29-4	Upper A	3/25/1999	32	929	5 U	10 U
W29-4	Upper A	6/23/1999	130	1200	20 U	10 U
W29-4	Upper A	1/19/2000	100	790	25 U	13 U
W29-4	Upper A	8/23/2000	27	1200	0.17 J	7.4
W29-4	Upper A	11/28/2000	140	840	25 U	13 U
W29-4	Upper A	10/29/2001	860	610	5 U	5 U
W29-4	Upper A	12/6/2001	410	270	2 U	2 U
W29-4	Upper A	11/7/2002	670	630	0.3 J	2 J
W29-4	Upper A	12/10/2003	450	300	2 U	0.8 J
W29-4	Upper A	11/30/2004	820	630	4 U	1 J
W29-4	Upper A	4/28/2005	360 J	340 J	0.5 U	1.7
W29-4	Upper A	12/6/2005	610	600	2 U	0.7
W29-4	Upper A	11/21/2006	1100	930 J	2 U	0.9 J
W29-4	Upper A	11/19/2007	230	270	2 U	0.6
W29-4	Upper A	11/21/2008	210	280	0.50 U	0.50 U
W29-4	Upper A	11/23/2009	710	830	5.0 U	5.0 U
W29-4	Upper A	11/22/2010	730	960	25 U	12 U
W29-4	Upper A	9/20/2011	340	370	20 U	10 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W29-5	Upper A	3/4/1992	45	NA	3.2	2.5 U
W29-5	Upper A	6/4/1992	28	NA	5 U	10 U
W29-5	Upper A	9/16/1992	100 U	NA	100 U	100 U
W29-5	Upper A	11/25/1992	100 U	1500	100 U	100 U
W29-5	Upper A	6/2/1993	44	NA	2 U	2 U
W29-5	Upper A	3/13/1995	100 U	NA	100 U	100 UJ-K
W29-5	Upper A	5/27/1997	29 J	1100	50 U	50 U
W29-5	Upper A	7/30/1997	17 J	800 J	4 UJ	16 J
W29-5	Upper A	3/24/1999	5 U	1670	5 U	10 U
W29-5	Upper A	6/23/1999	16	2190	5 U	7.5
W29-5	Upper A	1/20/2000	22 J	2010	50 U	25 U
W29-5	Upper A	8/23/2000	7.6	990	1 U	4
W29-5	Upper A	11/27/2000	10 J	1600	1 U	3.7 J
W29-5	Upper A	10/30/2001	10	2000	5 U	5 U
W29-5	Upper A	12/7/2001	6	1500	2 U	4
W29-5	Upper A	11/5/2002	5	1500	2 U	5
W29-5	Upper A	6/26/2003	6	2400	0.5 U	20
W29-5	Upper A	12/9/2003	4	1400	2 U	9 J
W29-5	Upper A	12/18/2003	50 U	1200	50 U	50 U
W29-5	Upper A	11/30/2004	4 J	1300	4 U	5
W29-5	Upper A	12/7/2005	3	1200	2 U	7
W29-5	Upper A	11/17/2006	3	1300	2 U	33
W29-5	Upper A	11/19/2007	2	870	2 U	240
W29-5	Upper A	11/24/2008	1.7	730	1.0 U	240
W29-5	Upper A	11/20/2009	2.6	630	2.5 U	270
W29-5	Upper A	11/22/2010	10 U	230	10 U	300
W29-5	Upper A	9/19/2011	10 U	48	10 U	230

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W29-7	Lower A	2/19/1992	3300	NA	120 U	62 U
W29-7	Lower A	6/4/1992	200 D	NA	5 U	10 U
W29-7	Lower A	9/11/1992	37	NA	50 U	6
W29-7	Lower A	11/25/1992	4400	610	100 U	100 U
W29-7	Lower A	6/4/1993	3400	NA	1	2 U
W29-7	Lower A	9/23/1993	3400	NA	250 U	250 U
W29-7	Lower A	2/28/1994	2600	NA	200 U	200 U
W29-7	Lower A	3/6/1995	2700	NA	200 U	200 U
W29-7	Lower A	5/19/1997	860	2400	91 U	46 J
W29-7	Lower A	7/31/1997	1900 D	1700 D	7 U	26 J
W29-7	Lower A	3/25/1999	1280	1770	10 U	30
W29-7	Lower A	6/24/1999	50 U	2010	50 U	50
W29-7	Lower A	1/19/2000	1170	1540	50 U	25 U
W29-7	Lower A	8/23/2000	270	2600	1 U	130
W29-7	Lower A	11/28/2000	320	2900	100 U	110
W29-7	Lower A	1/25/2002	810	2400	0.4 J	220
W29-7	Lower A	11/8/2002	2100 J	1500 J	3	240 J
W29-7	Lower A	12/10/2003	0.9 J	390	2 U	140
W29-7	Lower A	12/1/2004	330 J	2300	10 U	290
W29-7	Lower A	12/7/2005	7	660	2 U	210
W29-7	Lower A	11/17/2006	5	430 J	2 U	440
W29-7	Lower A	11/20/2007	3	340	2 U	170
W29-7	Lower A	11/24/2008	1.9	280	0.50 U	130
W29-7	Lower A	11/20/2009	4.5	400	2.0 U	450
W29-7	Lower A	11/23/2010	20 U	1200	20 U	580
W29-7	Lower A	9/19/2011	4.0	1000	1.0 U	510

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W56-2	Upper A	3/3/1992	1600	NA	23	12 U
W56-2	Upper A	6/10/1992	1800	NA	25 U	50 U
W56-2	Upper A	9/11/1992	1400	NA	100 U	100 U
W56-2	Upper A	11/24/1992	2800	66	10 U	10 U
W56-2	Upper A	6/7/1993	1500	NA	2 U	2 U
W56-2	Upper A	9/15/1993	2000	NA	170 U	170 U
W56-2	Upper A	2/23/1994	1100 D	NA	2 U	3
W56-2	Upper A	8/24/1994	2000	NA	33 UJ-H	33 UJ-H
W56-2	Upper A	5/3/1996	1800	260	50 U	100 U
W56-2	Upper A	6/26/1996	2400	470	10 U	20 U
W56-2	Upper A	5/27/1997	2000	48 J	100 U	100 U
W56-2	Upper A	8/5/1997	440 D	880 D	4 U	4 U
W56-2	Upper A	3/26/1999	7.5	21	0.5 U	0.6 J
W56-2	Upper A	6/24/1999	15 J	750	20 U	20
W56-2	Upper A	1/20/2000	28	67	1 U	68.6
W56-2	Upper A	8/22/2000	13	290	5 U	82
W56-2	Upper A	11/29/2000	0.42 J	8	0.35 J	1.4
W56-2	Upper A	10/29/2001	180	260	0.5 U	46
W56-2	Upper A	12/6/2001	0.8 J	1 J	2 U	2 J
W56-2	Upper A	11/6/2002	6	39	2 U	53
W56-2	Upper A	12/9/2003	15	140	2 U	63
W56-2	Upper A	12/9/2003	17 J	110	2 U	35
W56-2	Upper A	11/30/2004	2 J	47	2 UJ	130
W56-2	Upper A	12/6/2005	32	300	2 U	270
W56-2	Upper A	11/21/2006	0.2 J	3 J	2 U	31
W56-2	Upper A	11/16/2007	0.6 J	0.7 J	2 U	10
W56-2	Upper A	11/21/2008	1.3	17	0.50 U	300
W56-2	Upper A	11/23/2009	0.42 J	3	0.50 U	10
W56-2	Upper A	11/19/2010	2.5	11	1.0 U	39
W56-2	Upper A	9/16/2011	0.44 J	4.8	1.0 U	90

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W60-2	Upper A	6/15/1992	700 D	NA	10 U	10 U
W60-2	Upper A	8/25/1992	520 D	100 U	2 U	2 U
W60-2	Upper A	11/17/1992	510	NA	33 U	33 U
W60-2	Upper A	5/17/1993	410	NA	4 U	4 U
W60-2	Upper A	9/21/1993	500	NA	50 U	50 U
W60-2	Upper A	2/22/1994	500	NA	33 U	33 U
W60-2	Upper A	8/23/1994	520	NA	100 U	100 U
W60-2	Upper A	7/9/1998	270	23	1.3 U	1.3 U
W60-2	Upper A	1/15/1999	290	21	1 U	1 U
W60-2	Upper A	12/29/1999	230	18	0.8 U	0.8 U
W60-2	Upper A	12/15/2000	220	19	0.8 U	0.8 U
W60-2	Upper A	12/10/2001	200	17	0.5 U	0.5 U
W60-2	Upper A	12/16/2002	230	16	0.7 U	0.7 U
W60-2	Upper A	2/5/2004	150	13	0.5 U	0.5 U
W60-2	Upper A	1/10/2005	170	14	0.5 U	0.5 U
W60-2	Upper A	12/7/2005	140	14	2 U	0.5 U
W60-2	Upper A	12/8/2008	120	13	0.5 U	0.5 U
W60-2	Upper A	12/4/2009	89	11	0.5 U	0.5 U
W60-2	Upper A	12/10/2010	83	11	0.5 U	0.5 U
W60-2	Upper A	9/30/2011	86	9.4	0.5 U	0.5 U
W88-1	B2	8/22/2005	20 J	10000	47 J	25 U
W88-1	B2	11/24/2008	530	3200	560	4.4
W88-1	B2	11/23/2009	480	2600	260	4.1 J
W88-1	B2	11/22/2010	2200 J	4500 J	3300 J	290 J
W88-1	B2	9/19/2011	3600	6600	1300	450
W89-1	Upper A	6/5/1992	2000	NA	4	10 U
W89-1	Upper A	8/26/1992	1400	NA	3	0.8 J-G
W89-1	Upper A	11/2/1992	1800	200 U	200 U	200 U
W89-1	Upper A	9/16/1993	1000	NA	100 U	100 U
W89-1	Upper A	2/22/1994	890	NA	50 U	50 U
W89-1	Upper A	8/23/1994	610	NA	50 U	50 U
W89-1	Upper A	2/28/1995	520	NA	7 U	7 U
W89-1	Upper A	7/9/1998	460	58	2 U	2 U
W89-1	Upper A	1/18/1999	350	28	1.3 U	1.3 U
W89-1	Upper A	12/29/1999	420	30	1.3 U	1.3 U
W89-1	Upper A	12/15/2000	34	2.9	0.5 U	0.5 U
W89-1	Upper A	12/7/2001	2	0.5 U	0.5 U	0.5 U
W89-1	Upper A	12/13/2002	25	2.8	0.5 U	0.5 U
W89-1	Upper A	2/6/2004	61	5.1	0.5 U	0.5 U
W89-1	Upper A	1/11/2005	75	6.2	0.5 U	0.5 U
W89-1	Upper A	12/6/2005	89	7	2 U	0.5 U
W89-1	Upper A	12/3/2008	94	4.8	0.5 U	0.5 U
W89-1	Upper A	12/4/2009	1.1	0.5 U	0.5 U	0.5 U
W89-1	Upper A	12/8/2010	65	6.8	0.5 U	0.5 U
W89-1	Upper A	10/4/2011	77	8.2	0.5 U	0.5 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W89-6	Upper A	2/21/1992	11	NA	1 U	0.5 U
W89-6	Upper A	6/2/1992	8	NA	5 U	10 U
W89-6	Upper A	9/1/1992	10 J-G	NA	17 U	17 U
W89-6	Upper A	10/21/1992	19	260	10 U	10 U
W89-6	Upper A	9/17/1993	3	NA	10 U	10 U
W89-6	Upper A	2/23/1994	2	NA	2 U	9
W89-6	Upper A	8/23/1994	2 J	NA	2 U	3
W89-6	Upper A	8/9/2005	7.6	330	5 U	110
W89-6	Upper A	12/9/2005	5 U	90 J	5 U	330
W89-7	Upper A	9/1/1992	2 U	NA	2 U	2 U
W89-7	Upper A	10/21/1992	1 U	1 U	1 U	1 U
W89-7	Upper A	9/13/1995	2 U	2 U	2 U	0.5 U
W89-7	Upper A	6/30/1998	0.5 U	0.5 U	0.5 U	0.5 U
W89-7	Upper A	1/5/1999	0.5 U	0.5 U	0.5 U	0.5 U
W89-7	Upper A	12/27/1999	0.5 U	0.5 U	0.5 U	0.5 U
W89-7	Upper A	12/11/2000	0.5 U	0.5 U	0.5 U	0.5 U
W89-7	Upper A	12/7/2001	0.5 U	0.5 U	0.5 U	0.5 U
W89-7	Upper A	12/13/2002	0.5 U	0.5 U	0.5 U	0.5 U
W89-7	Upper A	2/5/2004	0.5 U	0.5 U	0.5 U	0.5 U
W89-7	Upper A	1/13/2005	0.5 U	0.5 U	0.5 U	0.5 U
W89-7	Upper A	8/9/2005	5 U	5 U	5 U	0.5 U
W89-7	Upper A	12/9/2005	5 U	5 U	5 U	0.5 U
W89-7	Upper A	12/5/2008	0.5 U	0.5 U	0.5 U	0.5 U
W89-7	Upper A	12/5/2008	0.5 U	0.5 U	0.5 U	0.5 U
W89-7	Upper A	12/3/2009	0.5 U	0.5 U	0.5 U	0.5 U
W89-7	Upper A	11/22/2010	2.7	0.5 U	0.5 U	0.5 U
W89-7	Upper A	9/28/2011	0.5 U	0.5 U	0.5 U	0.5 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-10	Upper A	9/4/1992	840	NA	78	13
W9-10	Upper A	10/22/1992	1500	1300	50 U	50 U
W9-10	Upper A	5/28/1993	870	NA	87	17
W9-10	Upper A	9/15/1993	910	NA	97 D	22
W9-10	Upper A	2/25/1994	710 D	NA	82 D	53 D
W9-10	Upper A	8/22/1994	840 D	NA	83	46
W9-10	Upper A	12/1/1994	1000	1500	100	120
W9-10	Upper A	3/7/1995	930 D	NA	98 J	36
W9-10	Upper A	11/3/1995	770 D	NA	77 D	110 J-K
W9-10	Upper A	6/3/1997	58 J	2100	100 U	400
W9-10	Upper A	8/7/1997	200	2000 D	12	360 D
W9-10	Upper A	3/24/1999	417	1940	27	284
W9-10	Upper A	6/24/1999	130	1280	50 U	240
W9-10	Upper A	1/20/2000	200	1940	50 U	380
W9-10	Upper A	8/23/2000	5.4	130	0.7 J	400
W9-10	Upper A	11/28/2000	30	1900	4.3 J	160
W9-10	Upper A	12/7/2001	25	1400	4	290
W9-10	Upper A	11/7/2002	23 J	1400	4 J	350
W9-10	Upper A	11/7/2002	26 J	1500	4 J	350
W9-10	Upper A	6/26/2003	310	2800	36	52
W9-10	Upper A	12/10/2003	62	1400	10	190
W9-10	Upper A	12/10/2003	68	1300	11	190
W9-10	Upper A	12/18/2003	250	1400	25 U	25 U
W9-10	Upper A	12/1/2004	4 J	1100	0.8 J	110
W9-10	Upper A	12/7/2005	7	1100	1 J	100
W9-10	Upper A	11/17/2006	12	1200	1 J	140
W9-10	Upper A	11/20/2007	7	1100	0.9 J	100
W9-10	Upper A	11/21/2008	4.4	1100	0.74 J	130
W9-10	Upper A	11/21/2008	3.9	1000	2.5 U	160
W9-10	Upper A	11/23/2009	24 J	870	25 U	120
W9-10	Upper A	11/19/2010	3.6 J	620	1.0 UJ	140
W9-10	Upper A	9/19/2011	2.9 J	630	20 U	99

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-12	B2	9/8/1992	2 U	NA	2 U	2 U
W9-12	B2	10/30/1992	1 U	1 U	1 U	1 U
W9-12	B2	5/21/1993	2 U	NA	2 U	2 U
W9-12	B2	11/14/1995	0.5 U	NA	0.5 U	0.5 U
W9-12	B2	11/24/1997	2 U	NA	2 U	0.5 U
W9-12	B2	12/8/2001	1 J	2 U	2 U	2 U
W9-12	B2	12/9/2003	2 U	2 U	2 U	0.5 UJ
W9-12	B2	12/2/2004	0.6 J	0.4 J	2 U	0.5 U
W9-12	B2	4/27/2005	2.8	0.47 J	0.5 U	0.5 U
W9-12	B2	12/9/2005	1 J	0.4 J	2 U	0.5 U
W9-12	B2	11/21/2006	1 J	0.4 J	2 U	0.5 U
W9-12	B2	11/20/2007	2 J	0.3 J	2 U	0.5 U
W9-12	B2	11/20/2007	2 J	0.2 J	2 U	0.5 U
W9-12	B2	11/25/2008	0.42 J	0.16 J	0.50 U	0.50 U
W9-12	B2	11/20/2009	2.7	1.3	0.50 U	0.50 U
W9-12	B2	11/23/2010	2.4 J	1.0 U	1.0 U	0.50 U
W9-12	B2	11/23/2010	2.4 J	1.0 U	1.0 U	0.50 U
W9-12	B2	9/19/2011	0.24 J	1.0 U	1.0 U	0.50 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-14	Lower A	9/1/1992	7300 D	NA	14 J-G	50 U
W9-14	Lower A	10/29/1992	21000	2000 U	2000 U	2000 U
W9-14	Lower A	5/25/1993	22000	NA	34	5 U
W9-14	Lower A	9/29/1993	18000	NA	1700 U	1700 U
W9-14	Lower A	12/9/1993	18000	NA	1700 U	1700 U
W9-14	Lower A	2/22/1994	18000	NA	1700 U	1700 U
W9-14	Lower A	8/23/1994	21000	NA	1200 U	1200 U
W9-14	Lower A	6/4/1997	12000	270 J	710 U	710 U
W9-14	Lower A	8/6/1997	10000 D	340	49 U	49 U
W9-14	Lower A	4/1/1998	10000 D	NA	18	10 U
W9-14	Lower A	3/25/1999	4770	160	50 U	100 U
W9-14	Lower A	6/24/1999	479	31	10 U	5 U
W9-14	Lower A	1/20/2000	7260	300	250 U	130 U
W9-14	Lower A	8/23/2000	5700	88	0.74 J	0.35 J
W9-14	Lower A	11/28/2000	280	19	10 U	5 U
W9-14	Lower A	12/7/2001	2600	130	3	2 U
W9-14	Lower A	11/8/2002	240	190	0.3 J	0.5 UJ
W9-14	Lower A	12/9/2003	5800	870	3	70 J
W9-14	Lower A	12/2/2004	0.3 J	9	2 U	8 J
W9-14	Lower A	12/9/2005	0.2 J	2 J	2 U	2
W9-14	Lower A	11/21/2006	0.3 J	0.3 J	2 U	0.9
W9-14	Lower A	11/20/2007	0.2 J	0.3 J	2 U	2
W9-14	Lower A	11/25/2008	34	28	0.50 U	2.3
W9-14	Lower A	11/24/2009	3700	510	50 U	50 U
W9-14	Lower A	11/19/2010	1900 J	1500 J	100 UJ	140 J
W9-14	Lower A	9/19/2011	4000	640	200 U	100 U
W9-15	B2	9/1/1992	2 U	NA	2 U	2 U
W9-15	B2	10/27/1992	1 U	1 U	1 U	1 U
W9-15	B2	5/19/1993	2 U	NA	2 U	2 U
W9-15	B2	11/20/1995	0.5 U	NA	0.5 U	0.5 U
W9-15	B2	11/24/1997	2 U	NA	2 U	0.5 U
W9-15	B2	11/8/2002	2 U	2 U	2 U	0.5 U
W9-15	B2	12/9/2003	2 U	2 U	2 U	0.5 U
W9-15	B2	12/1/2004	2 UJ	2 UJ	2 UJ	0.5 UJ
W9-15	B2	4/28/2005	0.52	0.28 J	0.5 U	0.5 U
W9-15	B2	12/6/2005	2 U	2 U	2 U	0.5 U
W9-15	B2	11/20/2006	0.6 J	2 U	2 U	0.5 U
W9-15	B2	11/19/2007	0.7 J	2 U	2 U	0.5 U
W9-15	B2	11/21/2008	0.50 U	0.50 U	0.50 U	0.50 U
W9-15	B2	11/24/2009	0.73	0.14 J	0.50 U	0.50 U
W9-15	B2	11/19/2010	1.0 U	1.0 U	1.0 U	0.50 U
W9-15	B2	9/19/2011	1.0 U	1.0 U	1.0 U	0.50 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-18	Upper A	9/23/1992	6400 D	NA	180	50 U
W9-18	Upper A	10/30/1992	12000	3300	1000 U	1000 U
W9-18	Upper A	5/25/1993	4900 D	NA	110 J-E	4 J
W9-18	Upper A	9/21/1993	5000 D	NA	190 D	9
W9-18	Upper A	2/24/1994	9800 D	NA	340 D	4 J
W9-18	Upper A	8/24/1994	10000 J-H	NA	270 J-H	170 UJ-H
W9-18	Upper A	3/2/1995	13000 D	NA	65	8 U
W9-18	Upper A	5/23/1997	1000 U	19000	1000 U	1000 U
W9-18	Upper A	8/4/1997	51 J	16000 D	28 J	530 J
W9-18	Upper A	3/25/1999	100 U	7580	100 U	130 J
W9-18	Upper A	6/24/1999	200 U	16300	200 U	450
W9-18	Upper A	1/20/2000	200 U	13200	200 U	210
W9-18	Upper A	8/21/2000	3.3	13000	0.47 J	370
W9-18	Upper A	11/29/2000	500 U	18000	500 U	410
W9-18	Upper A	10/30/2001	100 U	22000	100 U	410
W9-18	Upper A	12/7/2001	7 J	13000	0.7 J	180 J
W9-18	Upper A	11/5/2002	1000 U	18000	1000 U	6700
W9-18	Upper A	12/10/2003	8	5300	1 J	230
W9-18	Upper A	4/6/2004	5	14000	0.9	370
W9-18	Upper A	4/27/2004	4	16000	0.8	450
W9-18	Upper A	5/11/2004	6	16000	2 J	570
W9-18	Upper A	6/14/2004	7	16000	1	870
W9-18	Upper A	6/14/2004	8	17000	1	900
W9-18	Upper A	7/13/2004	11	17000	2	1100
W9-18	Upper A	8/17/2004	8	21000	1	1400
W9-18	Upper A	11/16/2004	15	21000	2 J	1200
W9-18	Upper A	12/2/2004	7 J	20000	20 U	1400 J
W9-18	Upper A	12/8/2005	5	14000	1 J	410
W9-18	Upper A	11/21/2006	8 J	20000 J	2 J	800 J
W9-18	Upper A	11/21/2006	8 J	18000 J	2 J	1000 J
W9-18	Upper A	11/19/2007	4J	10000	2 J	320
W9-18	Upper A	11/25/2008	14	15000	12 U	1100
W9-18	Upper A	11/24/2009	100 U	12000	100 U	1500
W9-18	Upper A	11/9/2010	0.92 J	3200	0.46 J	5800

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-19	Upper A	8/31/1992	660	NA	10 U	0.8
W9-19	Upper A	10/29/1992	430	67	50 U	50 U
W9-19	Upper A	5/19/1993	680 D	NA	2	1 J
W9-19	Upper A	6/5/1997	27	180	10 U	9 J
W9-19	Upper A	3/26/1999	7.9	72.3	0.5 U	12
W9-19	Upper A	6/24/1999	2.6	32	1 U	10.5
W9-19	Upper A	1/20/2000	2.5	31	1 U	34.5
W9-19	Upper A	8/22/2000	5	38	1 U	11
W9-19	Upper A	11/29/2000	5.4	22	1 U	5.8
W9-19	Upper A	12/4/2001	7	280	2 U	20
W9-19	Upper A	1/29/2002	100	510	0.5 U	19
W9-19	Upper A	11/6/2002	0.6 J	85	2 U	150
W9-19	Upper A	6/26/2003	91	580	0.5 U	21
W9-19	Upper A	12/9/2003	120	480	0.3 J	89 J
W9-19	Upper A	12/18/2003	25 U	250	25 U	25 U
W9-19	Upper A	12/1/2004	2	380	2 U	110
W9-19	Upper A	12/9/2005	3	10	2 U	10
W9-19	Upper A	11/20/2006	0.4 J	10	2 U	4 J
W9-19	Upper A	11/20/2007	0.2 J	5	2 U	1
W9-19	Upper A	11/24/2008	0.23 J	8.8	0.50 U	2.2
W9-19	Upper A	11/24/2009	0.28 J	27	0.50 U	86 J
W9-19	Upper A	11/19/2010	1.0 U	15	1.0 U	40
W9-19	Upper A	9/19/2011	0.20 J	30	1.0 U	36

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-2	Upper A	9/1/1992	4500 D	NA	10 U	2 J-G
W9-2	Upper A	10/28/1992	4700	500 U	500 U	500 U
W9-2	Upper A	5/19/1993	4400 D	NA	5 J	10 U
W9-2	Upper A	9/29/1993	3800	NA	250 U	250 U
W9-2	Upper A	5/27/1997	5700	380	330 U	330 U
W9-2	Upper A	7/29/1997	5500 J	310 J	29 UJ	29 UJ
W9-2	Upper A	3/26/1999	4700	230	50 U	100 U
W9-2	Upper A	6/24/1999	4040	210	100 U	50 U
W9-2	Upper A	1/21/2000	4040	390	100 U	50 U
W9-2	Upper A	8/22/2000	4500 J	340 J	2.4 J	1.3 J
W9-2	Upper A	11/29/2000	4800	330	200 U	100 U
W9-2	Upper A	10/29/2001	5700	370	25 U	25 U
W9-2	Upper A	12/6/2001	4600 D	800 D	2	2 U
W9-2	Upper A	11/8/2002	3500	1100	3	3
W9-2	Upper A	11/8/2002	3600	1100	2	2
W9-2	Upper A	12/11/2003	2500 J	1200 J	2 J	1
W9-2	Upper A	12/11/2003	2600 J	1300 J	1 J	1
W9-2	Upper A	12/11/2003	2900 J	1400 J	2 J	2
W9-2	Upper A	4/7/2004	2700	1200	2	3
W9-2	Upper A	4/28/2004	2900	1400	3 J	3 J
W9-2	Upper A	5/10/2004	2800	1300	2	3
W9-2	Upper A	6/14/2004	2700	1300	2	5
W9-2	Upper A	7/13/2004	2800	1300	2	5
W9-2	Upper A	7/13/2004	2800	1300	2	5
W9-2	Upper A	8/17/2004	2500	1300	1	2
W9-2	Upper A	11/16/2004	2700 J	1600	2	2
W9-2	Upper A	11/30/2004	2600	1500	2 J	2 J
W9-2	Upper A	12/6/2005	2300	1500	1 J	2
W9-2	Upper A	11/20/2006	2200	2000 J	1 J	2
W9-2	Upper A	11/19/2007	2600	1700	2 J	2
W9-2	Upper A	11/25/2008	1800	990	1.6 J	5.0 U
W9-2	Upper A	11/25/2008	2000	1100	2.3 J	5.0 U
W9-2	Upper A	11/23/2009	2000	930	10 U	10 U
W9-2	Upper A	11/23/2009	2200	1000	1.7 J	1.6 J
W9-2	Upper A	11/19/2010	2200	990	10 U	5.0 U
W9-2	Upper A	9/16/2011	2100	860	50 U	25 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-20	Lower A	9/1/1992	10000 D	NA	360	50 U
W9-20	Lower A	10/28/1992	14000	2000 U	2000 U	2000 U
W9-20	Lower A	5/19/1993	9900 D	NA	420	50 U
W9-20	Lower A	2/23/1994	13000 B	NA	200 J	1000 U
W9-20	Lower A	8/24/1994	18000	NA	220 J	1000 U
W9-20	Lower A	3/3/1995	13000	NA	1000 U	1000 U
W9-20	Lower A	6/14/1996	630	104	22	1 U
W9-20	Lower A	9/19/1996	130	180	12	0.5 U
W9-20	Lower A	1/19/1997	7900	250 J	500 U	120 U
W9-20	Lower A	5/4/1997	8700	230 J	250 U	80 U
W9-20	Lower A	6/3/1997	11000	260 J	710 U	710 U
W9-20	Lower A	8/7/1997	8600 J	240 J	130 J	49 UJ
W9-20	Lower A	10/24/1997	9700 D	270 D	250 D	0.5 U
W9-20	Lower A	4/3/1998	7600 D	NA	120	10 U
W9-20	Lower A	3/25/1999	3330	1530	150	100 U
W9-20	Lower A	6/24/1999	4720	250	200	50 U
W9-20	Lower A	1/20/2000	327	77	20	5 U
W9-20	Lower A	8/24/2000	5000	260	190 J	0.57
W9-20	Lower A	11/29/2000	25	4.5	1.1	0.5 U
W9-20	Lower A	12/7/2001	2800	230	130	2 U
W9-20	Lower A	11/8/2002	3800	370	310	0.5 U
W9-20	Lower A	12/10/2003	3500	430	450	0.8 J
W9-20	Lower A	12/1/2004	3500	370 J	410 J	1 J
W9-20	Lower A	12/1/2004	3800	370 J	480 J	2 U
W9-20	Lower A	4/28/2005	3100 J	540 J	530 J	2
W9-20	Lower A	12/6/2005	3300	710	550	0.8
W9-20	Lower A	11/20/2006	140	110	13 J	0.3 J
W9-20	Lower A	11/19/2007	34	31	3	0.5 U
W9-20	Lower A	11/21/2008	78	120	6.5 J	0.31 J
W9-20	Lower A	11/21/2008	94	120	6.8 J	0.28 J
W9-20	Lower A	11/24/2009	1400	580	170	10 U
W9-20	Lower A	11/24/2009	2000	700	230	10 U
W9-20	Lower A	11/19/2010	2100	820	360	50 U
W9-20	Lower A	9/20/2011	1700	1500	340	43

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-21	Lower A	9/9/1992	3100	230	180 J-G	250 U
W9-21	Lower A	5/19/1993	3800 D	NA	230	20 U
W9-21	Lower A	6/3/1997	1000	2500	45 J	110 U
W9-21	Lower A	8/6/1997	1400 D	1700 D	68	38
W9-21	Lower A	3/25/1999	968	780	54	50
W9-21	Lower A	6/23/1999	51	459	10 U	23
W9-21	Lower A	1/20/2000	100	919	25 U	64
W9-21	Lower A	8/23/2000	25 J	1700 J	1.8 J	260 J
W9-21	Lower A	11/28/2000	44	610	25 U	42
W9-21	Lower A	12/7/2001	1100	720 J	50 J	140 J
W9-21	Lower A	12/7/2001	1100	900	52 J	130
W9-21	Lower A	11/6/2002	22	1600	1 J	310
W9-21	Lower A	12/9/2003	1100	840	58	190 J
W9-21	Lower A	12/1/2004	3	400 J	0.4 J	38
W9-21	Lower A	12/8/2005	3	460	0.7 J	50
W9-21	Lower A	11/20/2006	2	180 J	1 J	31 J
W9-21	Lower A	11/20/2007	1 J	210	0.8 J	12
W9-21	Lower A	11/24/2008	1.5 J	270	0.53 J	30 J
W9-21	Lower A	11/23/2009	9	1500	1.1 J	230
W9-21	Lower A	11/23/2010	94	1400	20 U	220
W9-21	Lower A	9/19/2011	1.3 J	200	5.0 U	18
W9-22	Lower A	9/8/1992	3300	NA	200 U	200 U
W9-22	Lower A	10/30/1992	3500	1000 U	1000 U	1000 U
W9-22	Lower A	6/4/1993	3200	NA	21	0.6 J
W9-22	Lower A	6/5/1997	2500	150	170 U	140 U
W9-22	Lower A	8/6/1997	2300 D	150	7 J	10 U
W9-22	Lower A	3/25/1999	1950	170	25 U	50 U
W9-22	Lower A	6/23/1999	2200	150	20 U	10 U
W9-22	Lower A	1/19/2000	1900	200	100 U	50 U
W9-22	Lower A	8/22/2000	1.5	17	1 U	68
W9-22	Lower A	11/29/2000	19	1600 J	5 U	290 J
W9-22	Lower A	12/10/2003	1900	290	4	8
W9-22	Lower A	12/10/2003	1900	300	5	8
W9-22	Lower A	11/30/2004	2400	310 J	3 J	3
W9-22	Lower A	12/6/2005	110	130	0.3 J	250
W9-22	Lower A	11/20/2006	0.3 J	110 J	2 U	130
W9-22	Lower A	11/19/2007	2U	4	2U	63
W9-22	Lower A	11/21/2008	1.1	33	0.50 U	39
W9-22	Lower A	11/23/2009	0.50 U	0.50 U	0.50 U	3.7
W9-22	Lower A	11/22/2010	1700	420	50 U	25 U
W9-22	Lower A	9/20/2011	0.22 J	2.0	1.0 U	6.9

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-24	Upper A	9/21/1992	50 U	870	50 U	93 J-K
W9-24	Upper A	6/2/1993	2	NA	2 U	72 D
W9-24	Upper A	6/3/1997	20 U	500	20 U	110
W9-24	Upper A	7/31/1997	54	480 D	2 J	93 J
W9-24	Upper A	3/24/1999	2.5 U	133	2.5 U	144
W9-24	Upper A	6/24/1999	5 U	182	5 U	157
W9-24	Upper A	1/20/2000	5 U	290	5 U	113
W9-24	Upper A	8/23/2000	1 U	130	1 U	150
W9-24	Upper A	11/29/2000	2.1 J	240 J	5 U	96
W9-24	Upper A	12/7/2001	2 U	160	2 U	110
W9-24	Upper A	11/5/2002	0.2 J	190	2 U	93
W9-24	Upper A	6/26/2003	1.8	380	0.5 U	81
W9-24	Upper A	12/9/2003	2 U	130	2 U	160 J
W9-24	Upper A	12/18/2003	25 U	170	25 U	25 U
W9-24	Upper A	11/30/2004	2 U	120	2 U	95
W9-24	Upper A	12/7/2005	2 U	51	2 U	110
W9-24	Upper A	11/17/2006	2 U	2 U	2 U	10
W9-24	Upper A	11/20/2007	2 U	0.7 J	2 U	19
W9-24	Upper A	11/24/2008	0.50 U	1.1	0.50 U	29
W9-24	Upper A	11/20/2009	0.50 U	13	0.50 U	110
W9-24	Upper A	11/23/2010	5.0 U	160	5.0 U	68
W9-24	Upper A	9/19/2011	1.0 U	21	1.0 U	76
W9-26	Upper A	9/23/1992	99	1100	67 U	23 J-G
W9-26	Upper A	6/2/1993	34	NA	21	62
W9-26	Upper A	10/29/2001	6.4	1900	5 U	67
W9-26	Upper A	12/10/2003	5	1200	2 U	170
W9-26	Upper A	11/30/2004	3 J	930	4 U	150
W9-26	Upper A	12/7/2005	2	970	2 U	100
W9-26	Upper A	11/17/2006	3 J	960 J	2 U	220
W9-26	Upper A	11/20/2007	2 J	520	2 U	440
W9-26	Upper A	11/25/2008	1.3	450	0.50 U	400
W9-26	Upper A	11/20/2009	1.3 J	340	2.5 U	570
W9-26	Upper A	11/22/2010	10 U	10 U	10 U	380
W9-3	C	11/20/2007	0.3 J	2 U	2 U	0.5 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-31	Upper A	9/10/1992	1900	1700	100 U	100 U
W9-31	Upper A	5/27/1993	2600 D	NA	26	2
W9-31	Upper A	2/28/1995	1600 D	NA	18 J	50 UJ-K
W9-31	Upper A	12/11/2003	12	7400 J	0.7 J	5 U
W9-31	Upper A	12/1/2004	3 J	5300	10 U	420
W9-31	Upper A	12/6/2005	0.7 J	3200	0.4 J	390
W9-31	Upper A	11/21/2006	0.5 J	3100 J	0.3 J	280
W9-31	Upper A	11/19/2007	0.4 J	2200	0.2 J	180
W9-31	Upper A	11/24/2008	2.5 U	1900	2.5 U	140
W9-31	Upper A	11/23/2009	1.4 J	1900	2.5 U	350
W9-31	Upper A	11/22/2010	100 U	2500	100 U	740
W9-31	Upper A	9/20/2011	50 U	1200	50 U	210
W9-33	Lower A	9/11/1992	4800	NA	400 U	400 U
W9-33	Lower A	11/23/1992	4900	400 U	400 U	400 U
W9-33	Lower A	5/26/1993	4500 D	NA	2	6 U
W9-33	Lower A	6/4/1997	4800	270	250 U	250 U
W9-33	Lower A	8/7/1997	4300 D	290 D	16 UD	16 UD
W9-33	Lower A	4/6/1998	6100 D	NA	10 U	10 U
W9-33	Lower A	3/26/1999	3420	350	50 U	100 U
W9-33	Lower A	6/24/1999	50 U	1170	50 U	25 U
W9-33	Lower A	1/21/2000	200	1510	50 U	25 U
W9-33	Lower A	8/23/2000	3100	360	0.84 J	1.5 J
W9-33	Lower A	11/28/2000	46	690	20 U	10 U
W9-33	Lower A	12/3/2001	3500	350	0.9 J	1 J
W9-33	Lower A	12/3/2001	3300 J	350 J	0.9 J	1 J
W9-33	Lower A	11/6/2002	2300	270	0.5 J	0.8
W9-33	Lower A	6/26/2003	120	9.4	0.5 U	0.5 U
W9-33	Lower A	12/10/2003	170	31	2 U	0.5 UJ
W9-33	Lower A	12/18/2003	150	28	25 U	25 U
W9-33	Lower A	12/1/2004	2600	460	10 U	1 J
W9-33	Lower A	12/8/2005	2900	580	0.8 J	2
W9-33	Lower A	11/20/2006	8	67	2 U	11 J
W9-33	Lower A	11/19/2007	570	550	0.2 J	32
W9-33	Lower A	11/19/2007	680	500	0.3 J	24
W9-33	Lower A	11/24/2008	1700	590	2.5 U	2.5 U
W9-33	Lower A	11/23/2009	4.1	31	0.50 U	22
W9-33	Lower A	11/19/2010	1600 J	620 J	50 UJ	25 UJ
W9-33	Lower A	9/20/2011	13 J	550	20 U	23

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-34	Lower A	9/8/1992	1800	NA	200 U	200 U
W9-34	Lower A	10/30/1992	2200	1000 U	1000 U	1000 U
W9-34	Lower A	5/27/1993	2300	NA	2 U	0.7
W9-34	Lower A	6/4/1997	2300	54 J	110 U	110 U
W9-34	Lower A	8/6/1997	2200 D	62	11 U	11 U
W9-34	Lower A	3/26/1999	1660	78	25 U	50 U
W9-34	Lower A	6/24/1999	65	282	5 U	2.5 U
W9-34	Lower A	1/21/2000	1730	190	50 U	25 U
W9-34	Lower A	8/22/2000	64 J	750 J	2.5 UJ	5.9 J
W9-34	Lower A	11/29/2000	6.3	55 UJ	2 U	1 U
W9-34	Lower A	12/3/2001	2100	320	0.5 J	3 J
W9-34	Lower A	11/7/2002	1300	590	0.4 J	10
W9-34	Lower A	6/26/2003	3.4	19	0.5 U	7
W9-34	Lower A	12/10/2003	140	870	2 U	20 J
W9-34	Lower A	12/18/2003	92	34	25 U	25 U
W9-34	Lower A	11/30/2004	21	77 J	2 U	0.8
W9-34	Lower A	12/6/2005	830	510	0.3 J	15
W9-34	Lower A	11/20/2006	360	840 J	2 U	26
W9-34	Lower A	11/20/2006	370	860 J	2 UJ	28 J
W9-34	Lower A	11/19/2007	540	660	0.2 J	31
W9-34	Lower A	11/21/2008	2.3	57	0.50 U	2.6
W9-34	Lower A	11/23/2009	55	880	2.5 U	140
W9-34	Lower A	11/19/2010	1.0 U	20	1.0 U	1.6
W9-34	Lower A	9/20/2011	29	560	20 U	340

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-37	Upper A	9/11/1992	3100	NA	200 U	200 U
W9-37	Upper A	11/23/1992	2600	1000 U	1000 U	1000 U
W9-37	Upper A	5/21/1993	3400 J-S	NA	25 UJ-S	25 UJ-S
W9-37	Upper A	9/12/1995	2900 D/E	450 D	10 U	2 U
W9-37	Upper A	6/4/1997	3400	350	200 U	200 U
W9-37	Upper A	8/6/1997	3300 D	340	16 U	16 U
W9-37	Upper A	3/25/1999	2680	570	50 U	100 U
W9-37	Upper A	6/24/1999	309	324	10 U	5 U
W9-37	Upper A	1/20/2000	2220	510	50 U	25 U
W9-37	Upper A	8/23/2000	170	1800	1 U	7.4
W9-37	Upper A	11/29/2000	210	2000	100 U	25 J
W9-37	Upper A	12/5/2001	490 D	1400 D	0.4 J	70 J
W9-37	Upper A	11/8/2002	260	1800	2 U	360
W9-37	Upper A	12/9/2003	3	1200	2 U	460 J
W9-37	Upper A	12/2/2004	190	1300	10 U	360
W9-37	Upper A	12/9/2005	6	620	0.2 J	720
W9-37	Upper A	11/20/2006	0.1 J	14	2 U	16 J
W9-37	Upper A	11/20/2007	3	30	0.2 J	51
W9-37	Upper A	11/25/2008	22	310	0.13 J	330
W9-37	Upper A	11/20/2009	8.6	34	0.16 J	120
W9-37	Upper A	11/23/2010	1.0 U	190 J	1.0 U	410 J
W9-37	Upper A	9/16/2011	10 U	710	10 U	750
W9-39	B2	11/16/2007	2 U	2 U	2 U	0.5 U
W9-40	B2	8/31/1992	2 U	1 U	2 U	2 U
W9-40	B2	5/25/1993	2 U	NA	2 U	2 U
W9-40	B2	11/20/1995	0.5 U	NA	0.5 U	0.5 U
W9-40	B2	11/24/1997	2 U	NA	2 U	0.5
W9-40	B2	4/21/1998	1 U	1 U	1 U	0.5 U
W9-40	B2	11/8/2002	2 U	2 U	2 U	0.5 U
W9-40	B2	11/8/2002	2 U	2 U	2 U	0.5 U
W9-40	B2	12/8/2003	2 U	2 U	2 U	0.5 U
W9-40	B2	12/1/2004	2 U	2 U	2 U	0.5 U
W9-40	B2	12/9/2005	2 U	2 U	2 U	0.5 U
W9-40	B2	11/20/2006	0.8 J	0.2 J	2 U	14 J
W9-40	B2	11/20/2007	0.8 J	0.3 J	2 U	17
W9-40	B2	11/25/2008	0.50 U	0.50 U	0.50 U	0.50 U
W9-40	B2	11/24/2009	0.50 U	0.50 U	0.50 U	0.57
W9-40	B2	11/19/2010	1.0 U	1.0 U	1.0 U	15 J
W9-40	B2	9/19/2011	0.28 J	0.26 J	1.0 U	7.2

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-42	Lower A	9/9/1992	780	710	62 U	62 U
W9-42	Lower A	5/18/1993	900	NA	14	7 U
W9-42	Lower A	9/20/1993	960	NA	18 J	50 U
W9-42	Lower A	2/22/1994	990 D	NA	26	2 U
W9-42	Lower A	8/23/1994	820	NA	18	5 U
W9-42	Lower A	2/28/1995	920 D	NA	12	2 U
W9-42	Lower A	12/7/2001	52 J	450	0.5 J	15
W9-42	Lower A	11/6/2002	100	380	0.5 J	150
W9-42	Lower A	12/10/2003	93	350	0.5 J	180
W9-42	Lower A	12/2/2004	3	270	0.8 J	220
W9-42	Lower A	12/8/2005	14	170	0.5 J	180
W9-42	Lower A	11/21/2006	37	160	1 J	210 J
W9-42	Lower A	11/16/2007	4	50	6	25
W9-42	Lower A	11/25/2008	3.5	150	3.1	100
W9-42	Lower A	11/23/2009	3.3	160	0.71	180
W9-42	Lower A	11/10/2010	0.87 J	17	3.2	88
W9-44	Upper A	2/28/1992	4600	NA	100 U	50 U
W9-44	Upper A	6/2/1992	4600	NA	15	10 U
W9-44	Upper A	8/31/1992	3400	NA	50 U	50 U
W9-44	Upper A	10/28/1992	5200	1000 U	1000 U	1000 U
W9-44	Upper A	5/21/1993	2800	NA	10	50 U
W9-44	Upper A	3/2/1995	3600	NA	250 U	250 U
W9-44	Upper A	6/3/1997	3700	460	170 U	170 U
W9-44	Upper A	8/5/1997	3200 D	390	6 J	18 U
W9-44	Upper A	3/26/1999	2480	240	50 U	100 U
W9-44	Upper A	6/24/1999	2150	210	50 U	25 U
W9-44	Upper A	1/20/2000	2260	170	50 U	25 U
W9-44	Upper A	8/22/2000	110 J	19 J	0.37 J	0.15 J
W9-44	Upper A	11/29/2000	1500	110	4.4 J	5 U
W9-44	Upper A	12/3/2001	1300	110 J	4	6 J
W9-44	Upper A	11/7/2002	1300	220	3	2
W9-44	Upper A	6/26/2003	1700	300	2.4	0.5 U
W9-44	Upper A	12/10/2003	770	140	3	1 J
W9-44	Upper A	12/18/2003	120	14	2.5 U	2.5 U
W9-44	Upper A	12/1/2004	860	170	3 J	1 J
W9-44	Upper A	12/1/2004	850	160	2 J	0.9 J
W9-44	Upper A	12/6/2005	940	210	3	1
W9-44	Upper A	11/20/2006	670	180 J	3	0.8 J
W9-44	Upper A	11/20/2007	890	300	3	0.9
W9-44	Upper A	11/25/2008	690	360	2.6	2.5 U
W9-44	Upper A	11/24/2009	710	350	2.1 J	10 U
W9-44	Upper A	11/19/2010	810	430	20 U	10 U
W9-44	Upper A	9/19/2011	830	440	2.8 J	10 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-45	Upper A	2/28/1992	980	NA	25 U	12 U
W9-45	Upper A	6/2/1992	910 D	NA	6	10 U
W9-45	Upper A	9/9/1992	1200	490	40 J-G	100 U
W9-45	Upper A	5/19/1993	960 D	NA	24	5 U
W9-45	Upper A	9/23/1993	790 D	NA	2	2 U
W9-45	Upper A	2/28/1994	700	NA	50 U	50 U
W9-45	Upper A	9/16/1994	650	NA	50 U	50 U
W9-45	Upper A	2/28/1995	790	NA	31	10 U
W9-45	Upper A	6/3/1997	500	220	29 U	29 U
W9-45	Upper A	8/5/1997	490 D	190 DJ	1 J	3 U
W9-45	Upper A	3/25/1999	443	152	5 U	10 U
W9-45	Upper A	6/23/1999	423	180	10 U	5 U
W9-45	Upper A	1/20/2000	511	190	10 U	5 U
W9-45	Upper A	8/23/2000	280	140	0.69 J	0.49 J
W9-45	Upper A	11/28/2000	550	190	1.2 J	2.5 U
W9-45	Upper A	12/7/2001	460	180	0.7 J	0.5 J
W9-45	Upper A	12/7/2001	470	180	0.8 J	0.5 J
W9-45	Upper A	11/6/2002	390	140	0.6 J	0.5
W9-45	Upper A	12/10/2003	440	190	1 J	0.5 U
W9-45	Upper A	12/1/2004	400	170 J	0.5 J	0.7
W9-45	Upper A	12/8/2005	580	380	1 J	0.8
W9-45	Upper A	11/20/2006	540	300	6	0.8
W9-45	Upper A	11/20/2007	360	230	6	0.3 J
W9-45	Upper A	11/24/2008	430	230	11 J	0.74 J
W9-45	Upper A	11/23/2009	390	210	10	10 U
W9-45	Upper A	11/23/2010	400	190	11	5.0 U
W9-45	Upper A	9/19/2011	400	190	13	5.0 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-46	Upper A	2/28/1992	2400	NA	50 U	25 U
W9-46	Upper A	6/15/1992	1800	NA	50 U	100 U
W9-46	Upper A	9/11/1992	1700	NA	120 U	120 U
W9-46	Upper A	11/23/1992	1900	300	200 U	200 U
W9-46	Upper A	5/24/1993	1400	NA	4	10 U
W9-46	Upper A	12/9/1993	1400	NA	100 U	100 U
W9-46	Upper A	4/7/2004	440	250	89	0.5
W9-46	Upper A	4/7/2004	470	260	95	0.5
W9-46	Upper A	4/27/2004	470	400	110	1
W9-46	Upper A	5/11/2004	480	620	130	2
W9-46	Upper A	6/14/2004	560	630	180	3
W9-46	Upper A	7/12/2004	640	740	280	3 U
W9-46	Upper A	8/17/2004	570	950	170	5
W9-46	Upper A	8/17/2004	570	910	180	5
W9-46	Upper A	11/15/2004	470	410	230	0.9
W9-46	Upper A	4/27/2005	490 J	280 J	150 J	0.94
W9-46	Upper A	12/9/2005	610	830	350	4
W9-5	B2	11/20/2007	2U	0.1 J	2U	0.5U
W9-7	Upper A	8/28/1992	2300	NA	170 U	170 U
W9-7	Upper A	10/28/1992	2300	500 U	500 U	500 U
W9-7	Upper A	5/28/1993	2200	NA	0.6 J	1 J
W9-7	Upper A	12/10/2003	110	1200	2 U	5 J
W9-7	Upper A	11/30/2004	2 J	1200	4 U	7 J
W9-7	Upper A	12/6/2005	75	970	2 U	24
W9-7	Upper A	11/20/2006	8 J	1000 J	2 U	160 J
W9-7	Upper A	11/19/2007	640	660	0.2 J	10
W9-7	Upper A	11/24/2008	64	1100	1.0 U	100
W9-7	Upper A	11/23/2009	580	530	0.25 J	32
W9-7	Upper A	11/19/2010	120 J	1100	10 UJ	120 J
W9-7	Upper A	9/16/2011	11 J	740	20 U	38

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-8	Lower A	8/31/1992	2200 D	NA	50 U	50 U
W9-8	Lower A	10/28/1992	3600	290	500 U	500 U
W9-8	Lower A	5/21/1993	2700 D	NA	50 U	50 U
W9-8	Lower A	3/1/1995	3000	NA	110 U	250 U
W9-8	Lower A	6/3/1997	1600	3500	170 U	170 U
W9-8	Lower A	8/6/1997	360	3900 D	15 U	15 U
W9-8	Lower A	3/26/1999	879	2020	5 U	10 U
W9-8	Lower A	6/24/1999	50 U	1430	50 U	25 U
W9-8	Lower A	1/20/2000	1700	1550	50 U	25 U
W9-8	Lower A	8/22/2000	74 J	3200	1 U	1.7
W9-8	Lower A	11/29/2000	87 J	2200	100 U	50 U
W9-8	Lower A	12/4/2001	1800	1900	0.6 J	5
W9-8	Lower A	11/8/2002	2300	1600	1 J	9
W9-8	Lower A	12/10/2003	15	2800	2 U	230 J
W9-8	Lower A	12/1/2004	690	2400	10 U	69
W9-8	Lower A	12/9/2005	4	3100	2 U	150
W9-8	Lower A	11/20/2006	3	1800 J	2 U	150 J
W9-8	Lower A	11/20/2007	3	1800	2 U	160
W9-8	Lower A	11/25/2008	2.9	1900	2.5 U	220
W9-8	Lower A	11/24/2009	40 J	2700	50 U	96
W9-8	Lower A	11/19/2010	50 U	2100	50 U	270
W9-8	Lower A	9/19/2011	50 U	2400	50 U	360
W9-9	Lower A	9/9/1992	1700	100 U	170 U	170 U
W9-9	Lower A	5/28/1993	1700 D	NA	2 U	0.8
W9-9	Lower A	6/4/1997	170	1600	80 U	71 J
W9-9	Lower A	8/7/1997	250 D	1500 D	6 U	100
W9-9	Lower A	3/26/1999	929	140	5 U	20
W9-9	Lower A	6/24/1999	120	1310	20 U	30
W9-9	Lower A	1/21/2000	1 U	23	1 U	4.5
W9-9	Lower A	8/22/2000	7.2	320	1 U	110
W9-9	Lower A	11/29/2000	16	880	10 U	170
W9-9	Lower A	12/6/2001	280	100	2 U	40 J
W9-9	Lower A	11/8/2002	330	490	2 U	360
W9-9	Lower A	12/9/2003	32	31	2 U	74 J
W9-9	Lower A	12/9/2003	38	38	2 U	75 J
W9-9	Lower A	11/30/2004	66 J	200	2 U	500
W9-9	Lower A	12/6/2005	51	140	2 U	510
W9-9	Lower A	11/21/2006	0.1 J	0.3 J	2 UJ	5 J
W9-9	Lower A	11/16/2007	34	140	2 U	250
W9-9	Lower A	11/21/2008	19 J	80 J	0.50 U	500 J
W9-9	Lower A	11/23/2009	0.44 J	12	0.50 U	94
W9-9	Lower A	11/19/2010	1.0 U	1.0 U	1.0 U	1.7
W9-9	Lower A	9/16/2011	1.0 U	0.32 J	1.0 U	3.2

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9SC-1	Upper A	3/25/1999	1650	240	25 U	50 U
W9SC-1	Upper A	6/23/1999	2620	370	50 U	25 U
W9SC-1	Upper A	1/20/2000	1390	220	50 U	25 U
W9SC-1	Upper A	8/24/2000	2100	320	7.7	1
W9SC-1	Upper A	11/27/2000	2200	350	100 U	50 U
W9SC-1	Upper A	12/8/2001	1600	260	6	0.6 J
W9SC-1	Upper A	11/8/2002	1800	280	6	0.5 U
W9SC-1	Upper A	12/11/2003	1500 J	320	5	0.4 J
W9SC-1	Upper A	12/1/2004	1300	340	3 J	0.5 J
W9SC-1	Upper A	12/8/2005	1100	450	4	0.4 J
W9SC-1	Upper A	11/21/2006	980	410	3 J	0.6 J
W9SC-1	Upper A	11/19/2007	930	490	4	0.5 J
W9SC-1	Upper A	11/24/2008	830	510	3.0	1.0 U
W9SC-1	Upper A	11/23/2009	790	480	3.1	0.67 J
W9SC-1	Upper A	11/22/2010	540	160	20 U	10 U
W9SC-1	Upper A	9/20/2011	640	110	20 U	10 U
W9SC-13	Upper A	5/27/1997	13 J	820	33 U	22 J
W9SC-13	Upper A	7/29/1997	3 J	NA	3 UJ	21 J
W9SC-13	Upper A	3/26/1999	6	603	5 U	94
W9SC-13	Upper A	6/24/1999	20 U	685	20 U	84
W9SC-13	Upper A	1/21/2000	10	354	10 U	196
W9SC-13	Upper A	8/22/2000	15	560	1 U	260
W9SC-13	Upper A	11/29/2000	61	1000	25 U	120
W9SC-13	Upper A	12/5/2001	0.5 J	410 D	2 U	67 D
W9SC-13	Upper A	11/6/2002	2 U	370	2 U	39 J
W9SC-13	Upper A	12/9/2003	2 U	470	2 U	39 J
W9SC-13	Upper A	4/7/2004	0.5 U	560	0.5 U	56
W9SC-13	Upper A	4/28/2004	0.5 U	530	0.5 U	4
W9SC-13	Upper A	5/10/2004	0.5 U	420	0.5 U	42
W9SC-13	Upper A	6/15/2004	0.5 U	550	0.5 U	39
W9SC-13	Upper A	7/13/2004	0.5 U	630	0.5 U	38
W9SC-13	Upper A	8/17/2004	0.5 U	790	0.5 U	110
W9SC-13	Upper A	11/15/2004	0.5 U	190	0.5 U	52
W9SC-13	Upper A	11/30/2004	0.3 J	570	2 U	34
W9SC-13	Upper A	12/7/2005	2 U	140	2 U	18
W9SC-13	Upper A	11/21/2006	2 U	450 J	2 U	58
W9SC-13	Upper A	11/19/2007	2 U	290	2 U	32 J
W9SC-13	Upper A	11/21/2008	0.50 U	2.4	0.50 U	1.7
W9SC-13	Upper A	11/23/2009	0.22 J	11	0.50 U	16
W9SC-13	Upper A	11/19/2010	1.0 U	2.7	1.0 U	0.50 U
W9SC-13	Upper A	9/16/2011	20 U	810	20 U	140

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9SC-14	Upper A	6/5/1997	860	670	59 U	50 J
W9SC-14	Upper A	8/4/1997	980 D	420 D	5 J	81 J
W9SC-14	Upper A	3/25/1999	220	1570	50 U	100 U
W9SC-14	Upper A	6/24/1999	1820	3340	39 J	160
W9SC-14	Upper A	1/19/2000	860	1080	50 U	25 U
W9SC-14	Upper A	8/21/2000	250	2600	20 U	22
W9SC-14	Upper A	11/30/2000	440	1500	50 U	44
W9SC-14	Upper A	10/30/2001	920	850	5 U	33
W9SC-14	Upper A	12/4/2001	650	490	4	65
W9SC-14	Upper A	11/7/2002	810	430	5	77
W9SC-14	Upper A	12/10/2003	520	440	4	72 J
W9SC-14	Upper A	12/10/2003	550	450	4	75 J
W9SC-14	Upper A	12/2/2004	650	370	5 J	67 J
W9SC-14	Upper A	12/9/2005	450	410	8	0.2 J
W9SC-14	Upper A	11/21/2006	730	400	4 J	100 J
W9SC-14	Upper A	11/22/2006	630	380 J	5	67
W9SC-14	Upper A	11/16/2007	340	530	5	0.3J
W9SC-14	Upper A	11/25/2008	380 J	610 J	2.6	34
W9SC-14	Upper A	11/23/2009	260	560	4.4 J	73
W9SC-14	Upper A	11/23/2010	92 J	1200 J	20 U	10 U
W9SC-14	Upper A	9/19/2011	68	1200	50 U	130
W9SC-15	Lower A	12/10/2003	2900	380	200	0.7 J
W9SC-15	Lower A	12/2/2004	2800	270	180	1 J
W9SC-15	Lower A	4/27/2005	2700 D	330 D	170 J	2.1
W9SC-15	Lower A	12/9/2005	3000	340	220	0.7
W9SC-15	Lower A	11/21/2006	3700	310 J	210 J	0.4 J
W9SC-15	Lower A	11/16/2007	1800	280	140	0.4 J
W9SC-15	Lower A	11/16/2007	1700	250	120	0.4 J
W9SC-15	Lower A	11/25/2008	2100	310	120	2.5 U
W9SC-15	Lower A	11/23/2009	2000	300	120	50 U
W9SC-15	Lower A	11/23/2010	2300 J	280 J	110 J	10 U
W9SC-15	Lower A	9/19/2011	2100	320	120	50 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9SC-3	Lower A	12/8/2001	4800	590	69	2 U
W9SC-3	Lower A	11/11/2002	4700	1500	60	12 U
W9SC-3	Lower A	12/11/2003	6100 J	610 J	71	1
W9SC-3	Lower A	12/1/2004	6000	830	82	3
W9SC-3	Lower A	12/1/2004	5500	780	75	2 J
W9SC-3	Lower A	4/27/2005	4500 J	1000 J	67	3.3
W9SC-3	Lower A	12/6/2005	3000	2400	53	7
W9SC-3	Lower A	11/21/2006	4600 J	1700 J	66 J	9 J
W9SC-3	Lower A	11/19/2007	1600	2000	35	2
W9SC-3	Lower A	11/24/2008	660	2400	12 J	38 J
W9SC-3	Lower A	11/23/2009	400	2400	11	4.3
W9SC-3	Lower A	11/22/2010	3000	1300	100 U	50 U
W9SC-3	Lower A	9/20/2011	1900 J	1100	25 U	12 U
W9SC-7	Upper A	5/26/1997	67 U	300	67 U	400
W9SC-7	Upper A	7/29/1997	41 J	310 J	2 UJ	280 J
W9SC-7	Upper A	3/25/1999	8	38	5 U	433
W9SC-7	Upper A	6/23/1999	30	140	10 U	636
W9SC-7	Upper A	1/19/2000	25 U	120	25 U	347
W9SC-7	Upper A	8/22/2000	0.79 J	0.84 J	1 U	8.1 J
W9SC-7	Upper A	11/28/2000	4.3 J	13 U	13 U	8.5
W9SC-7	Upper A	12/8/2001	10 U	10 U	10 U	10 U
W9SC-7	Upper A	11/5/2002	2 U	0.3 J	2 U	0.4 J
W9SC-7	Upper A	12/9/2003	2 U	1 J	2 U	0.5 UJ
W9SC-7	Upper A	11/30/2004	4 U	1 J	4 U	0.4 J
W9SC-7	Upper A	12/6/2005	2 UJ	0.4 J	2 UJ	0.5 UJ
W9SC-7	Upper A	11/20/2006	2 UJ	16 J	2 UJ	0.5 UJ
W9SC-7	Upper A	11/19/2007	2 U	0.4 J	2 U	0.6 J
W9SC-7	Upper A	11/24/2008	0.50 U	0.39 J	0.10 J	0.50 U
W9SC-7	Upper A	11/23/2009	1.6 J	0.63 J	2.5 U	2.5 U
W9SC-7	Upper A	11/22/2010	10 U	10 U	10 U	5.0 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WIC-1	Upper A	10/21/1995	1100 D	NA	30	2
WIC-1	Upper A	2/19/1996	2400 D	NA	23	5 UJ-K
WIC-1	Upper A	6/13/1996	1680 S	250 S	5.9	2 U
WIC-1	Upper A	9/17/1996	1600	260	15 J	5 U
WIC-1	Upper A	1/13/1997	1900	230	200 U	50 U
WIC-1	Upper A	5/5/1997	2900	280	26 J	16 U
WIC-1	Upper A	5/23/1997	3000	350	200 U	200 U
WIC-1	Upper A	10/21/1997	2800 D	310 D	32	0.5 U
WIC-1	Upper A	10/29/1998	3600 D	230 D	36	1
WIC-1	Upper A	3/25/1999	1310	170	25 U	50 U
WIC-1	Upper A	6/23/1999	1310	210	28 J	25 U
WIC-1	Upper A	11/16/1999	5800 D	300	240	15 U
WIC-1	Upper A	11/22/1999	1700 D	240	18	5 U
WIC-1	Upper A	1/20/2000	1390	250	50 U	25 U
WIC-1	Upper A	8/24/2000	1400	220	20	0.97
WIC-1	Upper A	11/28/2000	1400	260	19 J	25 U
WIC-1	Upper A	12/7/2001	1100	250	11	0.6 J
WIC-1	Upper A	11/8/2002	1400	260	14 J	1 J
WIC-1	Upper A	12/10/2003	1600	240	15	0.6 J
WIC-1	Upper A	12/1/2004	1200	220	10 J	1
WIC-1	Upper A	4/28/2005	1200 J	250 J	12	5.5
WIC-1	Upper A	12/6/2005	1200	320	11	12
WIC-1	Upper A	11/20/2006	1100 J	280 J	11	35 J
WIC-1	Upper A	11/19/2007	890	310	5	13
WIC-1	Upper A	11/21/2008	780	350 J	6.0 J	1.7 J
WIC-1	Upper A	11/24/2009	800	320	9.6 J	14
WIC-1	Upper A	11/19/2010	460	200	5.3 J	2.5 UJ
WIC-1	Upper A	9/19/2011	340	150	3.6 J	5.0 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WNB-14	Lower A	3/10/1992	4	NA	5 U	10 U
WNB-14	Lower A	4/16/1992	7 J	NA	10 U	10 U
WNB-14	Lower A	9/23/1992	16	6.4	5	0.4 J-G
WNB-14	Lower A	11/23/1992	2 U	NA	2 U	2 U
WNB-14	Lower A	6/8/1993	17	NA	3	2 U
WNB-14	Lower A	12/1/1994	22	8	5 U	5 U
WNB-14	Lower A	3/14/1995	21	NA	3	0.3 J
WNB-14	Lower A	7/7/1998	42	20	2.8	1.6
WNB-14	Lower A	1/14/1999	9.5	4.8	0.6	2.6
WNB-14	Lower A	12/20/1999	44	22	3.2	1.6
WNB-14	Lower A	12/14/2000	43	23	2.4	1.7
WNB-14	Lower A	12/12/2001	47	32	2.1	2.6
WNB-14	Lower A	12/13/2002	2.1	1.1	0.5 U	0.8
WNB-14	Lower A	12/9/2003	13	40	0.5 J	16 J
WNB-14	Lower A	11/30/2004	7	33	0.2 J	24
WNB-14	Lower A	12/7/2005	10	32	0.3 J	17
WNB-14	Lower A	11/17/2006	0.3 J	0.9 J	2 U	0.8 J
WNB-14	Lower A	11/16/2007	2 U	0.9 J	2 U	1
WNB-14	Lower A	11/21/2008	0.15 J	3.8 J	0.50 U	3.5 J
WNB-14	Lower A	11/23/2009	0.50 U	1.4	0.50 U	1.8
WNB-14	Lower A	11/19/2010	3.9	28	1.0 U	16
WNB-14	Lower A	9/16/2011	0.22 J	8.3	0.14 J	11
WNX-1	Upper A	11/19/2007	360	720	0.2 J	0.5
WNX-2	Upper A	3/10/1994	33 U	NA	33 U	33 U
WNX-2	Upper A	11/16/1994	4 U	NA	25 U	43
WNX-2	Upper A	10/23/1995	6	NA	0.5 U	46 D
WNX-2	Upper A	10/30/2001	2.5	910	2.5 U	82
WNX-2	Upper A	12/6/2001	3	1100	2 U	32 J
WNX-2	Upper A	12/6/2001	3	1100 D	2 U	18 J
WNX-2	Upper A	11/5/2002	2 J	550	2 U	100
WNX-2	Upper A	12/9/2003	2 J	780	2 U	28 J
WNX-2	Upper A	11/30/2004	0.9 J	140	2 U	53
WNX-2	Upper A	12/9/2005	0.6 J	89	0.1 J	24
WNX-2	Upper A	11/20/2006	3	690	2 U	36
WNX-2	Upper A	11/16/2007	1 J	950	2 U	95
WNX-2	Upper A	11/24/2008	0.89 J	990	2.5 U	48
WNX-2	Upper A	11/20/2009	2.3 J	1600	5.0 U	140
WNX-2	Upper A	11/22/2010	50 U	1600	50 U	170
WNX-2	Upper A	9/16/2011	20 U	1300	20 U	120

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WNX-3	Upper A	3/10/1994	1100	NA	100 U	100 U
WNX-3	Upper A	11/16/1994	1300 D	NA	33 U	33 U
WNX-3	Upper A	10/23/1995	780 D	NA	0.6	0.9
WNX-3	Upper A	5/21/1997	690	140	37 U	37 U
WNX-3	Upper A	8/4/1997	670 J	130 J	4 UJ	4 UJ
WNX-3	Upper A	3/25/1999	711	142	5 U	10 U
WNX-3	Upper A	6/24/1999	680	190	10 U	5 U
WNX-3	Upper A	1/18/2000	27	3.5	0.6 J	0.5 U
WNX-3	Upper A	1/19/2000	672	190	10 U	5 U
WNX-3	Upper A	8/23/2000	450	190	0.33 J	0.38 J
WNX-3	Upper A	11/29/2000	490	260	25 U	13 U
WNX-3	Upper A	10/30/2001	410	460	2.5 U	2.5 U
WNX-3	Upper A	12/6/2001	280	200	0.2 J	2 U
WNX-3	Upper A	11/7/2002	330	250	0.3 J	0.6
WNX-3	Upper A	11/7/2002	320	200	0.3 J	0.7
WNX-3	Upper A	12/10/2003	300	270	0.2 J	0.6
WNX-3	Upper A	12/10/2003	310	270	0.3 J	0.6
WNX-3	Upper A	11/30/2004	270	300	0.2 J	0.6
WNX-3	Upper A	11/30/2004	270	300	2 U	0.6
WNX-3	Upper A	12/6/2005	280	430	0.2 J	0.5
WNX-3	Upper A	11/20/2006	260	370	0.2 J	0.4 J
WNX-3	Upper A	11/19/2007	190	320	0.2 J	0.6
WNX-3	Upper A	11/24/2008	190	310	0.20 J	0.61
WNX-3	Upper A	11/24/2008	190	310	0.20 J	0.66
WNX-3	Upper A	11/20/2009	230	360	1.0 U	0.86 J
WNX-3	Upper A	11/20/2009	200	350	1.0 U	0.83 J
WNX-3	Upper A	11/22/2010	140	220	5.0 U	2.5 U
WNX-3	Upper A	9/16/2011	170	210	2.0 U	0.63 J

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-1	Upper A	6/17/1992	2300	NA	170 U	170 U
WU4-1	Upper A	9/2/1992	2500	NA	200 U	200 U
WU4-1	Upper A	11/3/1992	3800	440	400 U	400 U
WU4-1	Upper A	11/16/1992	3600	NA	200 U	200 U
WU4-1	Upper A	5/25/1993	3000 D	NA	3	2
WU4-1	Upper A	9/21/1993	2200	NA	4	3
WU4-1	Upper A	2/24/1994	2000 D	NA	3	2
WU4-1	Upper A	2/27/1995	2500 D	NA	4	2 J-K
WU4-1	Upper A	7/9/1998	3000	400	10 U	10 U
WU4-1	Upper A	1/19/1999	3400	380	3.6	10
WU4-1	Upper A	7/8/1999	2700	410	8.3 U	8.3 U
WU4-1	Upper A	12/29/1999	2400	380	8.3 U	8.3 U
WU4-1	Upper A	7/10/2000	1800	490	6.3 U	11
WU4-1	Upper A	12/15/2000	2200	560	6.3 U	11
WU4-1	Upper A	12/10/2001	1800	680	6.3 U	16
WU4-1	Upper A	12/17/2002	1700	660	5 U	7.9
WU4-1	Upper A	2/4/2004	1600	950	6.3 U	8.5
WU4-1	Upper A	1/11/2005	1600	1000	10 U	11
WU4-1	Upper A	12/8/2005	1400	1100	1 J	9
WU4-1	Upper A	12/2/2008	790	550	5.0 U	5.0 U
WU4-1	Upper A	12/8/2009	630	440	3.6 U	3.6 U
WU4-1	Upper A	11/18/2010	590	770	4.2 U	4.2 U
WU4-1	Upper A	10/4/2011	540	770	5.0 U	5.0 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-10	Upper A	6/18/1992	170 J-M	NA	10 U	10 U
WU4-10	Upper A	9/3/1992	210	NA	17 U	17 U
WU4-10	Upper A	11/4/1992	150	120	20 U	20 U
WU4-10	Upper A	11/18/1992	140 D	NA	0.8 J	0.5 J
WU4-10	Upper A	5/26/1993	260 D	NA	1 J	0.6 J
WU4-10	Upper A	5/23/1997	300	140	15 U	15 U
WU4-10	Upper A	3/24/1999	224	103	2.5 U	5 U
WU4-10	Upper A	6/24/1999	128	99	0.6 J	0.5 U
WU4-10	Upper A	1/19/2000	270	110	25 U	13 U
WU4-10	Upper A	8/22/2000	220	96	1.1	0.36 J
WU4-10	Upper A	11/27/2000	220	92	10 U	5 U
WU4-10	Upper A	12/6/2001	180	79	0.8 J	0.4 J
WU4-10	Upper A	11/8/2002	220	79	0.7 J	0.4 J
WU4-10	Upper A	12/10/2003	160	79	0.7 J	0.5 U
WU4-10	Upper A	12/2/2004	140	85	0.5 J	0.6
WU4-10	Upper A	12/7/2005	160	110	0.6 J	0.7
WU4-10	Upper A	11/21/2006	160	130	0.7 J	0.7 J
WU4-10	Upper A	11/16/2007	120	120	0.5 J	0.6
WU4-10	Upper A	11/24/2008	100	130	0.39 J	0.59
WU4-10	Upper A	11/20/2009	100	140	0.34 J	0.49 J
WU4-10	Upper A	12/2/2010	120 J	160 J	0.63 J	2.5 U
WU4-10	Upper A	9/16/2011	100	120	0.33 J	0.62 J

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-11	Lower A	6/18/1992	68 D	NA	2 U	2 U
WU4-11	Lower A	9/3/1992	68	5.6	5 U	2 U
WU4-11	Lower A	11/18/1992	120	NA	10 U	10 U
WU4-11	Lower A	5/26/1993	150 D	NA	2 U	2 U
WU4-11	Lower A	9/27/1993	46	NA	4 U	4 U
WU4-11	Lower A	3/2/1994	35	NA	2 U	2 U
WU4-11	Lower A	3/10/1995	38	NA	2 U	2 UJ-K
WU4-11	Lower A	5/30/1997	34	0.9 J	2 U	2 UJ
WU4-11	Lower A	3/25/1999	15	0.7	0.5 U	1 U
WU4-11	Lower A	6/24/1999	11	0.9 J	1 U	0.5 U
WU4-11	Lower A	1/19/2000	15	0.6 J	1 U	0.5 U
WU4-11	Lower A	11/27/2000	18	1.8	1 U	0.5 U
WU4-11	Lower A	12/6/2001	19	4	2 U	2 U
WU4-11	Lower A	11/7/2002	11	0.5 J	2 U	0.5 U
WU4-11	Lower A	12/9/2003	11	0.9 J	2 U	0.5 UJ
WU4-11	Lower A	12/2/2004	11	1 J	2 U	0.5 U
WU4-11	Lower A	12/7/2005	11	1 J	2 U	0.5 U
WU4-11	Lower A	11/21/2006	13	2 J	2 U	0.5 U
WU4-11	Lower A	11/16/2007	12	2	2 U	0.5 U
WU4-11	Lower A	11/24/2008	11	3.0	0.50 U	0.50 U
WU4-11	Lower A	11/20/2009	12	3.1	0.50 U	0.50 U
WU4-11	Lower A	12/2/2010	9.2 J	6.0 J	1.0 U	0.50 U
WU4-11	Lower A	9/16/2011	8.2	2.3	1.0 U	0.50 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-14	Upper A	6/17/1992	210	NA	50 U	13
WU4-14	Upper A	9/9/1992	510	100 U	60 J-G	33
WU4-14	Upper A	11/20/1992	410	NA	39	15
WU4-14	Upper A	5/28/1993	400 D	NA	46 J-E	25
WU4-14	Upper A	9/22/1993	470	NA	38	100 U
WU4-14	Upper A	3/2/1994	430	NA	45	120 U
WU4-14	Upper A	3/10/1995	200 D	NA	35	22
WU4-14	Upper A	5/26/1997	130	1600	77 U	77 U
WU4-14	Upper A	7/31/1997	100	1400 D	8	65 J
WU4-14	Upper A	3/25/1999	13.1	62.6	1.4	51
WU4-14	Upper A	6/24/1999	12	470	2	69.5
WU4-14	Upper A	1/19/2000	10	226	10 U	5 U
WU4-14	Upper A	8/23/2000	150	440	1.7 J	39 J
WU4-14	Upper A	11/28/2000	190	400	4.1 J	18
WU4-14	Upper A	1/25/2002	32	41	2	2 J
WU4-14	Upper A	11/6/2002	1300	610	1 J	21
WU4-14	Upper A	6/26/2003	51	76	1.6	3.3
WU4-14	Upper A	12/10/2003	750	370	0.9 J	2
WU4-14	Upper A	12/18/2003	1100	440	25 U	25 U
WU4-14	Upper A	12/1/2004	1900	680	10 U	36
WU4-14	Upper A	12/1/2004	1900	660	10 U	35
WU4-14	Upper A	12/7/2005	1000	410	0.7 J	11
WU4-14	Upper A	11/17/2006	1500	570 J	0.8 J	41
WU4-14	Upper A	11/17/2006	1300 J	580 J	0.7 J	44
WU4-14	Upper A	11/20/2007	1100	620	0.4 J	38
WU4-14	Upper A	11/25/2008	600	560	0.78 J	53
WU4-14	Upper A	11/20/2009	680	550	0.54 J	48
WU4-14	Upper A	11/20/2009	720	550	2.5 U	50
WU4-14	Upper A	11/23/2010	2.9 J	4.2 J	1.5 J	0.50 U
WU4-14	Upper A	9/20/2011	3.6 J	520	20 U	11

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-15	Lower A	6/17/1992	100	NA	10 U	10 U
WU4-15	Lower A	9/4/1992	16	NA	0.9 J-G	0.4 J-G
WU4-15	Lower A	10/22/1992	1 U	1 U	1 U	1 U
WU4-15	Lower A	11/19/1992	2	NA	2 U	2 U
WU4-15	Lower A	5/28/1993	6	NA	6	2 U
WU4-15	Lower A	9/27/1993	0.8 J	NA	0.5	2 U
WU4-15	Lower A	3/2/1994	2	NA	1 J	2 U
WU4-15	Lower A	3/10/1995	2 U	NA	2 U	2 UJ-K
WU4-15	Lower A	5/30/1997	5	17	3	0.4 J
WU4-15	Lower A	3/24/1999	2.4	13.4	1.1	1 U
WU4-15	Lower A	6/24/1999	5.7	11	2	0.5 U
WU4-15	Lower A	1/20/2000	2.2	7.6	0.6 J	0.5 U
WU4-15	Lower A	8/23/2000	5.2	14	1.1	6.1
WU4-15	Lower A	11/28/2000	12	26	3.3	0.74
WU4-15	Lower A	12/7/2001	4	12	1 J	0.4 J
WU4-15	Lower A	11/6/2002	2 J	6	0.4 J	0.5 U
WU4-15	Lower A	12/9/2003	6	26	2	0.7 J
WU4-15	Lower A	12/1/2004	9	40	3	0.9
WU4-15	Lower A	12/7/2005	8	59	2 J	0.8
WU4-15	Lower A	11/17/2006	10	45 J	2 J	0.8
WU4-15	Lower A	11/20/2007	14	61	3	1
WU4-15	Lower A	11/20/2007	14	57	3	1
WU4-15	Lower A	11/21/2008	13	77	1.4	1.4
WU4-15	Lower A	11/23/2009	18	74	2.5	1.9
WU4-15	Lower A	11/19/2010	17	65	2.3	1.8
WU4-15	Lower A	9/19/2011	15	56	1.6 J	1.8

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-17	Upper A	6/16/1992	20 U	NA	20 U	20 U
WU4-17	Upper A	9/2/1992	23	NA	50 U	50 U
WU4-17	Upper A	10/22/1992	1 U	10	1 U	1 U
WU4-17	Upper A	11/20/1992	6 U	NA	6 U	6 U
WU4-17	Upper A	5/27/1993	43 D	NA	2 UJ-S	2 UJ-S
WU4-17	Upper A	3/13/1995	2 U	NA	2 U	2 U
WU4-17	Upper A	5/3/1996	1.2 U	98	1.2 U	6.4
WU4-17	Upper A	6/26/1996	2.8	29	0.5 U	3.1
WU4-17	Upper A	6/5/1997	36	44	31 U	31 U
WU4-17	Upper A	8/5/1997	14	25	0.4 J	14 J
WU4-17	Upper A	3/26/1999	3	11	2.5 U	5 U
WU4-17	Upper A	6/24/1999	5 U	77	5 U	13
WU4-17	Upper A	1/21/2000	5 U	67	5 U	9.5
WU4-17	Upper A	8/23/2000	6.7	49	1 U	8.8
WU4-17	Upper A	11/28/2000	0.7 J	4 U	4 U	2 U
WU4-17	Upper A	12/7/2001	2 J	9	2 U	3
WU4-17	Upper A	11/6/2002	2 U	1 J	2 U	2 J
WU4-17	Upper A	12/9/2003	2 U	0.6 J	2 U	3 J
WU4-17	Upper A	4/7/2004	0.5 U	0.3 J	0.5 U	1
WU4-17	Upper A	4/28/2004	0.5 U	0.5 U	0.5 U	0.5 J
WU4-17	Upper A	5/10/2004	0.5 U	0.7	0.5 U	3
WU4-17	Upper A	6/15/2004	0.5 U	0.8 J	0.5 U	4 J
WU4-17	Upper A	7/13/2004	0.5 U	2	0.5 U	0.9
WU4-17	Upper A	8/17/2004	0.5 U	0.5 U	0.5 U	2
WU4-17	Upper A	11/16/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU4-17	Upper A	11/30/2004	2 U	2 U	2 U	3 J
WU4-17	Upper A	12/7/2005	2 U	2 U	2 U	0.6 J
WU4-17	Upper A	12/18/2006	2 U	0.1 J	2 U	2
WU4-17	Upper A	11/16/2007	2 U	0.3 J	2 U	9 J
WU4-17	Upper A	11/24/2008	0.50 U	0.59	0.50 U	8.3
WU4-17	Upper A	11/24/2009	0.50 U	0.39 J	0.50 U	5.9
WU4-17	Upper A	11/19/2010	1.0 UJ	1.0 UJ	1.0 UJ	0.50 UJ
WU4-17	Upper A	9/19/2011	1.0 U	1.0 U	1.0 U	3.4

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-19	Lower A	6/16/1992	8	NA	2 U	2 U
WU4-19	Lower A	9/9/1992	2	12	2 U	0.3 J-G
WU4-19	Lower A	11/20/1992	8	NA	2 U	2 U
WU4-19	Lower A	5/24/1993	38	NA	2 U	2 U
WU4-19	Lower A	9/27/1993	12	NA	2 U	2 U
WU4-19	Lower A	3/3/1994	12	NA	2 U	2 U
WU4-19	Lower A	12/1/1994	50 U	50 U	50 U	50 U
WU4-19	Lower A	3/13/1995	64	NA	5 U	5 U
WU4-19	Lower A	9/1/1995	85	24	4 U	1 U
WU4-19	Lower A	7/20/1998	59	9.3	0.5 U	0.5 U
WU4-19	Lower A	1/6/1999	200	18	0.7 U	0.7 U
WU4-19	Lower A	12/22/1999	180	16	0.7 U	0.7 U
WU4-19	Lower A	12/14/2000	130	12	0.7 U	0.7 U
WU4-19	Lower A	12/13/2001	130	12	0.5 U	0.5 U
WU4-19	Lower A	12/18/2002	190	12	0.5 U	0.5 U
WU4-19	Lower A	2/4/2004	190	10	0.7 U	0.7 U
WU4-19	Lower A	1/12/2005	150	9.6	1 U	1 U
WU4-19	Lower A	12/6/2005	190	9	2 U	0.4 J
WU4-19	Lower A	12/3/2008	45	3.7	0.5 U	0.5 U
WU4-19	Lower A	12/3/2009	24	2.4	0.5 U	0.5 U
WU4-19	Lower A	11/22/2010	90	7.0	0.5 U	0.5 U
WU4-19	Lower A	9/28/2011	110	6.4	0.5 U	0.9

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-2	Lower A	6/17/1992	57000	NA	1000 U	1000 U
WU4-2	Lower A	9/2/1992	67000	NA	5000 U	5000 U
WU4-2	Lower A	11/3/1992	50000	5000 U	5000 U	5000 U
WU4-2	Lower A	11/17/1992	45000	NA	3300 U	3300 U
WU4-2	Lower A	5/25/1993	49000	NA	18	10 U
WU4-2	Lower A	9/23/1993	48000	NA	20	8 U
WU4-2	Lower A	2/24/1994	38000	NA	17	33 UJ-S
WU4-2	Lower A	2/27/1995	34000 D	NA	15 U	33 U
WU4-2	Lower A	7/24/1998	15000	440	50 U	50 U
WU4-2	Lower A	1/22/1999	20000	560	83 U	83 U
WU4-2	Lower A	7/8/1999	14000	400	42 U	42 U
WU4-2	Lower A	12/29/1999	21000	470	31 U	31 U
WU4-2	Lower A	7/13/2000	10000	600	25 U	25 U
WU4-2	Lower A	12/18/2000	21000	620	63 U	63 U
WU4-2	Lower A	12/10/2001	16000	490	83 U	83 U
WU4-2	Lower A	12/18/2002	11000	350	36 U	36 U
WU4-2	Lower A	2/6/2004	8000	690	31 U	31 U
WU4-2	Lower A	1/12/2005	6500	320	42 U	42 U
WU4-2	Lower A	12/8/2005	7100	990	4	18
WU4-2	Lower A	12/2/2008	4600	1100	31 U	31 U
WU4-2	Lower A	12/2/2008	4400	1000	31 U	31 U
WU4-2	Lower A	12/8/2009	3300	810	10 U	10 U
WU4-2	Lower A	12/8/2009	3400	680	20 U	20 U
WU4-2	Lower A	12/10/2010	2300	480	13 U	13 U
WU4-2	Lower A	10/4/2011	1900	490	20 U	20 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-21	Upper A	6/19/1992	1 J	NA	2 U	0.6 J
WU4-21	Upper A	9/4/1992	3	NA	2 U	0.8 J-G
WU4-21	Upper A	11/3/1992	5 U	31	5 U	5 U
WU4-21	Upper A	12/16/1992	3 U	NA	3 U	3 U
WU4-21	Upper A	6/3/1993	6	NA	2 U	2 U
WU4-21	Upper A	3/2/1994	1 J	NA	2 U	2 U
WU4-21	Upper A	3/14/1995	1 J	NA	2 U	0.4 J
WU4-21	Upper A	5/23/1997	2 UJ	6	1 U	1 U
WU4-21	Upper A	3/24/1999	3.8	4.2	0.5 U	1 U
WU4-21	Upper A	6/24/1999	1 U	4.2	1 U	0.5 U
WU4-21	Upper A	1/18/2000	1 U	3.9	1 U	0.5 U
WU4-21	Upper A	8/23/2000	0.27 J	5.3	1 U	0.24 J
WU4-21	Upper A	11/27/2000	0.3 J	5.7	1 U	0.26 J
WU4-21	Upper A	12/6/2001	2 U	2	2 U	2 U
WU4-21	Upper A	11/6/2002	0.7 J	11	2 U	0.3 J
WU4-21	Upper A	11/6/2002	0.7 J	11	2 U	0.3 J
WU4-21	Upper A	12/9/2003	2 J	18 J	2 UJ	0.5 J
WU4-21	Upper A	12/1/2004	2 J	18	2 U	0.5
WU4-21	Upper A	12/7/2005	3	22	2 U	0.4 J
WU4-21	Upper A	11/17/2006	4	19	2 U	0.4 J
WU4-21	Upper A	11/16/2007	4	18	2 U	0.5 J
WU4-21	Upper A	11/24/2008	8.0	17	0.50 U	0.53
WU4-21	Upper A	11/24/2009	5	18	0.50 U	0.58
WU4-21	Upper A	11/23/2010	1.5 J	28 J	1.0 U	0.74 J
WU4-21	Upper A	9/19/2011	0.65 J	18	1.0 U	0.83
WU4-24	Upper A	6/19/1992	1	NA	2 U	2 U
WU4-24	Upper A	9/4/1992	6	NA	2 U	2 U
WU4-24	Upper A	11/4/1992	1 U	4.6	1 U	1 U
WU4-24	Upper A	11/19/1992	3	NA	2 U	2 U
WU4-24	Upper A	6/3/1993	1	NA	2 U	2 U
WU4-24	Upper A	9/22/1993	2 U	NA	2 U	2 U
WU4-24	Upper A	3/1/1994	4 B	NA	2 U	2 U
WU4-24	Upper A	3/9/1995	2 U	NA	2 U	2 UJ-K
WU4-24	Upper A	12/9/2003	2	5	2 U	0.5 UJ
WU4-24	Upper A	12/9/2003	2 J	4	2 U	0.5 UJ
WU4-24	Upper A	12/1/2004	4	5	2 U	0.5 U
WU4-24	Upper A	12/7/2005	4	7	2 U	0.5 U
WU4-24	Upper A	11/17/2006	3	4	2 U	0.5 U
WU4-24	Upper A	11/16/2007	2 J	3	2 U	0.5 U
WU4-24	Upper A	11/24/2008	2.9	3.6	0.50 U	0.50 U
WU4-24	Upper A	11/24/2009	5.2	5.5	0.50 U	0.50 U
WU4-24	Upper A	11/23/2010	7.3 J	6.3 J	1.0 U	0.50 U
WU4-24	Upper A	9/19/2011	12	9.9	1.0 U	0.50 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-25	Upper A	6/19/1992	72 D	NA	2 U	0.4
WU4-25	Upper A	9/8/1992	56	NA	4 U	0.7
WU4-25	Upper A	11/4/1992	45	44	5 U	5 U
WU4-25	Upper A	11/19/1992	100	NA	6 U	6 U
WU4-25	Upper A	6/3/1993	100	NA	2 U	0.8 J
WU4-25	Upper A	9/22/1993	110	NA	8 U	8 U
WU4-25	Upper A	3/1/1994	68	NA	6 U	6 U
WU4-25	Upper A	3/9/1995	69	NA	2 U	2 U
WU4-25	Upper A	5/23/1997	23	46	2 U	2 U
WU4-25	Upper A	3/25/1999	34.7	67	0.5 U	1 U
WU4-25	Upper A	6/24/1999	2.6	19	1 U	0.5 U
WU4-25	Upper A	1/19/2000	147	113	5 U	2.5 U
WU4-25	Upper A	8/24/2000	0.48 J	11	1 U	0.27 J
WU4-25	Upper A	11/29/2000	11	20	1 U	0.5 U
WU4-25	Upper A	12/6/2001	18	27	2 U	0.3 J
WU4-25	Upper A	11/7/2002	2 J	14	2 U	0.5
WU4-25	Upper A	12/9/2003	8	19	2 U	0.5 UJ
WU4-25	Upper A	12/1/2004	1 J	18	2 U	0.3 J
WU4-25	Upper A	12/7/2005	1 J	24	2 U	0.5 U
WU4-25	Upper A	11/17/2006	0.3 J	21	2 U	0.6
WU4-25	Upper A	11/16/2007	2	20	2 U	0.3 J
WU4-25	Upper A	11/24/2008	0.90	28	0.50 U	0.28 J
WU4-25	Upper A	11/24/2009	0.26 J	30	0.50 U	0.63
WU4-25	Upper A	11/23/2010	1.9 J	36 J	1.0 U	0.64 J
WU4-25	Upper A	9/19/2011	0.22 J	32	1.0 U	0.65

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-3	Upper A	6/9/1992	4700	NA	400 U	400 U
WU4-3	Upper A	9/2/1992	6700	NA	620 U	620 U
WU4-3	Upper A	10/26/1992	5500	1000 U	1000 U	1000 U
WU4-3	Upper A	11/17/1992	5000	NA	310 U	310 U
WU4-3	Upper A	5/24/1993	4900 D	NA	7 J	20 U
WU4-3	Upper A	9/21/1993	5700 D	NA	8	7
WU4-3	Upper A	2/25/1994	3300	NA	3	5 J-S
WU4-3	Upper A	3/1/1995	5500 D	NA	50 U	50 U
WU4-3	Upper A	7/10/1998	3800	290	10 U	10 U
WU4-3	Upper A	1/19/1999	3500	200	3.7	0.8
WU4-3	Upper A	3/22/1999	4.3	3.6	0.5 U	1 U
WU4-3	Upper A	7/8/1999	3000	240	10 U	10 U
WU4-3	Upper A	12/27/1999	3400	210	13 U	13 U
WU4-3	Upper A	7/20/2000	5200	440	17 U	17 U
WU4-3	Upper A	12/15/2000	2700	200	10 U	10 U
WU4-3	Upper A	12/7/2001	2100	180	2	1 J
WU4-3	Upper A	12/12/2001	2500	200	7.1 U	7.1 U
WU4-3	Upper A	12/17/2002	2100	160	7.1 U	7.1 U
WU4-3	Upper A	12/11/2003	2900 J	210	3	2
WU4-3	Upper A	12/2/2004	2200	320	2 J	2 J
WU4-3	Upper A	12/2/2004	2100	320	2 J	2 J
WU4-3	Upper A	12/8/2005	390	46	0.3 J	0.5 U
WU4-3	Upper A	11/20/2006	3000 J	270 J	4 J	5 UJ
WU4-3	Upper A	11/19/2007	880	100	1 J	0.3 J
WU4-3	Upper A	11/24/2008	530	130	0.53 J	1.0 U
WU4-3	Upper A	11/20/2009	1400	660	1.2 J	13
WU4-3	Upper A	11/19/2010	490	210	10 U	5.0 U
WU4-3	Upper A	9/16/2011	240	95	0.23 J	1.0 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-4	Lower A	6/9/1992	17000	NA	200 U	200 U
WU4-4	Lower A	9/2/1992	13000	NA	1000 U	1000 U
WU4-4	Lower A	10/26/1992	31000	5000 U	5000 U	5000 U
WU4-4	Lower A	11/17/1992	23000	NA	2000 U	2000 U
WU4-4	Lower A	5/24/1993	27000	NA	20 U	20 U
WU4-4	Lower A	9/24/1993	32000 J-S	NA	5	1
WU4-4	Lower A	2/24/1994	21000	NA	20 U	20 U
WU4-4	Lower A	3/1/1995	36000	NA	200 U	200 U
WU4-4	Lower A	7/24/1998	13000	170	50 U	50 U
WU4-4	Lower A	1/22/1999	12000	170	50 U	50 U
WU4-4	Lower A	7/8/1999	8600	140	25 U	25 U
WU4-4	Lower A	12/29/1999	7900	130	25 U	25 U
WU4-4	Lower A	7/13/2000	7000	150	25 U	25 U
WU4-4	Lower A	12/18/2000	6500	130	25 U	25 U
WU4-4	Lower A	12/10/2001	6300	120	31 U	31 U
WU4-4	Lower A	12/17/2002	6800	130	25 U	25 U
WU4-4	Lower A	12/11/2003	7700 J	130	2	0.9
WU4-4	Lower A	12/2/2004	8100	150	2 J	2 U
WU4-4	Lower A	12/8/2005	6300	140	2 J	0.6
WU4-4	Lower A	11/20/2006	5800 J	130 J	2 J	5 UJ
WU4-4	Lower A	11/19/2007	3100	75	1 J	0.2 J
WU4-4	Lower A	11/24/2008	3900	130	1.1 J	5.0 U
WU4-4	Lower A	11/20/2009	4700	120	10 U	10 U
WU4-4	Lower A	11/19/2010	5200	140	100 U	50 U
WU4-4	Lower A	9/16/2011	2900	90	50 U	25 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-5	Lower A	6/9/1992	14000	NA	200 U	200 U
WU4-5	Lower A	9/2/1992	8400	NA	500 U	500 U
WU4-5	Lower A	10/26/1992	13000	2000 U	2000 U	2000 U
WU4-5	Lower A	11/17/1992	14000	NA	1000 U	1000 U
WU4-5	Lower A	5/26/1993	9700	NA	28	10 U
WU4-5	Lower A	9/24/1993	10000	NA	40	4
WU4-5	Lower A	2/25/1994	10000	NA	21	10 UJ-S
WU4-5	Lower A	2/27/1995	11000	NA	35	10 U
WU4-5	Lower A	7/23/1998	7300	100	31 U	31 U
WU4-5	Lower A	1/18/1999	7500	90	25 U	25 U
WU4-5	Lower A	7/15/1999	8200	100	25 U	25 U
WU4-5	Lower A	12/27/1999	5300	82	17 U	17 U
WU4-5	Lower A	7/20/2000	5600	100	25 U	25 U
WU4-5	Lower A	12/15/2000	4600	91	20 U	20 U
WU4-5	Lower A	12/13/2001	3400	65	13 U	13 U
WU4-5	Lower A	12/18/2002	3100	64	10 U	10 U
WU4-5	Lower A	2/6/2004	3100	77	13 U	13 U
WU4-5	Lower A	1/11/2005	2900	73	13 U	13 U
WU4-5	Lower A	12/6/2005	3600	97	5	0.4 J
WU4-5	Lower A	12/2/2008	2300	82	20 U	20 U
WU4-5	Lower A	12/8/2009	1900	56	10 U	10 U
WU4-5	Lower A	12/10/2010	1600	70	10 U	10 U
WU4-5	Lower A	10/4/2011	1400	60	13 U	13 U
WU4-6	Lower A	6/9/1992	18000 J-M	NA	400 U	400 U
WU4-6	Lower A	9/3/1992	13000	NA	200 U	200 U
WU4-6	Lower A	10/26/1992	15000	2000 U	2000 U	2000 U
WU4-6	Lower A	11/18/1992	17000	NA	1000 U	1000 U
WU4-6	Lower A	5/25/1993	13000	NA	25 U	25 U
WU4-6	Lower A	7/23/1998	6100	44	31 U	31 U
WU4-6	Lower A	1/18/1999	7300	90	31 U	31 U
WU4-6	Lower A	7/15/1999	8000	110	25 U	25 U
WU4-6	Lower A	12/27/1999	7000	99	25 U	25 U
WU4-6	Lower A	7/20/2000	7400	120	25 U	25 U
WU4-6	Lower A	12/18/2000	7500	130	25 U	25 U
WU4-6	Lower A	12/13/2001	5300	86	17 U	17 U
WU4-6	Lower A	12/18/2002	6400	99	20 U	20 U
WU4-6	Lower A	2/6/2004	5300	120	20 U	20 U
WU4-6	Lower A	1/11/2005	3100	74	17 U	17 U
WU4-6	Lower A	12/8/2005	3500	86	1 J	0.5 U
WU4-6	Lower A	12/4/2008	4700	130	13 U	13 U
WU4-6	Lower A	12/8/2009	3700	120	20 U	20 U
WU4-6	Lower A	11/22/2010	3000	140	20 U	20 U
WU4-6	Lower A	10/3/2011	2800	110	25 U	25 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-8	Upper A	6/16/1992	21	NA	20 U	12 J
WU4-8	Upper A	9/3/1992	7 U-B	NA	17 U	21
WU4-8	Upper A	11/3/1992	50 U	330	50 U	50 U
WU4-8	Upper A	11/18/1992	33 U	NA	33 U	30 J
WU4-8	Upper A	5/27/1993	5	NA	0.7 J	12
WU4-8	Upper A	3/9/1995	5	NA	2 U	20
WU4-8	Upper A	5/26/1997	3 J	100	5 U	7
WU4-8	Upper A	3/24/1999	5.5	207	2.5 U	38
WU4-8	Upper A	6/23/1999	3 J	157	5 U	27
WU4-8	Upper A	1/19/2000	6 J	328	10 U	60
WU4-8	Upper A	11/27/2000	2.7 J	270	10 U	88
WU4-8	Upper A	12/7/2001	220	140	0.3 J	8
WU4-8	Upper A	11/8/2002	2	220	0.2 J	68
WU4-8	Upper A	12/9/2003	2 J	190	2 U	59 J
WU4-8	Upper A	11/30/2004	2 J	120	2 U	66
WU4-8	Upper A	12/6/2005	0.7 J	17	2 U	32
WU4-8	Upper A	11/17/2006	0.2 J	1 J	2 U	12
WU4-8	Upper A	11/17/2006	0.2 J	1 J	2 U	12 J
WU4-8	Upper A	11/16/2007	2 U	0.2 J	2 U	4
WU4-8	Upper A	11/21/2008	0.50 U	0.23 J	0.50 U	2.0
WU4-8	Upper A	11/23/2009	0.50 U	1.2	0.50 U	2.2
WU4-8	Upper A	11/23/2010	1.0 U	2.1	1.0 U	2.2

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-9	Lower A	6/16/1992	32	NA	50 U	74
WU4-9	Lower A	9/3/1992	39	NA	4 U	160
WU4-9	Lower A	11/3/1992	100 U	770	100 U	100 U
WU4-9	Lower A	11/18/1992	30 J	NA	71 U	88
WU4-9	Lower A	5/27/1993	110 D	NA	2 U	130
WU4-9	Lower A	9/27/1993	32 J	NA	50 U	170
WU4-9	Lower A	2/25/1994	76	NA	50 U	100
WU4-9	Lower A	3/13/1995	40 U	NA	50 U	170
WU4-9	Lower A	6/4/1997	26 J	610	28 U	190
WU4-9	Lower A	7/30/1997	180 J	340 J	5 J	85 J
WU4-9	Lower A	3/24/1999	2.4	45.9	0.5 U	27
WU4-9	Lower A	6/24/1999	1	49	1 U	26.5
WU4-9	Lower A	8/22/2000	4.3	14	1 U	3.9
WU4-9	Lower A	11/27/2000	1 U	3.6	1 U	2
WU4-9	Lower A	12/7/2001	0.7 J	7	2 U	15
WU4-9	Lower A	12/7/2001	0.6 J	8	2 U	16
WU4-9	Lower A	11/8/2002	0.3 J	3	2 U	9
WU4-9	Lower A	11/8/2002	0.3 J	3	2 U	9
WU4-9	Lower A	12/8/2003	0.3 J	5	2 U	7
WU4-9	Lower A	11/30/2004	0.8 J	6	2 U	2
WU4-9	Lower A	12/6/2005	0.6 J	11	2 U	3
WU4-9	Lower A	11/17/2006	0.8 J	12	2 U	3
WU4-9	Lower A	11/16/2007	0.8 J	12	2 U	26
WU4-9	Lower A	11/21/2008	0.58	10	0.50 U	3.7
WU4-9	Lower A	11/20/2009	0.72	12	0.50 U	2.1
WU4-9	Lower A	11/23/2010	1.0 U	14	1.0 U	6.7
WU4-9	Lower A	9/16/2011	1.0	15	1.0 U	0.50 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WWR-1	Upper A	10/24/1995	630 D	NA	0.6	0.4 J
WWR-1	Upper A	2/21/1996	550 D	NA	0.8 J	1 U
WWR-1	Upper A	8/19/1996	590 D	NA	0.8 J	1 U
WWR-1	Upper A	11/20/1996	360 D	NA	1 U	1 U
WWR-1	Upper A	5/21/1997	580	130	30 U	30 U
WWR-1	Upper A	8/5/1997	460 D	100 D	0.8 J	3 U
WWR-1	Upper A	3/25/1999	373	103	5 U	10 U
WWR-1	Upper A	6/24/1999	398	160	10 U	5 U
WWR-1	Upper A	1/19/2000	420	130	25 U	13 U
WWR-1	Upper A	8/22/2000	560	120	0.87 J	1.1
WWR-1	Upper A	11/27/2000	610	130	20 U	10 U
WWR-1	Upper A	12/7/2001	350	99 J	0.4 J	2 U
WWR-1	Upper A	11/7/2002	350	120	0.5 J	2
WWR-1	Upper A	12/10/2003	250	100	0.4 J	1
WWR-1	Upper A	12/2/2004	220	110	0.3 J	2
WWR-1	Upper A	12/8/2005	220	130	0.2 J	0.9
WWR-1	Upper A	11/21/2006	230	120	0.4 J	0.8 J
WWR-1	Upper A	11/16/2007	200	150	0.3 J	0.8
WWR-1	Upper A	11/24/2008	180	140	0.32 J	0.81
WWR-1	Upper A	11/24/2008	170	140	0.32 J	0.50 U
WWR-1	Upper A	11/20/2009	200	160	0.38 J	1.1
WWR-1	Upper A	11/23/2010	300 J	140 J	5.0 U	2.5 U
WWR-2	Upper A	10/24/1995	750 D	NA	1	0.8
WWR-2	Upper A	2/21/1996	950 DJ-H	NA	10 UJ-H	10 UJ-H
WWR-2	Upper A	8/19/1996	870 D	NA	1 J	1 U
WWR-2	Upper A	11/20/1996	760 D	NA	2	0.6 J
WWR-2	Upper A	5/23/1997	22 J	4 J	1 UJ	1 UJ
WWR-2	Upper A	3/25/1999	756	102	5 U	10 U
WWR-2	Upper A	6/24/1999	718	120	20 U	5 U
WWR-2	Upper A	1/19/2000	691	95	25 U	13 U
WWR-2	Upper A	8/23/2000	570	97	0.84 J	0.62
WWR-2	Upper A	11/27/2000	480	77	20 U	10 U
WWR-2	Upper A	11/5/2002	360	71	0.5 J	1
WWR-2	Upper A	12/10/2003	380	71	0.6 J	0.8
WWR-2	Upper A	11/30/2004	270	72	0.4 J	2
WWR-2	Upper A	12/7/2005	300	71	0.5 J	1
WWR-2	Upper A	11/20/2006	290	61	0.4 J	0.5 J
WWR-2	Upper A	11/16/2007	220	62	0.3 J	0.4 J
WWR-2	Upper A	11/24/2008	220	75	0.42 J	0.78
WWR-2	Upper A	11/23/2009	250	79	0.39 J	1.1
WWR-2	Upper A	11/23/2009	250	78	0.40 J	1
WWR-2	Upper A	11/23/2010	220 J	95 J	5.0 U	2.5 U

TABLE 2-6

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WWR-3	Upper A	10/24/1995	25	NA	0.5 U	0.5 U
WWR-3	Upper A	2/21/1996	37 J-H	NA	10 UJ-H	10 UJ-H
WWR-3	Upper A	8/19/1996	37 D	NA	2 U	0.5 U
WWR-3	Upper A	11/19/1996	41 D	NA	0.5 U	0.5 U
WWR-3	Upper A	12/10/2003	11	27	2 U	0.5 U
WWR-3	Upper A	11/30/2004	32	92 J	2 U	0.2 J
WWR-3	Upper A	12/7/2005	33	110	2 U	0.5 U
WWR-3	Upper A	11/20/2006	31 J	120	2 UJ	0.2 J
WWR-3	Upper A	11/19/2007	32	100	2 U	0.2 J
WWR-3	Upper A	11/24/2008	34	110	0.50 U	0.50 U
WWR-3	Upper A	11/20/2009	34	110	0.50 U	0.34 J
WWR-3	Upper A	11/22/2010	35	98	5.0 U	2.5 U
WWR-3	Upper A	9/16/2011	39	97	1.0 U	0.33 J

Abbreviations and Acronyms:
µg/L - micrograms per liter
B - analyte found in the associated blank
cis-1,2-DCE - cis-1,2-dichloroethene
D - dilution run; initial run outside of linear range
E - compound exceeded calibration range for GC/MS
EATS - East-Side Aquifer Treatment System
G - qualified due to background problems
GC/MS - gas chromatograph/mass spectrometer
H - qualified due to holding time violation
J - estimated result
K - qualified due to negative blank value problems
NA - not analyzed
PCE - tetrachloroethene
S - estimated due to surrogate outliers
TCE - trichloroethene
U - analyte not detected at or above laboratory reporting limit (value indicates the reporting limit)
VC - vinyl chloride
WATS - West-Side Aquifers Treatment System

TABLE 3-1

2011 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 26

Well Number	Aquifer/ Aquifer Zone	March 24, 2011 (ft msl)	September 15, 2011 (ft msl)
EXW-1	Upper A	2.14	0.63
EXW-2	Upper A	1.42	-1.39
EXW-3	Upper A	0.41	-1.97
EXW-4	Upper A	0.65	-1.52
EXW-5	Upper A	0.09	-2.74
FP5-1	Upper A	3.66	0.59
FP5-2	Upper A	6.40	4.57
FP5-3	Upper A	5.00	3.04
FP5-5	Upper A	3.13	0.79
FP5-7	Upper A	4.81	2.58
FP5-8	Upper A	3.99	1.69
FP5-9	Upper A	5.34	0.02
UST115-MW01	Upper A	2.07	-0.32
UST115-MW02	Upper A	1.28	-0.46
W19-1	Upper A	1.40	0.31
W19-2	Lower A	1.78	0.66
W19-3	Lower A	1.15	-0.09
W19-4	Upper A	1.35	-0.12
W2-12	Upper A	-2.79	-5.27
W2-13	Upper A	-4.81	-5.83
W2-16	Upper A	-5.20	-5.68
W2-3	Upper A	-2.13	-4.92
W26-1	Upper A	-1.65	-4.09
W3-1	Upper A	-0.69	-3.06
W3-11	Upper A	N/A	-3.62
W3-13	Lower A	-2.77	-4.23
W3-14	B	-1.39	-2.47
W3-15	B	-1.82	-2.58
W3-16[a]	C	51.66	49.35
W3-19	Upper A	-1.02	-3.82
W3-20	Upper A	-1.56	-2.55
W3-21	Upper A	-0.77	-3.50
W3-22	Lower A	-1.16	-1.77
W3-24	Upper A	-1.85	-4.06
W3-3	Upper A	-3.40	-5.12
W3-6	Upper A	-1.46	-4.24
W3-7	B	-0.90	-2.52
W3-8	Upper A	-2.08	-4.53
W3-9	B	-0.79	-2.95
W4-1	Upper A	0.17	-1.96
W4-11	Upper A	1.75	-0.94
W4-12	Upper A	0.73	-2.15
W4-13	B	0.71	-0.91
W4-14	Upper A	0.58	-1.05
W4-15	Upper A	0.11	-2.26

TABLE 3-1

2011 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 26

Well Number	Aquifer/ Aquifer Zone	March 24, 2011 (ft msl)	September 15, 2011 (ft msl)
W4-16	Upper A	1.12	-1.52
W4-17	Upper A	0.78	-1.39
W4-2	Upper A	0.47	-2.31
W4-3	Upper A	0.65	-1.58
W43-1	Upper A	1.39	0.26
W43-2	Upper A	1.33	0.36
W43-3	Upper A	1.26	0.15
W4-4	Upper A	1.05	-1.20
W4-5	Upper A	1.18	-1.54
W4-6	Lower A	0.62	-1.32
W4-7[a]	C	55.84	53.53
W4-9	B	0.43	-0.02
W5-1	Upper A	3.81	1.66
W5-10	Upper A	5.18	3.28
W5-11	Upper A	4.42	2.33
W5-12	Upper A	3.89	1.24
W5-13	Upper A	6.07	4.04
W5-14	Upper A	2.94	0.27
W5-15	Upper A	5.24	0.84
W5-16	Upper A	7.04	5.17
W5-17	Upper A	6.92	5.16
W5-18	Upper A	7.17	5.75
W5-19	Upper A	6.92	5.44
W5-20	Upper A	3.41	-0.06
W5-23	Upper A	1.06	-1.33
W5-25	Lower A	1.75	-1.07
W5-26	B	4.12	2.50
W5-3	Upper A	3.02	0.36
W5-34	Upper A	2.49	-0.47
W5-35	Upper A	3.39	0.45
W5-4	Lower A	1.16	-0.48
W5-6	Upper A	4.46	1.74
W5-7	Lower A	5.80	4.09
W5-8	Lower A	5.10	3.14
W6-1	Upper A	N/A	2.35
W6-10	Upper A	3.53	1.75
W6-2	Lower A	2.13	-0.22
W6-3	Upper A	2.05	-0.15
W6-4	Upper A	1.21	-0.73
W6-5	Upper A	1.42	-0.46
W6-6	Upper A	1.27	-0.11
W6-8	Lower A	3.01	0.80
W6-9	Upper A	3.04	0.64
W7-10	Upper A	1.58	0.59
W7-11	Upper A	2.92	2.31

TABLE 3-1

2011 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 26

Well Number	Aquifer/ Aquifer Zone	March 24, 2011 (ft msl)	September 15, 2011 (ft msl)
W7-12	Upper A	2.98	2.36
W7-13	Upper A	5.06	4.02
W7-17	Lower A	1.11	-0.34
W7-19	Upper A	2.11	0.94
W7-3	Upper A	2.36	1.13
W7-4	B	2.97	1.75
W7-6	Upper A	1.30	0.27
W7-7	Upper A	1.53	0.48
W7-8	Lower A	1.59	0.47
W7-9	Lower A	1.41	0.29
WFH-01	Upper A	-2.07	-3.58
WFH-02	Upper A	-2.27	-3.57
WFH-03	Upper A	-1.93	-3.44
WFH-04	Upper A	-1.15	-2.81
WFH-05	Upper A	-1.15	-2.87
WFH-06	Upper A	0.88	0.64
WGC2-1	Upper A	-2.49	-3.14
WGC2-10	Upper A	N/A	-3.92
WGC2-11	Upper A	N/A	-3.94
WGC2-12	Upper A	-2.20	-2.74
WGC2-13	Upper A	-1.50	-2.87
WGC2-4	Upper A	-2.07	-2.35
WGC2-5	Upper A	-2.53	-2.82
WGC2-6	Upper A	-2.03	-2.78
WGC2-8	Upper A	-2.82	-3.89
WGC2-9	Upper A	-2.43	-4.05
WNB-17	Upper A	-3.84	-4.56
WNB-18	Upper A	-2.70	-4.01
WNB-19	Upper A	-2.52	-3.50
WNB-4	Upper A	-2.68	-3.12
WSW-1	Upper A	N/A	-5.24
WSW-2	Upper A	-1.50	-4.32
WSW-3	Upper A	-1.86	-4.72
WSW-4	Upper A	0.73	-1.62
WSW-5	Upper A	0.80	-1.38
WSW-6	Upper A	0.62	-1.67
WT17-1	Upper A	1.57	-2.22
WT17-2	Upper A	0.52	-1.91
WT17-3	Upper A	0.46	-2.17
WT2-1	Upper A	3.05	2.45
WU5-1	Upper A	0.59	-1.77
WU5-10	Upper A	1.04	-0.75
WU5-11	Lower A	0.45	-1.93
WU5-12	Lower A	0.18	-1.55
WU5-13	Lower A	-0.08	-2.80

TABLE 3-1

2011 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 26

Well Number	Aquifer/ Aquifer Zone	March 24, 2011 (ft msl)	September 15, 2011 (ft msl)
WU5-14	Upper A	1.38	-1.50
WU5-15	Upper A	1.35	-1.44
WU5-16	Upper A	1.27	-1.62
WU5-17	Upper A	1.75	-1.31
WU5-18	Upper A	0.10	-2.94
WU5-19	Upper A	0.16	-2.93
WU5-2	Upper A	1.02	-1.89
WU5-20	Upper A	0.07	-2.88
WU5-21	Upper A	0.16	-2.85
WU5-22	Upper A	0.76	-1.91
WU5-23	Upper A	0.93	-2.01
WU5-24	Upper A	1.62	0.36
WU5-25	Upper A	-0.14	-3.51
WU5-3	Upper A	-1.28	N/A
WU5-4	Upper A	-1.47	-4.23
WU5-5	Upper A	0.05	-2.63
WU5-6	Upper A	-0.88	-4.29
WU5-7	Upper A	-1.95	-4.22
WU5-8	Upper A	-1.97	-4.83
WU5-9	Upper A	-3.41	-5.13

Note:

[a] artesian well

Abbreviations and Acronyms:

ft - feet

IR - installation restoration

msl - mean sea level

N/A - not accessible

TABLE 3-2

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 26

Sample Number:	**Units**	**ROD**	**EXW1-100511**	**2011IR2601EXW2**	**2011IR2601EXW3**	**2011IR2601EXW3D**
Location:		**Cleanup**	**EXW-1 [§]**	**EXW-2**	**EXW-3**	**EXW-3 (Dup)**
Sample Date:		**Standard**	**10/5/2011**	**09/22/2011**	**09/22/2011**	**09/22/2011**
1,1,1-Trichloroethane	□g/L	200	1 U	5.0 UJ	5.0 U	5.0 U
1,1-Dichloroethane	□g/L	5.0	1 U	1.0 UJ	1.0 U	1.0 U
1,1-Dichloroethene	□g/L	6.0	1 U	1.7 UJ	1.0 U	1.0 U
1,2-Dichlorobenzene	□g/L	600*	1 U	5.0 UJ	0.32 J	0.33 J
1,2-Dichloroethane	□g/L	0.5*	0.5 U	0.50 UJ	0.50 U	0.50 U
2-Butanone	□g/L	NE	10 U	5.0 UJ	5.0 UJ	5.0 U
2-Hexanone	□g/L	NE	NA	5.0 UJ	5.0 U	5.0 U
4-Methyl-2-Pentanone	□g/L	NE	10 U	5.0 UJ	5.0 U	5.0 U
Acetone	□g/L	NE	10 U	10 UJ	10 U	10 U
Benzene	□g/L	1.0*	1 U	0.50 UJ	0.50 U	0.50 U
Carbon tetrachloride	□g/L	0.5*	0.5 U	0.50 UJ	0.50 U	0.50 U
Chlorobenzene	□g/L	70*	1 U	5.0 UJ	5.0 U	5.0 U
cis-1,2-Dichloroethene	□g/L	6.0*	0.87 J	3.6 J	3.8	3.7
Tetrachloroethene	□g/L	5.0	1 U	0.76 J	3.9	4.0
Toluene	□g/L	150*	1 U	5.0 UJ	5.0 U	5.0 U
trans-1,2-Dichloroethene	□g/L	10.0	0.65 J	0.43 J	0.16 J	0.17 J
Trichloroethene	□g/L	5.0	1 U	**7.2 J**	**10**	**9.8**
Vinyl chloride	□g/L	0.5	0.32 J	**4.8 J**	**2.9**	**2.8**
Xylenes (total)	□g/L	1,750*	2 U	5.0 UJ	5.0 U	5.0 U

Sample Number:	**Units**	**ROD**	**2011IR2601W77**	**2011IR2601WSW6**	**2011IR2601WT21**	**2011IR2601WU51**
Location:		**Cleanup**	**W7-7**	**WSW-6**	**WT2-1**	**WU5-1**
Sample Date:		**Standard**	**09/21/2011**	**09/22/2011**	**09/21/2011**	**09/22/2011**
1,1,1-Trichloroethane	□g/L	200	5.0 U	5.0 U	5.0 U	5.0 UJ
1,1-Dichloroethane	□g/L	5.0	0.28 J	1.0 U	1.0 U	1.0 UJ
1,1-Dichloroethene	□g/L	6.0	1.0 U	1.0 U	1.0 U	1.0 UJ
1,2-Dichlorobenzene	□g/L	600*	3.3 J	1.5 J	5.0 U	5.0 UJ
1,2-Dichloroethane	□g/L	0.5*	0.50 U	0.50 U	0.50 U	0.50 UJ
2-Butanone	□g/L	NE	5.0 U	5.0 UJ	5.0 U	5.0 UJ
2-Hexanone	□g/L	NE	5.0 U	5.0 U	5.0 U	5.0 UJ
4-Methyl-2-Pentanone	□g/L	NE	5.0 U	5.0 U	5.0 U	5.0 UJ
Acetone	□g/L	NE	10 U	2.5 J	10 U	10 UJ
Benzene	□g/L	1.0*	0.50 U	0.50 U	0.50 U	0.50 UJ
Carbon tetrachloride	□g/L	0.5*	0.50 U	0.50 U	0.50 U	0.50 UJ
Chlorobenzene	□g/L	70*	5.0 U	5.0 U	5.0 U	5.0 UJ
cis-1,2-Dichloroethene	□g/L	6.0*	2.6	2.2	1.0 U	**15 J**
Tetrachloroethene	□g/L	5.0	0.16 J	1.4	0.67 J	2.5 J
Toluene	□g/L	150*	5.0 U	2.0 J	5.0 U	0.30 J
trans-1,2-Dichloroethene	□g/L	10.0	0.56 J	2.0 U	2.0 U	0.30 J
Trichloroethene	□g/L	5.0	0.56 J	4.0	2.2	3.1 J
Vinyl chloride	□g/L	0.5	**9.0**	0.23 J	0.50 U	**0.63 J**
Xylenes (total)	□g/L	1,750*	5.0 U	0.39 J	5.0 U	5.0 UJ

TABLE 3-2

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 26

Sample Number:	**Units**	**ROD Cleanup Standard**	**2011IR2601EXW4**	**2011IR2601EXW5**	**2011IR2601W191**	**2011IR2601W194**
Location:			**EXW-4**	**EXW-5**	**W19-1**	**W19-4**
Sample Date:			**09/22/2011**	**09/22/2011**	**09/21/2011**	**09/21/2011**
1,1,1-Trichloroethane	µg/L	200	0.28 J	5.0 UJ	5.0 U	5.0 U
1,1-Dichloroethane	µg/L	5.0	1.1 UJ	1.0 UJ	1.0 U	0.26 J
1,1-Dichloroethene	µg/L	6.0	3.3 UJ	1.0 UJ	1.0 U	0.74 J
1,2-Dichlorobenzene	µg/L	600*	5.0 UJ	5.0 UJ	5.0 U	5.0 U
1,2-Dichloroethane	µg/L	0.5*	0.35 J	0.37 J	0.50 U	0.50 U
2-Butanone	µg/L	NE	5.0 UJ	5.0 UJ	5.0 U	5.0 U
2-Hexanone	µg/L	NE	5.0 UJ	5.0 UJ	5.0 U	5.0 U
4-Methyl-2-Pentanone	µg/L	NE	5.0 UJ	5.0 UJ	5.0 U	5.0 U
Acetone	µg/L	NE	10 UJ	10 UJ	10 U	10 U
Benzene	µg/L	1.0*	0.50 UJ	0.50 UJ	0.50 U	0.50 U
Carbon tetrachloride	µg/L	0.5*	0.65 J	0.50 UJ	0.50 U	0.50 U
Chlorobenzene	µg/L	70*	5.0 UJ	5.0 UJ	5.0 U	5.0 U
cis-1,2-Dichloroethene	µg/L	6.0*	4.5 J	8.0 J	0.13 J	0.24 J
Tetrachloroethene	µg/L	5.0	1.0 UJ	1.7 J	1.0 U	1.0 U
Toluene	µg/L	150*	5.0 UJ	5.0 UJ	5.0 U	5.0 U
trans-1,2-Dichloroethene	µg/L	10.0	0.18 J	0.20 J	2.0 U	2.0 U
Trichloroethene	µg/L	5.0	3.3 J	2.6 J	1.0 U	0.43 J
Vinyl chloride	µg/L	0.5	0.26 J	0.28 J	0.50 U	0.50 U
Xylenes (total)	µg/L	1,750*	5.0 UJ	5.0 UJ	5.0 U	5.0 U

Sample Number:	**Units**	**ROD Cleanup Standard**	**2011IR2601WU510**	**2011IR2601WU511**	**2011IR2601WU512**	**2011IR2601WU513**
Location:			**WU5-10**	**WU5-11**	**WU5-12**	**WU5-13**
Sample Date:			**09/22/2011**	**09/22/2011**	**09/21/2011**	**09/21/2011**
1,1,1-Trichloroethane	µg/L	200	5.0 UJ	5.0 UJ	5.0 U	5.0 U
1,1-Dichloroethane	µg/L	5.0	1.0 UJ	1.0 UJ	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	6.0	1.0 UJ	1.0 UJ	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	600*	5.0 UJ	5.0 UJ	5.0 U	5.0 U
1,2-Dichloroethane	µg/L	0.5*	0.50 UJ	0.50 UJ	0.50 U	0.50 U
2-Butanone	µg/L	NE	5.0 UJ	5.0 UJ	5.0 U	5.0 U
2-Hexanone	µg/L	NE	5.0 UJ	5.0 UJ	5.0 U	5.0 U
4-Methyl-2-Pentanone	µg/L	NE	5.0 UJ	5.0 UJ	5.0 U	5.0 U
Acetone	µg/L	NE	10 UJ	**10 R**	10 U	10 U
Benzene	µg/L	1.0*	0.50 UJ	0.50 UJ	0.50 U	0.50 U
Carbon tetrachloride	µg/L	0.5*	0.32 J	0.50 UJ	0.50 U	0.50 U
Chlorobenzene	µg/L	70*	5.0 UJ	5.0 UJ	5.0 U	5.0 U
cis-1,2-Dichloroethene	µg/L	6.0*	1.1 UJ	1.0 UJ	1.0 U	1.0 U
Tetrachloroethene	µg/L	5.0	1.0 UJ	0.19 J	1.0 U	1.0 U
Toluene	µg/L	150*	0.34 J	5.0 UJ	5.0 U	5.0 U
trans-1,2-Dichloroethene	µg/L	10.0	2.0 UJ	2.0 UJ	2.0 U	2.0 U
Trichloroethene	µg/L	5.0	**18 J**	1.0 UJ	1.0 U	1.0 U
Vinyl chloride	µg/L	0.5	0.50 UJ	0.50 UJ	0.50 U	0.50 U
Xylenes (total)	µg/L	1,750*	5.0 UJ	5.0 UJ	5.0 U	5.0 U

TABLE 3-2

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 26

Sample Number:		**ROD**	**2011IR2601W321**	**2011IR2601W41**	**2011IR2601W411**	**2011IR2601W414**
Location:	**Units**	**Cleanup**	**W3-21**	**W4-1**	**W4-11**	**W4-14**
Sample Date:		**Standard**	**09/21/2011**	**09/22/2011**	**09/22/2011**	**09/22/2011**
1,1,1-Trichloroethane	□g/L	200	5.0 U	5.0 U	5.0 U	25 U
1,1-Dichloroethane	□g/L	5.0	1.1	1.0 U	1.0 U	5.0 U
1,1-Dichloroethene	□g/L	6.0	0.16 J	1.0 U	1.0 U	5.0 U
1,2-Dichlorobenzene	□g/L	600*	5.0 U	0.18 J	5.0 U	9.5 J
1,2-Dichloroethane	□g/L	0.5*	0.50 U	0.50 U	0.50 U	2.5 U
2-Butanone	□g/L	NE	3.3 J	0.51 J	5.0 U	25 U
2-Hexanone	□g/L	NE	0.27 J	5.0 U	5.0 U	25 U
4-Methyl-2-Pentanone	□g/L	NE	5.0 U	5.0 U	5.0 U	25 U
Acetone	□g/L	NE	10 U	10 U	10 U	50 U
Benzene	□g/L	1.0*	0.50 U	0.50 U	0.50 U	**6.0**
Carbon tetrachloride	□g/L	0.5*	0.20 J	0.50 U	0.50 U	2.5 U
Chlorobenzene	□g/L	70*	5.0 U	5.0 U	5.0 U	**260**
cis-1,2-Dichloroethene	□g/L	6.0*	1.8	2.5	**7.0**	4.1 J
Tetrachloroethene	□g/L	5.0	1.0 U	0.29 J	1.6	5.0 U
Toluene	□g/L	150*	5.0 U	5.0 U	5.0 U	1.9 J
trans-1,2-Dichloroethene	□g/L	10.0	0.18 J	0.15 J	5.0	10 U
Trichloroethene	□g/L	5.0	3.2	**5.8**	**16**	5.0 U
Vinyl chloride	□g/L	0.5	0.50 U	0.50	**0.51**	**14**
Xylenes (total)	□g/L	1,750*	5.0 U	5.0 U	5.0 U	25 U

Sample Number:		**ROD**	**2011IR2601WU514**	**2011IR2601WU514D**	**2011IR2601WU515**	**2011IR2601WU516**
Location:	**Units**	**Cleanup**	**WU5-14**	**WU5-14 (Dup)**	**WU5-15**	**WU5-16**
Sample Date:		**Standard**	**09/21/2011**	**09/21/2011**	**09/21/2011**	**09/21/2011**
1,1,1-Trichloroethane	□g/L	200	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	□g/L	5.0	0.23 J	0.23 J	1.0 U	0.13 J
1,1-Dichloroethene	□g/L	6.0	1.0 UJ	0.22 J	1.0 U	0.44 J
1,2-Dichlorobenzene	□g/L	600*	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	□g/L	0.5*	0.50 U	0.50 U	0.50 U	0.50 U
2-Butanone	□g/L	NE	5.0 U	5.0 U	5.0 U	0.95 J
2-Hexanone	□g/L	NE	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	□g/L	NE	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	□g/L	NE	10 U	10 U	10 U	10 U
Benzene	□g/L	1.0*	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	□g/L	0.5*	0.50 U	0.50 U	0.50 U	0.50 U
Chlorobenzene	□g/L	70*	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	□g/L	6.0*	5.8	5.3	0.62 J	3.3
Tetrachloroethene	□g/L	5.0	1.0 U	1.0 U	2.0	1.2
Toluene	□g/L	150*	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	□g/L	10.0	1.2 J	1.4 J	0.49 J	3.6
Trichloroethene	□g/L	5.0	0.97 J	1.1	**16**	**13**
Vinyl chloride	□g/L	0.5	**13**	**11**	0.50 U	**1.5**
Xylenes (total)	□g/L	1,750*	5.0 U	5.0 U	5.0 U	5.0 U

TABLE 3-2

**ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER,
NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 26**

Sample Number:	**Units**	**ROD**	**2011IR2601W415**	**2011IR2601W42**	**2011IR2601W43**	**2011IR2601W432**
Location:		**Cleanup**	**W4-15**	**W4-2**	**W4-3**	**W43-2**
Sample Date:		**Standard**	**09/22/2011**	**09/22/2011**	**09/21/2011**	**09/21/2011**
1,1,1-Trichloroethane	□g/L	200	5.0 UJ	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	□g/L	5.0	1.0 UJ	1.0 U	0.17 J	0.26 J
1,1-Dichloroethene	□g/L	6.0	1.0 UJ	1.0 U	0.26 J	0.30 J
1,2-Dichlorobenzene	□g/L	600*	0.23 J	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	□g/L	0.5*	0.50 UJ	0.50 U	0.50 U	0.50 U
2-Butanone	□g/L	NE	0.48 J	5.0 UJ	5.0 U	5.0 U
2-Hexanone	□g/L	NE	5.0 UJ	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	□g/L	NE	5.0 UJ	5.0 U	5.0 U	5.0 U
Acetone	□g/L	NE	10 UJ	10 U	10 U	10 U
Benzene	□g/L	1.0*	0.50 UJ	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	□g/L	0.5*	0.50 UJ	0.50 U	0.50 U	0.50 U
Chlorobenzene	□g/L	70*	0.13 J	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	□g/L	6.0*	2.6 J	2.1	0.85 J	**9.3**
Tetrachloroethene	□g/L	5.0	3.8 J	1.0	1.0 U	**50**
Toluene	□g/L	150*	5.0 UJ	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	□g/L	10.0	0.27 J	1.4 J	2.0 U	1.2 J
Trichloroethene	□g/L	5.0	**6.5 J**	**21**	2.7	**24**
Vinyl chloride	□g/L	0.5	**0.74 J**	0.36 J	0.50 U	**0.55**
Xylenes (total)	□g/L	1,750*	5.0 UJ	5.0 U	5.0 U	5.0 U

Sample Number:	**Units**	**ROD**	**2011IR2601WU517**	**2011IR2601WU517D**	**2011IR2601WU52**	**2011IR2601WU520**
Location:		**Cleanup**	**WU5-17**	**WU5-17 (Dup)**	**WU5-2**	**WU5-20**
Sample Date:		**Standard**	**09/22/2011**	**09/22/2011**	**09/22/2011**	**09/21/2011**
1,1,1-Trichloroethane	□g/L	200	5.0 UJ	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	□g/L	5.0	1.0 UJ	1.0 U	1.0 U	0.23 J
1,1-Dichloroethene	□g/L	6.0	1.0 UJ	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	□g/L	600*	5.0 UJ	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	□g/L	0.5*	0.50 UJ	0.50 U	**0.52**	**0.63**
2-Butanone	□g/L	NE	0.79 J	5.0 UJ	5.0 UJ	5.0 U
2-Hexanone	□g/L	NE	5.0 UJ	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	□g/L	NE	5.0 UJ	5.0 U	5.0 U	5.0 U
Acetone	□g/L	NE	10 UJ	10 U	10 U	10 U
Benzene	□g/L	1.0*	0.50 UJ	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	□g/L	0.5*	0.50 UJ	0.50 U	0.50 U	0.50 U
Chlorobenzene	□g/L	70*	5.0 UJ	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	□g/L	6.0*	1.0 UJ	1.0 U	**26**	**10**
Tetrachloroethene	□g/L	5.0	1.3 J	1.4	2.0	0.84 J
Toluene	□g/L	150*	5.0 UJ	5.0 U	0.48 J	5.0 U
trans-1,2-Dichloroethene	□g/L	10.0	2.0 UJ	2.0 U	0.48 J	0.14 J
Trichloroethene	□g/L	5.0	**8.6 J**	**8.8**	3.2	1.3
Vinyl chloride	□g/L	0.5	0.50 UJ	0.50 U	**1.6**	0.24 J
Xylenes (total)	□g/L	1,750*	5.0 UJ	5.0 U	5.0 U	5.0 U

TABLE 3-2

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 26

Sample Number:	**Units**	**ROD**	**2011IR2601W433**	**2011IR2601W44**	**2011IR2601W523**	**2011IR2601W62**
Location:		**Cleanup**	**W43-3**	**W4-4**	**W5-23**	**W6-2**
Sample Date:		**Standard**	**09/21/2011**	**09/22/2011**	**09/21/2011**	**09/22/2011**
1,1,1-Trichloroethane	□g/L	200	5.0 U	5.0 U	5.0 U	5.0 UJ
1,1-Dichloroethane	□g/L	5.0	1.0 U	1.0 U	1.0 U	1.0 UJ
1,1-Dichloroethene	□g/L	6.0	1.0 U	1.0 U	1.0 U	1.0 UJ
1,2-Dichlorobenzene	□g/L	600*	5.0 U	0.77 J	5.0 U	5.0 UJ
1,2-Dichloroethane	□g/L	0.5*	0.50 U	0.50 U	0.50 U	0.50 UJ
2-Butanone	□g/L	NE	5.0 U	5.0 U	5.0 U	5.0 UJ
2-Hexanone	□g/L	NE	5.0 U	5.0 U	5.0 U	5.0 UJ
4-Methyl-2-Pentanone	□g/L	NE	5.0 U	5.0 U	5.0 U	5.0 UJ
Acetone	□g/L	NE	10 U	10 U	10 U	10 UJ
Benzene	□g/L	1.0*	0.50 U	0.50 U	0.50 U	0.50 UJ
Carbon tetrachloride	□g/L	0.5*	0.50 U	0.50 U	0.50 U	0.50 UJ
Chlorobenzene	□g/L	70*	5.0 U	5.0 U	5.0 U	5.0 UJ
cis-1,2-Dichloroethene	□g/L	6.0*	0.19 J	1.5	1.0 U	1.0 UJ
Tetrachloroethene	□g/L	5.0	1.0 U	0.90 J	0.10 J	1.0 UJ
Toluene	□g/L	150*	5.0 U	5.0 U	5.0 U	5.0 UJ
trans-1,2-Dichloroethene	□g/L	10.0	2.0 U	0.15 J	2.0 U	2.0 UJ
Trichloroethene	□g/L	5.0	1.0 U	1.8 U	1.0 U	2.1 UJ
Vinyl chloride	□g/L	0.5	0.50 U	**7.0**	0.50 U	0.50 UJ
Xylenes (total)	□g/L	1,750*	5.0 U	5.0 U	5.0 U	5.0 UJ

Sample Number:	**Units**	**ROD**	**2011IR2601WU521**	**2011IR2601WU523**	**WU5-24-100511**	**2011IR2601WU525**
Location:		**Cleanup**	**WU5-21**	**WU5-23**	**WU5-24 [§]**	**WU5-25**
Sample Date:		**Standard**	**09/21/2011**	**09/21/2011**	**10/5/2011**	**09/21/2011**
1,1,1-Trichloroethane	□g/L	200	5.0 U	5.0 U	1 U	5.0 U
1,1-Dichloroethane	□g/L	5.0	0.15 J	0.13 J	0.47 J	0.11 J
1,1-Dichloroethene	□g/L	6.0	1.0 U	1.0 U	1 U	1.0 U
1,2-Dichlorobenzene	□g/L	600*	5.0 U	5.0 U	1 U	5.0 U
1,2-Dichloroethane	□g/L	0.5*	**0.54**	0.28 J	0.5 U	0.35 J
2-Butanone	□g/L	NE	5.0 U	5.0 U	10 U	5.0 U
2-Hexanone	□g/L	NE	5.0 U	5.0 U	NA	5.0 U
4-Methyl-2-Pentanone	□g/L	NE	5.0 U	5.0 U	10 U	5.0 U
Acetone	□g/L	NE	10 U	10 U	10 U	10 U
Benzene	□g/L	1.0*	0.50 U	0.50 U	1 U	0.50 U
Carbon tetrachloride	□g/L	0.5*	0.50 U	0.50 U	0.5 U	0.50 U
Chlorobenzene	□g/L	70*	5.0 U	5.0 U	1 U	5.0 U
cis-1,2-Dichloroethene	□g/L	6.0*	3.4	3.0	0.84 J	5.4
Tetrachloroethene	□g/L	5.0	0.18 J	1.6	1 U	0.77 J
Toluene	□g/L	150*	5.0 U	5.0 U	1 U	5.0 U
trans-1,2-Dichloroethene	□g/L	10.0	2.0 U	2.0 U	0.58 J	2.0 U
Trichloroethene	□g/L	5.0	0.29 J	1.5	0.22 J	1.6
Vinyl chloride	□g/L	0.5	0.50 U	0.50 U	**2.6**	0.50 U
Xylenes (total)	□g/L	1,750*	5.0 U	5.0 U	2 U	5.0 U

TABLE 3-2

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER,
NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 26

Sample Number: **Location:** **Sample Date:**	**Units**	**ROD Cleanup Standard**	**2011IR2601W710** **W7-10** **09/21/2011**	**2011IR2601W710D** **W7-10 (Dup)** **09/21/2011**
1,1,1-Trichloroethane	µg/L	200	5.0 U	5.0 U
1,1-Dichloroethane	µg/L	5.0	0.26 J	0.23 J
1,1-Dichloroethene	µg/L	6.0	1.0 UJ	0.15 J
1,2-Dichlorobenzene	µg/L	600*	5.0 U	5.0 U
1,2-Dichloroethane	µg/L	0.5*	0.50 U	0.50 U
2-Butanone	µg/L	NE	5.0 U	5.0 U
2-Hexanone	µg/L	NE	5.0 U	5.0 U
4-Methyl-2-Pentanone	µg/L	NE	5.0 U	5.0 U
Acetone	µg/L	NE	10 U	10 U
Benzene	µg/L	1.0*	0.50 U	0.50 U
Carbon tetrachloride	µg/L	0.5*	0.50 U	0.50 U
Chlorobenzene	µg/L	70*	5.0 U	5.0 U
cis-1,2-Dichloroethene	µg/L	6.0*	**18**	**18**
Tetrachloroethene	µg/L	5.0	**18**	**19**
Toluene	µg/L	150*	5.0 U	5.0 U
trans-1,2-Dichloroethene	µg/L	10.0	1.2 J	1.2 J
Trichloroethene	µg/L	5.0	**13**	**13**
Vinyl chloride	µg/L	0.5	**2.7**	**2.7**
Xylenes (total)	µg/L	1,750*	5.0 U	5.0 U

Sample Number: **Location:** **Sample Date:**	**Units**	**ROD Cleanup Standard**	**2011IR2601WU54** **WU5-4** **09/21/2011**
1,1,1-Trichloroethane	µg/L	200	5.0 U
1,1-Dichloroethane	µg/L	5.0	0.13 J
1,1-Dichloroethene	µg/L	6.0	1.0 U
1,2-Dichlorobenzene	µg/L	600*	5.0 U
1,2-Dichloroethane	µg/L	0.5*	0.50 U
2-Butanone	µg/L	NE	5.0 U
2-Hexanone	µg/L	NE	5.0 U
4-Methyl-2-Pentanone	µg/L	NE	5.0 U
Acetone	µg/L	NE	10 U
Benzene	µg/L	1.0*	0.50 U
Carbon tetrachloride	µg/L	0.5*	0.50 U
Chlorobenzene	µg/L	70*	5.0 U
cis-1,2-Dichloroethene	µg/L	6.0*	1.0 U
Tetrachloroethene	µg/L	5.0	1.0 U
Toluene	µg/L	150*	5.0 U
trans-1,2-Dichloroethene	µg/L	10.0	2.0 U
Trichloroethene	µg/L	5.0	4.0
Vinyl chloride	µg/L	0.5	0.50 U
Xylenes (total)	µg/L	1,750*	5.0 U

TABLE 3-2

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2011 ANNUAL SAMPLING EVENT FOR IR SITE 26

Notes:

Analytes not listed were not detected in any of the 2011 well samples above the laboratory reporting limits.
Bold values indicate concentrations greater than the Cleanup Standard for the COCs listed in the OU5 ROD (EPA 1996).
Complete laboratory analytical data for September 2011 IR Site 26 and 28 event, including data validation, are provided on CD in Appendix C.
*California maximum contaminant level. No ROD value established.
[§] - Sample collected by Shaw Environmental and Infrastructure, Inc.

Abbreviations and Acronyms:

µg/L - micrograms per liter
CD - compact disc
COC - chemical of concern
EPA - U.S. Environmental Protection Agency
IR - installation restoration
J - estimated result
NA - not analyzed
NE - not established
OU - operable unit
ROD - Record of Decision
U - analyte not detected at or above laboratory reporting limit (value indicates the reporting limit)
UJ- analyte detected with an estimated laboratory reporting limit
VOC - volatile organic compoud

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
EXW-1	Upper A	11/19/1998	35	9	88 D	0.6
EXW-1	Upper A	3/22/1999	50.5	16.6	69.1	2.6
EXW-1	Upper A	6/21/1999	25	9.5	52	1.3
EXW-1	Upper A	1/17/2000	29	12	68	2.6
EXW-1	Upper A	11/28/2000	26	13	53	1.8
EXW-1	Upper A	12/5/2001	26	11	56 D	2 U
EXW-1	Upper A	11/7/2002	26	11	54	0.8
EXW-1	Upper A	9/22/2003	27	9	57	0.4 J
EXW-1	Upper A	12/10/2003	10	3	27	0.5 U
EXW-1	Upper A	3/3/2004	27	7	59	0.5 U
EXW-1	Upper A	3/3/2004	28	8	60	0.5 U
EXW-1	Upper A	6/15/2004	30	7	60	0.5 U
EXW-1	Upper A	9/14/2004	31	8	66	0.3 J
EXW-1	Upper A	12/7/2004	23	6	52	0.5 U
EXW-1	Upper A	12/7/2004	21	6	48	0.5 U
EXW-1	Upper A	2/9/2005	27	7	57	0.5 U
EXW-1	Upper A	3/15/2005	27	7	60	0.5 U
EXW-1	Upper A	4/19/2005	29	7	54	0.5 U
EXW-1	Upper A	5/25/2005	27	7	60	0.5 U
EXW-1	Upper A	7/19/2005	29	13	62	0.5 U
EXW-1	Upper A	8/23/2005	28	19	61	0.4 J
EXW-1	Upper A	9/19/2005	28	28	51	0.3 J
EXW-1	Upper A	9/19/2005	27	29	52	0.4 J
EXW-1	Upper A	12/14/2005	18	37	32	0.8
EXW-1	Upper A	6/20/2006	25	24	46	0.4 J
EXW-1	Upper A	9/19/2006	18	22	26	2
EXW-1	Upper A	12/4/2006	17	18	26	3
EXW-1	Upper A	12/5/2007	19	25	33	7
EXW-1	Upper A	12/3/2008	18	17	30	3.1
EXW-1	Upper A	12/3/2008	17	18	29	3.0
EXW-1	Upper A	1/6/2010	0.53 J	3.2	1.0 U	0.53
EXW-1	Upper A	12/2/2010	0.18 J	1.3 J	1.0 U	0.97 J
EXW-1	Upper A	10/5/2011	1 U	0.87 J	1 U	0.32 J

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
EXW-2	Upper A	11/19/1998	32	2	6	0.5 U
EXW-2	Upper A	3/22/1999	53.2	1.9	5.2	1 U
EXW-2	Upper A	6/21/1999	27	1	4.6	0.5 U
EXW-2	Upper A	1/17/2000	31	1	5.3	0.5 U
EXW-2	Upper A	8/23/2000	27	1.6	4.5	0.5 U
EXW-2	Upper A	11/28/2000	29	1.4	4.7	0.5 U
EXW-2	Upper A	12/4/2001	26	1 J	4	2 U
EXW-2	Upper A	11/6/2002	33 J	1 J	5	0.5 U
EXW-2	Upper A	9/23/2003	26	1	4	0.5 U
EXW-2	Upper A	9/23/2003	26	1	4	0.5 U
EXW-2	Upper A	12/9/2003	21	1	4	0.5 U
EXW-2	Upper A	3/3/2004	21	1	4	0.5 U
EXW-2	Upper A	6/16/2004	25	1	4	0.5 U
EXW-2	Upper A	9/15/2004	29	1	5	0.5 U
EXW-2	Upper A	12/9/2004	24	1	4	0.5 U
EXW-2	Upper A	2/8/2005	23	1	4	0.5 U
EXW-2	Upper A	3/23/2005	25	1	5	0.5 U
EXW-2	Upper A	4/18/2005	24	1	5	0.5 U
EXW-2	Upper A	5/26/2005	18	4	3	0.5 U
EXW-2	Upper A	7/19/2005	10	20	0.6	0.5 U
EXW-2	Upper A	8/22/2005	4	20	0.2 J	0.5 U
EXW-2	Upper A	9/19/2005	2	21	0.1 J	0.5 U
EXW-2	Upper A	9/19/2005	2	22	0.5 U	0.5 U
EXW-2	Upper A	12/13/2005	1	16	0.5 U	0.5 U
EXW-2	Upper A	6/20/2006	0.3 J	9	0.5 U	0.2 J
EXW-2	Upper A	9/20/2006	2	7	0.5	0.4
EXW-2	Upper A	12/4/2006	2	7	0.5 U	0.4 J
EXW-2	Upper A	12/5/2007	3	6	0.2 J	3
EXW-2	Upper A	12/5/2007	3	7	0.2 J	3
EXW-2	Upper A	12/3/2008	2.3	5.7	0.50 U	3.9
EXW-2	Upper A	12/3/2009	3.4	4.1	0.33 J	2.3
EXW-2	Upper A	12/2/2010	6.4 J	4.3 J	0.68 J	2.1 J
EXW-2	Upper A	9/22/2011	7.2 J	3.6 J	0.76 J	4.8 J

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
EXW-3	Upper A	11/19/1998	8	7	7	4
EXW-3	Upper A	3/22/1999	12	8.1	6.5	4.9
EXW-3	Upper A	6/21/1999	6.9	7.7	5.5	1
EXW-3	Upper A	1/17/2000	8.8	7.1	7.3	1.9
EXW-3	Upper A	8/22/2000	9.5 J	7.7 J	8.2 J	1.7 J
EXW-3	Upper A	11/28/2000	7.6	6.1	5.4	1.9
EXW-3	Upper A	12/5/2001	7	5	3	2 U
EXW-3	Upper A	11/5/2002	8	5	5	2
EXW-3	Upper A	9/23/2003	8	4	4	2
EXW-3	Upper A	12/11/2003	9	4	5	2
EXW-3	Upper A	3/2/2004	8	3	4	1
EXW-3	Upper A	6/16/2004	8	3	5	2
EXW-3	Upper A	9/15/2004	9	4	5	2
EXW-3	Upper A	12/8/2004	9	3	4	2
EXW-3	Upper A	12/13/2005	8	3	4	0.9
EXW-3	Upper A	12/6/2006	9	3	5	0.9
EXW-3	Upper A	12/4/2007	9	3	5	1
EXW-3	Upper A	12/3/2008	7.8	3.7	3.3	2.0
EXW-3	Upper A	12/3/2009	8.5	2.5	4.4	1.7
EXW-3	Upper A	12/2/2010	10	4.0	4.0	2.5
EXW-3	Upper A	9/22/2011	10	3.8	3.9	2.9
EXW-4	Upper A	11/19/1998	2	9	0.5 U	0.5
EXW-4	Upper A	3/22/1999	3.6	34.5	0.5 U	5.5
EXW-4	Upper A	6/21/1999	2.5	25	1 U	4.4
EXW-4	Upper A	1/17/2000	3.3	28	0.8 J	4.5
EXW-4	Upper A	8/22/2000	3.9 J	24 J	1.2 J	3.5 J
EXW-4	Upper A	11/28/2000	4	21	1.1	2.5
EXW-4	Upper A	12/5/2001	3	16	1 J	2 U
EXW-4	Upper A	11/7/2002	4	13	1 J	2
EXW-4	Upper A	9/23/2003	4	5	0.2 J	0.4 J
EXW-4	Upper A	12/9/2003	3	6	0.2 J	0.4 J
EXW-4	Upper A	3/3/2004	4	6	0.4 J	0.5 J
EXW-4	Upper A	6/16/2004	4	5	0.5 U	0.4 J
EXW-4	Upper A	9/16/2004	4	5	0.2 J	0.4 J
EXW-4	Upper A	12/8/2004	4	5	0.5 U	0.5 J
EXW-4	Upper A	12/13/2005	3	5	0.5 U	0.3 J
EXW-4	Upper A	12/6/2006	3	4	0.5 U	0.4 J
EXW-4	Upper A	12/5/2007	3	3	0.5 U	0.3 J
EXW-4	Upper A	12/2/2008	2.6	4.5	0.50 U	0.28 J
EXW-4	Upper A	12/3/2009	2.6	6.4	1.0 U	0.31 J
EXW-4	Upper A	12/2/2010	3.3 J	4.4 J	1.0 U	0.29 J
EXW-4	Upper A	9/22/2011	3.3 J	4.5 J	1.0 UJ	0.26 J

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
EXW-5	Upper A	11/19/1998	5	49 D	4	3
EXW-5	Upper A	3/22/1999	3.9	38.9	2.1	2.1
EXW-5	Upper A	6/21/1999	2.8	22	2.3	1.5
EXW-5	Upper A	1/17/2000	3	25	2.3	0.5
EXW-5	Upper A	8/23/2000	3	19	2.2	1.2
EXW-5	Upper A	11/27/2000	3	19	2.1	1.1
EXW-5	Upper A	12/3/2001	2	12	2 J	0.9 J
EXW-5	Upper A	12/3/2001	3	11	2 J	0.8 J
EXW-5	Upper A	11/7/2002	3	11	2 J	0.7
EXW-5	Upper A	9/24/2003	3	8	2	0.5 U
EXW-5	Upper A	12/11/2003	3	8	3	0.3 J
EXW-5	Upper A	12/11/2003	3	8	3	0.3 J
EXW-5	Upper A	3/4/2004	3	7	3	0.5 U
EXW-5	Upper A	6/16/2004	3	7	2	0.2 J
EXW-5	Upper A	9/15/2004	3	9	3	0.3 J
EXW-5	Upper A	12/9/2004	3	8	3	0.4 J
EXW-5	Upper A	12/14/2005	3	7	3	0.3 J
EXW-5	Upper A	12/5/2006	3	6	2	0.5 J
EXW-5	Upper A	12/4/2007	3	7	2	0.2 J
EXW-5	Upper A	12/3/2008	2.3	5.7	1.8	0.28 J
EXW-5	Upper A	12/3/2008	2.1	5.3	1.5	0.27 J
EXW-5	Upper A	12/3/2009	2.6	6.4	2.1	0.31 J
EXW-5	Upper A	12/3/2009	2.4	6.5	2.1	0.29 J
EXW-5	Upper A	12/2/2010	2.3 J	7.8 J	1.3 J	0.24 J
EXW-5	Upper A	9/22/2011	2.6 J	8.0 J	1.7 J	0.28 J

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W19-1	Upper A	10/7/1993	10 J	NA	30	2 U
W19-1	Upper A	9/12/1994	22	NA	69	0.3 U
W19-1	Upper A	12/5/1994	20	NA	56	2 U
W19-1	Upper A	9/22/2003	9	8	24	0.5 U
W19-1	Upper A	9/22/2003	8	7	22	0.5 U
W19-1	Upper A	12/11/2003	10	9	30	0.5 U
W19-1	Upper A	3/2/2004	8	5	20	0.2 J
W19-1	Upper A	6/15/2004	4	6	9	0.5 UJ
W19-1	Upper A	6/15/2004	4	6	9	0.5 UJ
W19-1	Upper A	9/14/2004	4	6	9	0.5 U
W19-1	Upper A	12/7/2004	4	5	9	0.5 U
W19-1	Upper A	2/9/2005	4	5	9	0.5 U
W19-1	Upper A	3/15/2005	0.5 U	0.2 J	0.3 J	0.5 U
W19-1	Upper A	4/20/2005	0.2 J	10	0.3 J	0.5 U
W19-1	Upper A	5/25/2005	0.2 J	5	0.4 J	0.5 U
W19-1	Upper A	7/18/2005	0.7	14	0.2 J	0.5 U
W19-1	Upper A	8/24/2005	0.9	14	0.4 J	0.5 U
W19-1	Upper A	9/21/2005	2	10	0.4 J	0.5 U
W19-1	Upper A	12/14/2005	2	10	0.5 U	0.5 U
W19-1	Upper A	6/20/2006	2	11	0.2 J	4
W19-1	Upper A	9/19/2006	0.3	1	0.2	0.5
W19-1	Upper A	12/4/2006	3	11	1	1
W19-1	Upper A	12/5/2007	0.2 J	0.5 J	0.5 U	0.5 U
W19-1	Upper A	12/4/2008	0.96	5.1	0.50 U	2.4
W19-1	Upper A	12/2/2009	0.69	4.1	0.50 U	3.4
W19-1	Upper A	12/1/2010	1.0 U	1.0 U	1.0 U	0.50 U
W19-1	Upper A	9/21/2011	1.0 U	0.13 J	1.0 U	0.50 U
W19-4	Upper A	10/7/1993	2 UJ	NA	2 U	2 U
W19-4	Upper A	9/12/1994	3	NA	0.6 U	2 U
W19-4	Upper A	12/7/1994	3	NA	0.6 U	2 U
W19-4	Upper A	5/30/2003	2	1	0.5	0.5 U
W19-4	Upper A	9/22/2003	3	1	0.6	0.5 U
W19-4	Upper A	12/10/2003	3	1	0.6	0.5 U
W19-4	Upper A	3/2/2004	2	1	0.6	0.5 U
W19-4	Upper A	6/15/2004	3	1	0.7	0.5 U
W19-4	Upper A	9/14/2004	3	1	0.7	0.5 U
W19-4	Upper A	12/6/2004	3	1	0.6	0.5 U
W19-4	Upper A	12/14/2005	2	1	0.6	0.5 U
W19-4	Upper A	12/4/2006	0.3 J	0.2 J	0.5 U	0.5 U
W19-4	Upper A	12/5/2007	0.2 J	0.1 J	0.5 U	0.5 U
W19-4	Upper A	12/4/2008	1.9	1.0	0.50 U	0.33 J
W19-4	Upper A	12/2/2009	0.30 J	0.14 J	0.50 U	0.50 U
W19-4	Upper A	12/1/2010	1.0 U	1.0 U	1.0 U	0.50 U
W19-4	Upper A	9/21/2011	0.43 J	0.24 J	1.0 U	0.50 U

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W2-3	Upper A	12/3/1992	4	NA	2 U	2 U
W2-3	Upper A	12/9/1993	5	NA	2 U	2 U
W2-3	Upper A	5/25/1994	4	NA	2 U	2 U
W2-3	Upper A	9/6/1994	4	NA	2 U	2 U
W2-3	Upper A	11/14/1994	5	NA	2 U	2 U
W2-3	Upper A	8/28/1995	3	2 U	2 U	0.5 U
W2-3	Upper A	5/27/2003	3	0.5 U	0.5 U	0.5 U
W2-3	Upper A	9/18/2003	3	0.5 U	0.5 U	0.5 U
W2-3	Upper A	12/8/2003	3	0.5 U	0.5 U	0.5 U
W2-3	Upper A	3/2/2004	3	0.5 U	0.5 U	0.5 U
W2-3	Upper A	6/15/2004	3	0.5 U	0.5 U	0.5 U
W2-3	Upper A	9/14/2004	3	0.5 U	0.5 U	0.5 U
W2-3	Upper A	12/7/2004	3	0.5 U	0.5 U	0.5 U
W2-3	Upper A	12/15/2005	3	0.1 J	0.5 U	0.5 U
W2-3	Upper A	12/15/2005	3	0.1 J	0.5 U	0.5 U
W2-3	Upper A	12/5/2006	3	0.5 U	0.5 U	0.5 J
W2-3	Upper A	12/4/2007	3	0.1 J	0.5 U	0.5 U
W2-3	Upper A	12/2/2008	2.1	0.50 U	0.50 U	0.50 U
W2-3	Upper A	11/30/2009	2.5	0.50 U	0.50 U	0.50 U
W2-3	Upper A	11/29/2010	2.1 J	1.0 UJ	1.0 UJ	0.50 UJ
W26-1	Upper A	5/30/2003	0.5 U	0.5 U	0.5 U	0.5 U
W26-1	Upper A	9/17/2003	0.5 U	0.5 U	0.5 U	0.5 U
W26-1	Upper A	12/9/2003	0.5 U	0.5 U	0.5 U	0.5 U
W26-1	Upper A	3/1/2004	0.5 U	0.5 U	0.5 U	0.5 U
W26-1	Upper A	6/14/2004	0.5 U	0.5 U	0.5 U	0.5 U
W26-1	Upper A	6/14/2004	0.5 U	0.5 U	0.5 U	0.5 U
W26-1	Upper A	9/13/2004	0.5 U	0.5 U	0.5 U	0.5 U
W26-1	Upper A	12/7/2004	0.5 U	0.5 U	0.5 U	0.5 U
W26-1	Upper A	12/14/2005	0.5 U	0.5 U	0.5 U	0.5 U
W26-1	Upper A	12/5/2006	0.5 U	0.5 U	0.5 U	0.5 J
W26-1	Upper A	12/4/2007	0.5 U	0.5 U	0.5 U	0.5 U
W26-1	Upper A	12/1/2008	0.50 U	0.50 U	0.50 U	0.50 U
W26-1	Upper A	11/30/2009	0.50 U	0.50 U	0.50 U	0.50 U
W26-1	Upper A	11/30/2010	1.0 U	1.0 U	1.0 U	0.50 U

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W3-11	Upper A	10/4/1993	2 U	NA	2 U	2 U
W3-11	Upper A	8/30/1994	2 U	NA	2 U	2 U
W3-11	Upper A	12/1/1994	2 U	NA	2 U	2 U
W3-11	Upper A	5/28/2003	0.5 U	0.5 U	0.5 U	0.5 U
W3-11	Upper A	9/16/2003	0.5 U	0.5 U	0.5 U	0.5 U
W3-11	Upper A	12/9/2003	0.5 U	0.5 U	0.5 U	0.5 U
W3-11	Upper A	3/2/2004	0.5 U	0.5 U	0.5 U	0.5 U
W3-11	Upper A	6/14/2004	0.5 U	0.5 U	0.5 U	0.5 U
W3-11	Upper A	9/14/2004	0.5 U	0.5 U	0.5 U	0.5 U
W3-11	Upper A	12/6/2004	0.5 U	0.5 U	0.5 U	0.5 U
W3-11	Upper A	12/14/2005	0.5 U	0.5 U	0.5 U	0.5 U
W3-11	Upper A	12/6/2006	0.5 U	0.5 U	0.5 U	0.5 U
W3-11	Upper A	12/4/2007	0.5 U	0.5 U	0.5 U	0.5 U
W3-11	Upper A	12/4/2007	0.5 U	0.5 U	0.5 U	0.5 U
W3-11	Upper A	12/3/2008	0.50 U	0.50 U	0.50 U	0.50 U
W3-11	Upper A	12/3/2009	0.50 U	0.50 U	0.50 U	0.50 U
W3-11	Upper A	11/30/2010	1.0 U	1.0 U	1.0 U	0.50 U
W3-20	Upper A	1/7/1992	3 U	NA	NA	NA
W3-20	Upper A	4/2/1992	2 U	NA	NA	NA
W3-20	Upper A	10/6/1993	3	NA	2 U	0.8
W3-20	Upper A	5/26/1994	2	NA	2 U	2 U
W3-20	Upper A	8/30/1994	3	NA	2 U	0.8 J
W3-20	Upper A	11/18/1994	4	NA	2 U	2 J
W3-20	Upper A	3/6/1995	4	NA	2 U	0.7 U
W3-20	Upper A	5/28/2003	3	4	0.3 J	0.5 U
W3-20	Upper A	9/17/2003	3	4	0.3 J	0.5 U
W3-20	Upper A	12/9/2003	3	4	0.4 J	0.5 U
W3-20	Upper A	3/3/2004	3	3	0.3 J	0.5 U
W3-20	Upper A	6/15/2004	3	3	0.3 J	0.5 UJ
W3-20	Upper A	9/14/2004	3	3	0.3 J	0.5 U
W3-20	Upper A	12/7/2004	3	3	0.3 J	0.5 U
W3-20	Upper A	12/13/2005	3	3	0.3 J	0.5 U
W3-20	Upper A	12/13/2005	3	3	0.3 J	0.5 U
W3-20	Upper A	12/5/2006	3	3	0.2 J	0.5 U
W3-20	Upper A	12/4/2007	3	3	0.3 J	0.5 U
W3-20	Upper A	12/2/2008	1.8	2.1	0.17 J	0.50 U
W3-20	Upper A	12/1/2009	2.8	2.7	0.27 J	0.50 U
W3-20	Upper A	11/30/2010	3.7 J	3.2 J	1.0 UJ	0.50 UJ

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W3-21	Upper A	10/6/1993	1 J	NA	2 U	2 U
W3-21	Upper A	8/31/1994	0.6 U	NA	0.3 J	2 UJ-K
W3-21	Upper A	12/6/1994	0.7 U	NA	2 U	2 U
W3-21	Upper A	5/29/2003	2	1	0.5 U	0.5 U
W3-21	Upper A	9/16/2003	2	1	0.5 U	0.5 U
W3-21	Upper A	12/10/2003	2	1	0.5 U	0.5 U
W3-21	Upper A	3/3/2004	2	1	0.3 J	0.5 U
W3-21	Upper A	6/15/2004	2	1	0.5 U	0.5 UJ
W3-21	Upper A	9/14/2004	2	1	0.5 U	0.5 U
W3-21	Upper A	9/14/2004	2	1	0.5 U	0.2 J
W3-21	Upper A	12/7/2004	2	1	0.5 U	0.5 U
W3-21	Upper A	12/13/2005	2	1	0.5 U	0.5 U
W3-21	Upper A	12/6/2006	2	1	0.5 U	0.5 U
W3-21	Upper A	12/4/2007	3	2	0.5 U	0.2 J
W3-21	Upper A	12/2/2008	2.0	1.4	0.11 J	0.50 U
W3-21	Upper A	12/1/2009	2.3	1.4	0.11 J	0.50 U
W3-21	Upper A	11/30/2010	3.2	1.7	1.0 U	0.50 U
W3-21	Upper A	9/21/2011	3.2	1.8	1.0 U	0.50 U
W3-8	Upper A	10/1/1993	2 U	NA	2 U	2 U
W3-8	Upper A	8/31/1994	2 U	NA	2 U	2 UJ-K
W3-8	Upper A	12/2/1994	2 U	NA	2 U	2 UJ-K
W3-8	Upper A	5/28/2003	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	9/17/2003	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	12/10/2003	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	3/2/2004	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	6/14/2004	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	9/13/2004	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	9/13/2004	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	12/6/2004	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	12/14/2005	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	12/6/2006	0.2 J	0.1 J	0.5 U	0.5 U
W3-8	Upper A	12/4/2007	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	12/3/2008	0.50 U	0.50 U	0.50 U	0.50 U
W3-8	Upper A	12/1/2009	0.50 U	0.50 U	0.50 U	0.50 U
W3-8	Upper A	11/30/2010	1.0 U	1.0 U	1.0 U	0.50 U

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W4-1	Upper A	12/7/1992	17	NA	2 U	3
W4-1	Upper A	9/13/1994	17	NA	0.6 J	3
W4-1	Upper A	11/15/1994	17	NA	2 U	3
W4-1	Upper A	3/16/1995	12	NA	2 U	1 J
W4-1	Upper A	5/29/1997	14	7	0.6 J	1
W4-1	Upper A	3/23/1999	7.5	7.7	0.5 U	0.8 J
W4-1	Upper A	6/22/1999	8.2	8.6	0.7 J	1.3
W4-1	Upper A	1/18/2000	8.3	7.1	1 U	4.6
W4-1	Upper A	8/24/2000	7.9	4.5 UJ	0.23 J	4.1
W4-1	Upper A	11/28/2000	9.1	5	0.32 J	4.4
W4-1	Upper A	12/5/2001	8	4	0.4 J	6
W4-1	Upper A	11/5/2002	7	3	0.2 J	3
W4-1	Upper A	9/16/2003	7	3	0.2 J	2
W4-1	Upper A	12/10/2003	7	3	0.2 J	1
W4-1	Upper A	3/4/2004	7	3	0.3 J	0.8
W4-1	Upper A	6/16/2004	7	4	0.2 J	1
W4-1	Upper A	9/15/2004	8	4	0.2 J	1
W4-1	Upper A	12/9/2004	8	4	0.2 J	1
W4-1	Upper A	12/13/2005	7	5	0.3 J	0.6
W4-1	Upper A	12/13/2005	7	5	0.3 J	0.6
W4-1	Upper A	12/5/2006	7	4	0.3 J	1 J
W4-1	Upper A	12/4/2007	8	4	0.3 J	1
W4-1	Upper A	12/2/2008	5.0	2.6	0.23 J	0.72
W4-1	Upper A	12/1/2009	5.9	2.7	0.28 J	1
W4-1	Upper A	12/1/2010	5.4	2.7	1.0 U	0.50 U
W4-1	Upper A	9/22/2011	5.8	2.5	0.29 J	0.50

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W4-11	Upper A	4/6/1992	53	NA	4 U	NA
W4-11	Upper A	12/8/1992	62	NA	6	3 U
W4-11	Upper A	9/13/1994	57	NA	6	2 U
W4-11	Upper A	11/15/1994	63	NA	6	5 U
W4-11	Upper A	6/4/1997	41	16	3	2 U
W4-11	Upper A	3/23/1999	22	17.7	2.5	1 U
W4-11	Upper A	6/22/1999	28	7.7	3.5	0.5 U
W4-11	Upper A	1/18/2000	4.9	38	1 U	0.5 U
W4-11	Upper A	8/22/2000	17	1.3	1 U	0.5 U
W4-11	Upper A	8/24/2000	19	11	2.1	0.5 U
W4-11	Upper A	11/30/2000	19	14	1.9	0.5 U
W4-11	Upper A	12/6/2001	17	15	2 J	2 U
W4-11	Upper A	11/5/2002	20	13	2	0.5 U
W4-11	Upper A	9/16/2003	23	9	2	0.5 U
W4-11	Upper A	12/11/2003	21	14	2	0.5 U
W4-11	Upper A	3/2/2004	21	11	2	0.2 J
W4-11	Upper A	6/15/2004	22	7	2	0.5 UJ
W4-11	Upper A	9/14/2004	26	7	3	0.5 U
W4-11	Upper A	9/14/2004	25	6	3	0.5 U
W4-11	Upper A	12/7/2004	22	10	3	0.5 U
W4-11	Upper A	2/8/2005	21	10	2	0.5 U
W4-11	Upper A	3/23/2005	22	9	2	0.5 U
W4-11	Upper A	4/19/2005	22	9	3	0.1 J
W4-11	Upper A	5/26/2005	20	10	2	0.5 U
W4-11	Upper A	7/19/2005	24	7	3	0.5 U
W4-11	Upper A	8/23/2005	25	9	3	0.5 U
W4-11	Upper A	9/20/2005	25	9	3	0.5 U
W4-11	Upper A	12/13/2005	19	15	2	1
W4-11	Upper A	6/19/2006	16	13	2	2
W4-11	Upper A	9/19/2006	16	11	2	2
W4-11	Upper A	12/5/2006	12	12	1	2 J
W4-11	Upper A	12/4/2007	12	15	1	3
W4-11	Upper A	12/2/2008	9.3	9.9	1.0	1.1
W4-11	Upper A	12/1/2009	12	11	1.2	1.4
W4-11	Upper A	12/1/2010	14 J	10 J	1.3 J	0.79 J
W4-11	Upper A	9/22/2011	16	7.0	1.6	0.51

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W4-14	Upper A	1/3/1992	6 U	NA	NA	NA
W4-14	Upper A	3/31/1992	5 U	NA	NA	NA
W4-14	Upper A	12/14/1992	8	NA	2 U	0.7
W4-14	Upper A	9/23/1994	6	NA	2 U	1 U
W4-14	Upper A	12/2/1994	7	NA	2 U	1 UJ-K
W4-14	Upper A	6/4/1997	26	5	2 U	1 J
W4-14	Upper A	3/22/1999	2.4	9	0.5 U	3.1
W4-14	Upper A	6/21/1999	1	5.7	1 U	2.7
W4-14	Upper A	1/17/2000	2 J	15	5 U	2.5 U
W4-14	Upper A	8/22/2000	1.7	10	0.2 J	2.4
W4-14	Upper A	11/28/2000	1.9	8.9	1.7	1.8
W4-14	Upper A	12/5/2001	1 J	6	2 U	2 U
W4-14	Upper A	11/6/2002	2 J	5	2 U	0.8
W4-14	Upper A	5/30/2003	2	4	0.5 U	0.5 U
W4-14	Upper A	9/16/2003	2	3	0.5 U	0.4 J
W4-14	Upper A	12/9/2003	2	4	0.3 J	0.5 J
W4-14	Upper A	3/3/2004	2	3	0.3 J	0.4 J
W4-14	Upper A	6/14/2004	2	3	0.5 U	0.4 J
W4-14	Upper A	9/15/2004	2	2	0.5 U	0.4 J
W4-14	Upper A	12/8/2004	2	2	0.5 U	0.3 J
W4-14	Upper A	12/8/2004	2	2	0.5 U	0.4 J
W4-14	Upper A	12/12/2005	2 J	3 J	5 U	5 U
W4-14	Upper A	12/6/2006	2 J	4 J	0.5 J	1 J
W4-14	Upper A	12/3/2007	1 J	5 J	0.5 UJ	3 J
W4-14	Upper A	12/1/2008	0.83	5.4	0.13 J	5.8
W4-14	Upper A	12/1/2009	5.0 U	4.4 J	0.48 J	8.9
W4-14	Upper A	11/30/2010	10 U	10 U	10 U	9.9
W4-14	Upper A	9/22/2011	5.0 U	4.1 J	5.0 U	14

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W4-15	Upper A	1/6/1992	12	NA	NA	NA
W4-15	Upper A	4/6/1992	12	NA	7 U	NA
W4-15	Upper A	12/8/1992	13	NA	10	2 U
W4-15	Upper A	12/13/1993	13	NA	9	2 J
W4-15	Upper A	5/27/1994	12	NA	8	1 J
W4-15	Upper A	9/13/1994	16	NA	10	1 J
W4-15	Upper A	11/15/1994	16	NA	11	2 J
W4-15	Upper A	3/7/1995	15	NA	13	1 J
W4-15	Upper A	6/4/1997	19	16	8	0.9 J
W4-15	Upper A	3/23/1999	8.8	6.9	4.2	3.8
W4-15	Upper A	6/22/1999	6.5	9.4	2.7	5.1
W4-15	Upper A	1/18/2000	7.3	7.3	3.9	2.8
W4-15	Upper A	8/22/2000	9.1	7.9	4.2	2.9
W4-15	Upper A	11/30/2000	8	6.7	3.5	0.33 J
W4-15	Upper A	12/4/2001	8	6	5	2 U
W4-15	Upper A	11/5/2002	8	6	5	0.4 J
W4-15	Upper A	9/16/2003	8	5	4	0.8
W4-15	Upper A	12/9/2003	7	5	4	0.2 J
W4-15	Upper A	3/2/2004	9	4	4	0.5 J
W4-15	Upper A	6/15/2004	8	4	4	0.9 J
W4-15	Upper A	9/14/2004	8	4	5	0.5
W4-15	Upper A	12/7/2004	7	4	4	0.5 U
W4-15	Upper A	12/13/2005	7	3	3	0.5 U
W4-15	Upper A	12/5/2006	7	3	3	0.3 J
W4-15	Upper A	12/4/2007	6	3	3	0.2 J
W4-15	Upper A	12/2/2008	4.1	2.2	2.3	0.50 U
W4-15	Upper A	12/1/2009	5.3	3	3.2	0.58
W4-15	Upper A	12/1/2010	5.6 J	3.4 J	2.9 J	0.50 J
W4-15	Upper A	9/22/2011	6.5 J	2.6 J	3.8 J	0.74 J

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W4-2	Upper A	1/27/1992	42	NA	NA	NA
W4-2	Upper A	4/27/1992	42	NA	NA	NA
W4-2	Upper A	12/8/1992	44	NA	3 U	3 U
W4-2	Upper A	12/13/1993	44	NA	3 U	3 U
W4-2	Upper A	5/27/1994	33	NA	3 U	3 U
W4-2	Upper A	9/13/1994	49	NA	3 R	3 R
W4-2	Upper A	11/15/1994	54	NA	3 U	3 U
W4-2	Upper A	5/29/1997	40	3	2 J	2 UJ
W4-2	Upper A	3/23/1999	35.1	2.9	0.9	1 U
W4-2	Upper A	6/22/1999	32	2.5	1 J	0.5 U
W4-2	Upper A	1/18/2000	25	3.3	0.5 J	0.5 U
W4-2	Upper A	8/24/2000	35	3.4	0.97 J	0.24 J
W4-2	Upper A	11/30/2000	30	3.1	0.95 J	0.5 U
W4-2	Upper A	12/4/2001	30	4	1 J	2 U
W4-2	Upper A	11/5/2002	29	3	0.9 J	0.3 J
W4-2	Upper A	11/5/2002	32	3	1 J	0.3 J
W4-2	Upper A	9/16/2003	28	3	0.8	0.6
W4-2	Upper A	12/9/2003	24	3	0.9	0.7
W4-2	Upper A	3/2/2004	27	3	1	0.4 J
W4-2	Upper A	6/15/2004	24	2	0.8	0.7 J
W4-2	Upper A	9/14/2004	29	2	1	0.5 J
W4-2	Upper A	12/7/2004	28	3	1	0.7
W4-2	Upper A	2/8/2005	23	3	0.8	0.4 J
W4-2	Upper A	3/22/2005	24	3	0.8	0.5
W4-2	Upper A	3/22/2005	25	3	0.9	0.5
W4-2	Upper A	4/19/2005	25	3	0.9	0.8
W4-2	Upper A	5/26/2005	23	3	0.9	1
W4-2	Upper A	7/19/2005	22	3	0.8	0.8
W4-2	Upper A	8/23/2005	23	2	0.8	0.8
W4-2	Upper A	9/20/2005	24	2	0.8	0.4 J
W4-2	Upper A	12/13/2005	24	2	0.9	0.7
W4-2	Upper A	6/19/2006	24	2	1	1
W4-2	Upper A	9/19/2006	20	2	0.8	1
W4-2	Upper A	12/5/2006	19	2	0.8	0.8
W4-2	Upper A	12/4/2007	22	2	0.8	0.5 J
W4-2	Upper A	12/2/2008	17	1.9	0.83	0.29 J
W4-2	Upper A	12/2/2008	16	1.6	0.81	0.27 J
W4-2	Upper A	12/1/2009	22	2.3	0.99	0.37 J
W4-2	Upper A	12/1/2009	21	2.1	0.94	0.33 J
W4-2	Upper A	12/1/2010	22 J	2.7 J	1.0 UJ	0.50 UJ
W4-2	Upper A	9/22/2011	21	2.1	1.0	0.36 J

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W4-3	Upper A	1/22/1992	11	NA	NA	NA
W4-3	Upper A	4/27/1992	9 U	NA	NA	NA
W4-3	Upper A	12/4/1992	10	NA	2 U	1
W4-3	Upper A	8/31/1994	10	NA	0.4 U	0.8 U
W4-3	Upper A	11/15/1994	11	NA	2 U	2 U
W4-3	Upper A	5/29/1997	7	8	0.4 J	2
W4-3	Upper A	3/22/1999	4.3	3.6	0.5 U	1 U
W4-3	Upper A	6/21/1999	3.3	2.5	1 U	0.4 J
W4-3	Upper A	1/17/2000	4.1	2.6	1 U	0.5 U
W4-3	Upper A	8/22/2000	4.7 J	2.9 J	1 UJ	0.88 J
W4-3	Upper A	11/28/2000	4.4	2.3	0.27 J	0.51
W4-3	Upper A	12/5/2001	4	2 J	2 U	2 U
W4-3	Upper A	12/5/2001	4	2 J	2 U	2 U
W4-3	Upper A	11/5/2002	4	2 J	2 U	0.6
W4-3	Upper A	5/29/2003	3	1	0.5 U	0.5 U
W4-3	Upper A	9/17/2003	4	1	0.5 U	0.2 J
W4-3	Upper A	12/8/2003	3	1	0.5 U	0.5 U
W4-3	Upper A	3/3/2004	3	1	0.3 J	0.5 U
W4-3	Upper A	6/16/2004	3	1	0.5 U	0.2 J
W4-3	Upper A	9/15/2004	4	1	0.5 U	0.2 J
W4-3	Upper A	12/8/2004	3	1	0.5 U	0.2 J
W4-3	Upper A	12/12/2005	3	1	0.5 U	0.5 U
W4-3	Upper A	12/5/2006	3	1	0.1 J	0.5 U
W4-3	Upper A	12/5/2007	3	1	0.1 J	0.2 J
W4-3	Upper A	12/1/2008	2.2	1.0	0.12 J	0.50 U
W4-3	Upper A	12/1/2009	2.4	0.88	0.11 J	0.50 U
W4-3	Upper A	11/29/2010	2.6 J	1.0 UJ	1.0 UJ	0.50 UJ
W4-3	Upper A	9/21/2011	2.7	0.85 J	1.0 U	0.50 U

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W43-2	Upper A	2/13/1992	35	NA	98	1.2 U
W43-2	Upper A	6/2/1992	40	NA	130	10 U
W43-2	Upper A	12/16/1992	46	NA	120	8 U
W43-2	Upper A	11/28/1994	51 D	NA	140 D	2 J
W43-2	Upper A	2/9/2005	25	7	71	0.5 U
W43-2	Upper A	3/15/2005	27	7	64	0.5 U
W43-2	Upper A	3/15/2005	27	7	67	0.5 U
W43-2	Upper A	4/19/2005	27	7	53	0.2 J
W43-2	Upper A	5/25/2005	27	7	69	0.5 U
W43-2	Upper A	7/20/2005	28	8	82	0.5 U
W43-2	Upper A	8/24/2005	27	9	72	0.4 J
W43-2	Upper A	9/20/2005	29	10	74	0.3 J
W43-2	Upper A	12/15/2005	33	12	82	0.5 U
W43-2	Upper A	6/19/2006	27	7	59	0.3 J
W43-2	Upper A	9/19/2006	28	9	77	0.5
W43-2	Upper A	12/4/2008	22	10	57	0.32 J
W43-2	Upper A	12/2/2009	22	8.2	48	0.50 U
W43-2	Upper A	12/2/2009	22	8.4	52	0.50 U
W43-2	Upper A	12/1/2010	24 J	9.4 J	52 J	1.0 UJ
W43-2	Upper A	9/21/2011	24	9.3	50	0.55

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W43-3	Upper A	2/9/1994	1 J	NA	0.7 J	2 U
W43-3	Upper A	5/24/1994	1 J	NA	0.6 J	2 U
W43-3	Upper A	9/2/1994	2 J	NA	1 J	0.7 J
W43-3	Upper A	11/28/1994	2 J	NA	2 J	1 J
W43-3	Upper A	6/12/1995	5	NA	0.9 J	0.4 J
W43-3	Upper A	5/28/1997	15	8	7	0.5 J
W43-3	Upper A	3/22/1999	4.5	6.2	6.6	1 U
W43-3	Upper A	6/22/1999	3	3.8	4	0.5 U
W43-3	Upper A	1/18/2000	2	3.6	2.1	0.5 U
W43-3	Upper A	8/23/2000	2	3.1	2	0.31 J
W43-3	Upper A	11/28/2000	2.4	3.7	2.3	0.35 J
W43-3	Upper A	12/4/2001	2	3	2 J	2 U
W43-3	Upper A	11/7/2002	3	3	2	0.5 J
W43-3	Upper A	5/30/2003	2	2	2	0.5 U
W43-3	Upper A	9/22/2003	2	3	2	0.3 J
W43-3	Upper A	12/10/2003	3	4	4	0.7
W43-3	Upper A	3/3/2004	10	10	16	1
W43-3	Upper A	6/15/2004	8	6	11	0.5
W43-3	Upper A	9/14/2004	5	4	8	0.8
W43-3	Upper A	12/6/2004	5	5	7	1
W43-3	Upper A	2/9/2005	11	8	18	2
W43-3	Upper A	3/14/2005	14	12	33	4
W43-3	Upper A	4/19/2005	16	18	37	6
W43-3	Upper A	5/25/2005	14	14	31	5
W43-3	Upper A	7/19/2005	11	7	22	0.7
W43-3	Upper A	8/23/2005	8	5	15	0.8
W43-3	Upper A	9/20/2005	7	4	11	0.6
W43-3	Upper A	12/14/2005	5	4	9	0.8
W43-3	Upper A	6/20/2006	8	26	18	6
W43-3	Upper A	9/19/2006	5	5	9	0.8
W43-3	Upper A	12/4/2006	4	4	6	0.7
W43-3	Upper A	12/5/2007	5	4	7	0.8
W43-3	Upper A	12/4/2008	3.6	3.2	5.2	0.64
W43-3	Upper A	12/2/2009	4.3	5	4.2	0.57
W43-3	Upper A	12/1/2010	5.3 J	5.4 J	5.8 J	0.53 J
W43-3	Upper A	9/21/2011	1.0 U	0.19 J	1.0 U	0.50 U

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W4-4	Upper A	1/22/1992	25	NA	3 U	NA
W4-4	Upper A	4/24/1992	22	NA	2 U	NA
W4-4	Upper A	12/11/1992	26	NA	2	1
W4-4	Upper A	8/31/1994	18	NA	2 U	9
W4-4	Upper A	11/15/1994	19	NA	2 J	9
W4-4	Upper A	9/18/2003	2	3	0.2 J	10
W4-4	Upper A	12/10/2003	1	2	0.3 J	10
W4-4	Upper A	3/1/2004	2	3	0.6	6
W4-4	Upper A	6/16/2004	2	3	0.4 J	10
W4-4	Upper A	9/15/2004	2	2	0.4 J	13
W4-4	Upper A	9/15/2004	2	2	0.4 J	13
W4-4	Upper A	12/9/2004	2	2	0.5 J	15
W4-4	Upper A	12/12/2005	3	2	0.9	12
W4-4	Upper A	12/6/2006	3	2	0.9	9
W4-4	Upper A	12/3/2007	1	2	0.8	13
W4-4	Upper A	12/2/2008	0.80	1.5	0.48 J	10
W4-4	Upper A	12/1/2009	1.1	1.8	0.48 J	10
W4-4	Upper A	11/30/2010	1.7	1.5	1.0 U	8.4
W4-4	Upper A	9/22/2011	1.8 U	1.5	0.90 J	7.0
W5-23	Upper A	12/8/1992	2 U	NA	2 U	2 U
W5-23	Upper A	12/6/2001	2 U	2 U	2 U	2 U
W5-23	Upper A	11/6/2002	2 U	2 U	2 U	0.5 U
W5-23	Upper A	12/11/2003	0.5 U	0.5 U	0.5 U	0.5 U
W5-23	Upper A	12/6/2004	0.5 U	0.5 U	0.5 U	0.5 U
W5-23	Upper A	12/15/2005	0.5 U	0.5 U	0.5 U	0.5 U
W5-23	Upper A	12/5/2006	0.5 U	0.5 U	0.5 U	0.5 U
W5-23	Upper A	12/4/2007	0.5 U	0.5 U	0.5 U	0.5 U
W5-23	Upper A	12/4/2007	0.5 U	0.5 U	0.5 U	0.5 U
W5-23	Upper A	12/4/2008	0.50 U	0.50 U	0.50 U	0.50 U
W5-23	Upper A	12/3/2009	0.50 U	0.50 U	0.50 U	0.50 U
W5-23	Upper A	11/30/2010	1.0 U	1.0 U	1.0 U	0.50 U
W5-23	Upper A	9/21/2011	1.0 U	1.0 U	0.10 J	0.50 U

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W6-2	Lower A	12/11/1992	1 J	NA	2 U	2 U
W6-2	Lower A	12/4/2001	1 J	0.3 J	2 U	2 U
W6-2	Lower A	11/6/2002	2	0.4 J	2 U	0.5 U
W6-2	Lower A	11/6/2002	2	0.4 J	2 U	0.5 U
W6-2	Lower A	5/29/2003	2	0.2 J	0.5 U	0.5 U
W6-2	Lower A	9/15/2003	2	0.3 J	0.5 U	0.5 U
W6-2	Lower A	12/10/2003	2	0.3 J	0.5 U	0.5 U
W6-2	Lower A	3/4/2004	2	0.3 J	0.5 U	0.5 U
W6-2	Lower A	6/16/2004	2	0.3 J	0.5 U	0.5 U
W6-2	Lower A	9/15/2004	3	0.3 J	0.5 U	0.5 U
W6-2	Lower A	12/9/2004	2	0.3 J	0.5 U	0.5 U
W6-2	Lower A	12/12/2005	2	0.3 J	0.5 U	0.5 U
W6-2	Lower A	12/6/2006	0.2 J	0.5 U	0.5 U	0.5 U
W6-2	Lower A	12/3/2007	0.2 J	0.5 U	0.5 U	0.5 U
W6-2	Lower A	12/1/2008	1.9	0.28 J	0.50 U	0.50 U
W6-2	Lower A	12/2/2009	0.50 U	0.50 U	0.50 U	0.50 U
W6-2	Lower A	11/30/2010	1.0 U	1.0 U	1.0 U	0.50 U
W6-2	Lower A	9/22/2011	2.1 UJ	1.0 UJ	1.0 UJ	0.50 UJ

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W7-10	Upper A	6/9/1993	31	NA	95	2 U
W7-10	Upper A	11/16/1994	39	NA	130	10 U
W7-10	Upper A	5/28/1997	33	13	66	3 U
W7-10	Upper A	3/22/1999	16.9	6.9	33.4	1 U
W7-10	Upper A	6/22/1999	26	11	75	0.5 U
W7-10	Upper A	1/17/2000	22	10	63	0.5 U
W7-10	Upper A	8/23/2000	16	7.7	26	0.28 J
W7-10	Upper A	11/28/2000	19	8.2	44	0.5 U
W7-10	Upper A	12/5/2001	17	8	45 D	2 U
W7-10	Upper A	11/8/2002	20	10	44	0.5 U
W7-10	Upper A	9/22/2003	27	9	73	0.5 U
W7-10	Upper A	12/11/2003	28	12	77	0.5 U
W7-10	Upper A	3/2/2004	29	9	72	0.3 J
W7-10	Upper A	6/15/2004	28	8	72	0.2 J
W7-10	Upper A	9/14/2004	29	10	86	0.5 U
W7-10	Upper A	12/7/2004	25	9	69	0.5 U
W7-10	Upper A	2/9/2005	25	8	78	0.5 U
W7-10	Upper A	2/9/2005	24	8	76	0.5 U
W7-10	Upper A	3/15/2005	26	7	75	0.2 J
W7-10	Upper A	4/20/2005	28	8	59	0.5 U
W7-10	Upper A	4/20/2005	28	8	62	0.5 U
W7-10	Upper A	5/25/2005	26	13	68	0.5 U
W7-10	Upper A	7/20/2005	14	84	37	0.5 U
W7-10	Upper A	8/24/2005	6	56	14	8
W7-10	Upper A	8/24/2005	8	56	19	7
W7-10	Upper A	9/21/2005	8	57	16	5
W7-10	Upper A	12/14/2005	10	75	14	5
W7-10	Upper A	6/19/2006	15	29	31	7
W7-10	Upper A	9/19/2006	6	17	2	8
W7-10	Upper A	12/4/2006	1	16	0.5 U	16
W7-10	Upper A	12/5/2007	6	34	4	20
W7-10	Upper A	12/4/2008	6.6	39	7.5	7.2
W7-10	Upper A	12/2/2009	8.4	22	12	3.4
W7-10	Upper A	12/1/2010	14 J	21 J	19 J	4.8 J
W7-10	Upper A	9/21/2011	13	18	18	2.7

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W7-7	Upper A	6/9/1993	7	NA	3	50 D
W7-7	Upper A	12/10/1993	7	NA	4 J	46
W7-7	Upper A	5/24/1994	4 U	NA	2 J	39
W7-7	Upper A	11/16/1994	7	NA	5	56
W7-7	Upper A	6/5/1995	3 J	NA	2 J	43
W7-7	Upper A	5/28/1997	12	19	0.3 J	27
W7-7	Upper A	3/22/1999	0.8 U	18.8	0.5 U	27
W7-7	Upper A	6/22/1999	3.5	30	2	18.2
W7-7	Upper A	1/17/2000	2.3	30	2	24.2
W7-7	Upper A	8/23/2000	1.5	30	0.19 J	16
W7-7	Upper A	11/28/2000	0.88 J	27	1 U	24
W7-7	Upper A	9/22/2003	0.6	24	0.5 U	28
W7-7	Upper A	12/11/2003	0.5	14	0.4 J	35
W7-7	Upper A	3/2/2004	0.4 J	2	0.5 U	38
W7-7	Upper A	6/15/2004	0.6	13	0.5 U	31
W7-7	Upper A	9/14/2004	1	26	0.5 U	29
W7-7	Upper A	12/7/2004	0.5	16	0.5 U	47
W7-7	Upper A	2/9/2005	0.3 J	2	0.5 U	40
W7-7	Upper A	3/15/2005	0.3 J	2	0.5 U	36
W7-7	Upper A	4/20/2005	0.5 U	4	0.5 U	39
W7-7	Upper A	5/24/2005	0.5 U	7	0.5 U	35
W7-7	Upper A	7/20/2005	0.5 U	16	0.5 U	38
W7-7	Upper A	8/24/2005	0.1 J	17	0.1 J	33
W7-7	Upper A	9/21/2005	0.5 U	19	0.5 U	28
W7-7	Upper A	12/14/2005	0.5 U	20	0.5 U	31
W7-7	Upper A	6/20/2006	0.3 J	7	0.5 U	33
W7-7	Upper A	9/19/2006	0.7	11	0.5	24
W7-7	Upper A	12/4/2006	0.6	11	0.5 U	30
W7-7	Upper A	12/5/2007	0.4 J	7	0.5 U	30
W7-7	Upper A	12/4/2008	0.47 J	5.0	0.16 J	17
W7-7	Upper A	12/2/2009	0.76	2.5	0.20 J	11
W7-7	Upper A	12/1/2010	1.0 U	1.0 U	1.0 U	5.7
W7-7	Upper A	9/21/2011	0.56 J	2.6	0.16 J	9.0

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WSW-3	Upper A	10/12/1994	3	NA	2 U	2 U
WSW-3	Upper A	11/8/1994	3 J	NA	10 U	10 U
WSW-3	Upper A	3/16/1995	3	NA	2 U	2 U
WSW-3	Upper A	5/30/1995	3	NA	2 U	2 U
WSW-3	Upper A	8/28/1995	2	2 U	2 U	0.5 U
WSW-3	Upper A	11/15/1995	3	NA	0.5 U	0.5 U
WSW-3	Upper A	5/28/2003	2	0.5 U	0.5 U	0.5 U
WSW-3	Upper A	9/18/2003	2	0.5 U	0.5 U	0.5 U
WSW-3	Upper A	12/8/2003	2	0.5 U	0.5 U	0.5 U
WSW-3	Upper A	3/2/2004	3	0.5 U	0.5 U	0.5 U
WSW-3	Upper A	6/15/2004	2	0.5 U	0.5 U	0.5 UJ
WSW-3	Upper A	9/14/2004	2	0.5 U	0.5 U	0.5 U
WSW-3	Upper A	12/7/2004	3	0.5 U	0.5 U	0.5 U
WSW-3	Upper A	12/15/2005	3	0.5 U	0.5 U	0.5 U
WSW-3	Upper A	12/5/2006	2	0.5 U	0.5 U	0.5 J
WSW-3	Upper A	12/4/2007	0.3 J	0.5 U	0.5 U	0.5 U
WSW-3	Upper A	12/4/2007	0.3 J	0.5 U	0.5 U	0.5 U
WSW-3	Upper A	12/2/2008	1.2	0.50 U	0.50 U	0.50 U
WSW-3	Upper A	12/1/2009	2.1	0.50 U	0.50 U	0.50 U
WSW-3	Upper A	11/30/2010	2.1	1.0 U	1.0 U	0.50 U

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WSW-5	Upper A	11/10/1994	15	NA	10 U	10 U
WSW-5	Upper A	3/16/1995	11	NA	1 J	3 U
WSW-5	Upper A	6/1/1995	12	NA	2 J	6
WSW-5	Upper A	8/30/1995	9	28	1 J	4
WSW-5	Upper A	11/15/1995	7 J-H	NA	0.6 J-H	0.5 UJ-H
WSW-5	Upper A	5/29/1997	4	17	0.7 J	4 J
WSW-5	Upper A	3/22/1999	9.1	12	0.5 U	1 U
WSW-5	Upper A	6/21/1999	7.1	9	1 U	1.9
WSW-5	Upper A	1/17/2000	4.2	9.9	1 U	0.5 U
WSW-5	Upper A	8/22/2000	3.9	11	1 U	2.2
WSW-5	Upper A	11/27/2000	2.8 J	12 J	1 UJ	3.6 J
WSW-5	Upper A	12/5/2001	4	11	2 U	4
WSW-5	Upper A	11/5/2002	2 J	9	2 U	4
WSW-5	Upper A	9/16/2003	0.2 J	5	0.5 U	9
WSW-5	Upper A	12/10/2003	0.3 J	3	0.5 U	11
WSW-5	Upper A	3/1/2004	0.5	2	0.5 U	12
WSW-5	Upper A	6/17/2004	0.2 J	4	0.5 U	11
WSW-5	Upper A	9/15/2004	0.5 U	4	0.5 U	14
WSW-5	Upper A	12/9/2004	0.5 U	3	0.5 U	16
WSW-5	Upper A	12/12/2005	0.5 U	2	0.5 U	12
WSW-5	Upper A	12/6/2006	0.5 U	1	0.5 U	13
WSW-5	Upper A	12/3/2007	0.5 U	2	0.5 U	12
WSW-5	Upper A	12/2/2008	0.50 U	1.0	0.50 U	14
WSW-5	Upper A	12/1/2009	0.26 J	1.5	0.50 U	14
WSW-5	Upper A	11/30/2010	1.0 U	1.0 U	1.0 U	12

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WSW-6	Upper A	11/10/1994	18	NA	7 J	10 U
WSW-6	Upper A	3/16/1995	16	NA	8	1 J
WSW-6	Upper A	5/31/1995	15	NA	6	1 J
WSW-6	Upper A	8/30/1995	14	37	7	1
WSW-6	Upper A	11/15/1995	13 J-S	NA	7 J-S	0.5 J-S-K
WSW-6	Upper A	5/29/1997	11	14	5	0.7 J
WSW-6	Upper A	3/23/1999	8.3	9.5	2.9	2
WSW-6	Upper A	6/22/1999	8.4	9.2	3.1	1.4
WSW-6	Upper A	1/18/2000	6.7	5.8	2	0.5 U
WSW-6	Upper A	8/22/2000	8.7	5.2	2.6	0.56
WSW-6	Upper A	11/27/2000	7.6	5.4	1.9	0.61
WSW-6	Upper A	12/5/2001	5	4	1 J	2 U
WSW-6	Upper A	11/7/2002	6	4	2 J	2
WSW-6	Upper A	5/29/2003	5	6	1	2
WSW-6	Upper A	9/19/2003	6	5	1	3
WSW-6	Upper A	12/10/2003	6	5	2	5
WSW-6	Upper A	3/3/2004	6	5	2	6
WSW-6	Upper A	6/16/2004	6	4	2	5
WSW-6	Upper A	9/14/2004	6	4	2	6
WSW-6	Upper A	12/9/2004	6	4	2	8
WSW-6	Upper A	12/13/2005	7	4	3	3
WSW-6	Upper A	12/6/2006	8	4	3	5
WSW-6	Upper A	12/5/2007	7	4	3	6
WSW-6	Upper A	12/3/2008	3.8	2.9	1.9	2.3
WSW-6	Upper A	12/2/2009	6	2.8	2.4	0.55
WSW-6	Upper A	11/30/2010	5.5	2.6	1.9	0.50 U
WSW-6	Upper A	9/22/2011	4.0	2.2	1.4	0.23 J

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WT2-1	Upper A	2/13/1992	4.6	NA	3.4	0.5 U
WT2-1	Upper A	6/3/1992	2 J	NA	3 J	10 U
WT2-1	Upper A	9/17/1992	10	1 U	5	0.2 J-G
WT2-1	Upper A	12/10/1992	9	NA	5	2 U
WT2-1	Upper A	12/11/1993	7	NA	6	2 U
WT2-1	Upper A	5/25/1994	5	NA	3	2 U
WT2-1	Upper A	9/23/1994	8	NA	6	2 U
WT2-1	Upper A	11/28/1994	7	NA	5	3 U
WT2-1	Upper A	6/12/1995	5	NA	2	2 U
WT2-1	Upper A	11/28/2000	3.8	0.49 J	1.8	0.5 U
WT2-1	Upper A	12/5/2001	3	0.3 J	2 J	2 U
WT2-1	Upper A	11/7/2002	4	0.6 J	2	0.5 U
WT2-1	Upper A	12/10/2003	3	0.3 J	2	0.5 U
WT2-1	Upper A	12/8/2004	3	0.3 J	2	0.5 U
WT2-1	Upper A	12/13/2005	3	0.2 J	1	0.5 U
WT2-1	Upper A	12/4/2006	3	0.3 J	1	0.5 U
WT2-1	Upper A	12/5/2007	3	0.2 J	1	0.5 U
WT2-1	Upper A	12/4/2008	2.1	0.14 J	1.0	0.50 U
WT2-1	Upper A	12/2/2009	2	0.50 U	0.63	0.50 U
WT2-1	Upper A	12/1/2010	2.4 J	1.0 U	1.0 U	0.50 U
WT2-1	Upper A	9/21/2011	2.2	1.0 U	0.67 J	0.50 U

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-1	Upper A	8/1/1994	6	NA	1 J	10
WU5-1	Upper A	9/19/1994	7	NA	1 U	10
WU5-1	Upper A	11/30/1994	6	NA	1 UJ-B	6
WU5-1	Upper A	3/16/1995	7	NA	5	15
WU5-1	Upper A	6/1/1995	6	NA	3 U-B	19
WU5-1	Upper A	5/29/1997	8	75	2 J	12 J
WU5-1	Upper A	3/23/1999	4.5	63.3	3.8	3.1
WU5-1	Upper A	6/21/1999	4.6	71	3.3	6.2
WU5-1	Upper A	1/17/2000	4.4	44	1	0.5 U
WU5-1	Upper A	8/22/2000	5.1	34	1.7	1.3
WU5-1	Upper A	11/28/2000	4.5	32	2.7	2
WU5-1	Upper A	12/5/2001	4	24	3	2 U
WU5-1	Upper A	11/5/2002	4	19	3	0.9
WU5-1	Upper A	5/29/2003	3	9	2	0.5 U
WU5-1	Upper A	9/18/2003	3	13	2	1
WU5-1	Upper A	12/9/2003	3	19	2	2
WU5-1	Upper A	12/9/2003	3	19	3	2
WU5-1	Upper A	3/1/2004	4	20	4	2
WU5-1	Upper A	6/17/2004	3	26	2	3
WU5-1	Upper A	9/14/2004	4	26	3	2
WU5-1	Upper A	12/8/2004	3	24	2	2
WU5-1	Upper A	12/12/2005	4	28	3	2
WU5-1	Upper A	12/5/2006	4	23	3	2
WU5-1	Upper A	12/4/2007	4	18	3	1
WU5-1	Upper A	12/1/2008	2.6	14	2.0	0.63
WU5-1	Upper A	11/30/2009	3	7.7	1.6	0.40 J
WU5-1	Upper A	11/29/2010	2.9 J	7.4 J	1.3 J	0.50 UJ
WU5-1	Upper A	9/22/2011	3.1 J	15 J	2.5 J	0.63 J

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-10	Upper A	11/20/1998	17	0.7	0.5 U	0.5 U
WU5-10	Upper A	3/22/1999	23.2	0.8 U	0.5 U	1 U
WU5-10	Upper A	6/21/1999	16	0.7 J	1 U	0.5 U
WU5-10	Upper A	1/17/2000	20	0.9 J	1 U	0.5 U
WU5-10	Upper A	8/22/2000	20	1.1	1 U	0.5 U
WU5-10	Upper A	11/27/2000	18	0.99 J	1 U	0.5 U
WU5-10	Upper A	12/5/2001	20	0.9 J	2 U	2 U
WU5-10	Upper A	11/6/2002	19	1 J	2 U	0.5 U
WU5-10	Upper A	9/17/2003	19	1	0.5 U	0.5 U
WU5-10	Upper A	12/9/2003	16	1	0.5 U	0.5 U
WU5-10	Upper A	3/4/2004	19	1	0.5 U	0.5 U
WU5-10	Upper A	6/14/2004	18	1	0.5 U	0.5 U
WU5-10	Upper A	9/15/2004	19	1	0.5 U	0.5 U
WU5-10	Upper A	12/9/2004	19	1	0.5 U	0.5 U
WU5-10	Upper A	2/8/2005	17	1	0.5 U	0.5 U
WU5-10	Upper A	3/23/2005	19	0.9	0.5 U	0.5 U
WU5-10	Upper A	4/18/2005	19	0.9	0.5 U	0.5 U
WU5-10	Upper A	5/26/2005	17	1	0.5 U	0.5 U
WU5-10	Upper A	7/20/2005	17	1	0.5 U	0.5 U
WU5-10	Upper A	8/22/2005	17	0.8	0.5 U	0.5 U
WU5-10	Upper A	9/19/2005	17	0.9	0.5 U	0.5 U
WU5-10	Upper A	12/14/2005	17	1	0.5 U	0.5 U
WU5-10	Upper A	6/20/2006	17	0.8	0.5 U	0.1 J
WU5-10	Upper A	9/20/2006	18	1	0.5	0.5
WU5-10	Upper A	12/6/2006	18	0.9	0.5 U	0.5 U
WU5-10	Upper A	12/3/2007	19	1	0.5 U	0.5 U
WU5-10	Upper A	12/1/2008	13	1.2	0.50 U	0.50 U
WU5-10	Upper A	12/1/2008	13	1.1	0.50 U	0.50 U
WU5-10	Upper A	12/1/2009	15	1.1	0.50 U	0.50 U
WU5-10	Upper A	12/1/2009	15	1.2	0.50 U	0.50 U
WU5-10	Upper A	11/30/2010	9.1	1.0 U	1.0 U	0.50 U
WU5-10	Upper A	9/22/2011	18 J	1.1 UJ	1.0 UJ	0.50 UJ

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-11	Lower A	11/20/1998	0.5 U	0.5 U	0.5 U	0.5 U
WU5-11	Lower A	3/23/1999	6.9	3.8	5.4	1
WU5-11	Lower A	6/22/1999	4.5	2.7	3.3	0.6
WU5-11	Lower A	1/17/2000	7.5	3.9	5.6	0.5
WU5-11	Lower A	8/22/2000	0.38 J	1 UJ	1 UJ	0.5 UJ
WU5-11	Lower A	11/30/2000	0.22 J	1.8	0.22 J	0.5 U
WU5-11	Lower A	12/5/2001	1 J	0.6 J	0.8 J	2 U
WU5-11	Lower A	11/7/2002	2 U	0.5 J	2 U	0.5 U
WU5-11	Lower A	9/19/2003	0.5 U	0.5 U	0.5 U	0.5 U
WU5-11	Lower A	12/8/2003	2	1	1	0.8
WU5-11	Lower A	3/2/2004	5	2	4	2
WU5-11	Lower A	6/16/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU5-11	Lower A	9/15/2004	0.2 J	0.5 U	0.5 U	0.5 U
WU5-11	Lower A	12/8/2004	2	0.8	1	0.8
WU5-11	Lower A	12/13/2005	0.5	0.2 J	0.3 J	0.5 U
WU5-11	Lower A	12/13/2005	0.6	0.2 J	0.3 J	0.5 U
WU5-11	Lower A	12/6/2006	0.3 J	0.5 U	0.5 U	0.5 U
WU5-11	Lower A	12/4/2007	0.5 U	0.5 U	0.5 U	0.5 U
WU5-11	Lower A	12/3/2008	0.16 J	0.50 U	0.50 U	0.50 U
WU5-11	Lower A	12/3/2009	0.50 U	0.50 U	0.50 U	0.50 U
WU5-11	Lower A	11/30/2010	1.0 U	1.0 U	1.0 U	0.50 U
WU5-11	Lower A	9/22/2011	1.0 UJ	1.0 UJ	0.19 J	0.50 UJ
WU5-12	Lower A	11/20/1998	0.6	0.5 U	0.5 U	0.5 U
WU5-12	Lower A	3/22/1999	0.8 U	1.6	0.5 U	1 U
WU5-12	Lower A	6/21/1999	1 U	1	1 U	0.5 U
WU5-12	Lower A	1/17/2000	1 U	0.6 J	1 U	0.5 U
WU5-12	Lower A	8/22/2000	1 U	1 U	1 U	0.5 U
WU5-12	Lower A	11/28/2000	1 U	0.25 J	1 U	0.5 U
WU5-12	Lower A	12/5/2001	2 U	0.3 J	2 U	2 U
WU5-12	Lower A	11/5/2002	2 U	2 U	2 U	0.5 U
WU5-12	Lower A	9/17/2003	0.5 U	0.5 U	0.5 U	0.5 U
WU5-12	Lower A	12/8/2003	0.5 U	0.5 U	0.5 U	0.5 U
WU5-12	Lower A	12/8/2003	0.5 U	0.5 U	0.5 U	0.5 U
WU5-12	Lower A	3/3/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU5-12	Lower A	3/3/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU5-12	Lower A	6/16/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU5-12	Lower A	9/13/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU5-12	Lower A	12/8/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU5-12	Lower A	12/12/2005	0.5 U	0.5 U	0.5 U	0.5 U
WU5-12	Lower A	12/6/2006	0.5 U	0.5 U	0.5 U	0.5 U
WU5-12	Lower A	12/5/2007	0.5 U	0.5 U	0.5 U	0.5 U
WU5-12	Lower A	12/2/2008	0.50 U	0.50 U	0.50 U	0.50 U
WU5-12	Lower A	12/1/2009	0.50 U	0.50 U	0.50 U	0.50 U
WU5-12	Lower A	11/29/2010	1.0 UJ	1.0 UJ	1.0 UJ	0.50 UJ
WU5-12	Lower A	9/21/2011	1.0 U	1.0 U	1.0 U	0.50 U

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-13	Lower A	11/18/1998	0.5 U	0.7	0.5 U	0.5 U
WU5-13	Lower A	3/22/1999	0.5 U	0.5 U	0.5 U	1 U
WU5-13	Lower A	6/21/1999	1 U	1 U	1 U	0.5 U
WU5-13	Lower A	1/18/2000	1 U	0.5 J	1 U	0.5 U
WU5-13	Lower A	8/23/2000	1 U	1 U	1 U	0.5 U
WU5-13	Lower A	11/27/2000	1 U	1 U	1 U	0.5 U
WU5-13	Lower A	12/3/2001	2 U	2 U	2 U	2 U
WU5-13	Lower A	11/5/2002	2 U	2 U	2 U	0.5 U
WU5-13	Lower A	9/24/2003	0.5 U	0.5 U	0.5 U	0.5 U
WU5-13	Lower A	12/11/2003	0.5 U	0.5 U	0.5 U	0.5 U
WU5-13	Lower A	3/3/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU5-13	Lower A	6/16/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU5-13	Lower A	9/15/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU5-13	Lower A	12/8/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU5-13	Lower A	12/14/2005	0.5 U	0.5 U	0.5 U	0.5 U
WU5-13	Lower A	12/5/2006	0.5 U	0.5 U	0.5 U	0.5 U
WU5-13	Lower A	12/4/2007	0.5 U	0.5 U	0.5 U	0.5 U
WU5-13	Lower A	12/2/2008	0.50 U	0.50 U	0.50 U	0.50 U
WU5-13	Lower A	12/2/2009	0.50 U	0.50 U	0.50 U	0.50 U
WU5-13	Lower A	12/1/2010	1.1	15	1.0 U	0.67
WU5-13	Lower A	9/21/2011	1.0 U	1.0 U	1.0 U	0.50 U

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-14	Upper A	11/20/1998	34	0.7	0.5 U	0.5 U
WU5-14	Upper A	3/23/1999	54.3	1	0.4 J	1 U
WU5-14	Upper A	6/22/1999	53	1 J	0.5 J	0.5 U
WU5-14	Upper A	1/17/2000	51	3	0.6 J	1.9
WU5-14	Upper A	8/24/2000	36	1.3 UJ	0.56 J	0.5 U
WU5-14	Upper A	11/29/2000	44	0.8 J	1	0.5 U
WU5-14	Upper A	12/4/2001	46	0.7 J	0.4 J	2 U
WU5-14	Upper A	11/7/2002	51	0.9 J	0.5 J	0.5 U
WU5-14	Upper A	9/18/2003	48	0.6	0.2 J	0.5 U
WU5-14	Upper A	12/10/2003	43	0.8	0.3 J	0.5 U
WU5-14	Upper A	12/10/2003	42	0.8	0.3 J	0.5 U
WU5-14	Upper A	3/3/2004	47	0.8	0.5	0.5 U
WU5-14	Upper A	6/17/2004	51	0.8	0.4 J	0.5 U
WU5-14	Upper A	9/16/2004	58	0.8	0.5 J	0.5 U
WU5-14	Upper A	12/8/2004	38	0.9	0.3 J	0.5 U
WU5-14	Upper A	12/8/2004	47	0.8	0.3 J	0.5 U
WU5-14	Upper A	2/8/2005	49	0.9	0.5 J	0.5 U
WU5-14	Upper A	3/23/2005	52	0.8	0.5 J	0.5 U
WU5-14	Upper A	4/18/2005	51	0.8	0.5	0.5 U
WU5-14	Upper A	5/26/2005	55	0.9	0.5 J	0.5 U
WU5-14	Upper A	5/26/2005	60	0.8	0.5 J	0.5 U
WU5-14	Upper A	7/19/2005	42	1	0.3 J	0.5 U
WU5-14	Upper A	7/19/2005	41	1	0.3 J	0.5 U
WU5-14	Upper A	8/23/2005	33	9	0.2 J	0.5
WU5-14	Upper A	9/20/2005	40	4	0.3 J	0.5 U
WU5-14	Upper A	12/13/2005	19	16	0.5 U	4
WU5-14	Upper A	6/19/2006	4	2	0.5 U	0.1 J
WU5-14	Upper A	9/20/2006	13	13	0.5	8
WU5-14	Upper A	12/6/2006	29	11	0.2 J	5
WU5-14	Upper A	12/5/2007	6	6	0.5 U	2
WU5-14	Upper A	12/2/2008	5.3	7.3	0.50 U	7.5
WU5-14	Upper A	11/30/2009	0.95 J	4.6 J	0.50 UJ	19 J
WU5-14	Upper A	11/30/2010	1.0 U	1.0 U	1.0 U	0.50 U
WU5-14	Upper A	9/21/2011	0.97 J	5.8	1.0 U	13

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-15	Upper A	11/20/1998	30	0.8	4	0.5 U
WU5-15	Upper A	3/23/1999	22.5	1.1	3.2	1 U
WU5-15	Upper A	6/22/1999	21	0.8 J	3.1	0.5 U
WU5-15	Upper A	1/17/2000	21	0.9 J	4.4	0.5 U
WU5-15	Upper A	8/23/2000	14	0.77 J	2.9	0.5 U
WU5-15	Upper A	11/29/2000	17	1	3.7	0.5 U
WU5-15	Upper A	9/18/2003	19	0.9	3	0.5 U
WU5-15	Upper A	12/10/2003	18	0.7	3	0.5 U
WU5-15	Upper A	3/3/2004	7	0.4 J	1	0.5 U
WU5-15	Upper A	6/16/2004	19	0.8	3	0.5 U
WU5-15	Upper A	9/16/2004	22	0.8	4	0.5 U
WU5-15	Upper A	12/8/2004	18	0.8	3	0.5 U
WU5-15	Upper A	2/8/2005	12	0.7	2	0.5 U
WU5-15	Upper A	3/23/2005	4	0.2 J	0.9	0.5 U
WU5-15	Upper A	4/18/2005	14	0.7	3	0.5 U
WU5-15	Upper A	5/26/2005	17	0.8	3	0.5 U
WU5-15	Upper A	7/19/2005	19	0.8	3	0.5 U
WU5-15	Upper A	8/23/2005	18	0.7	3	0.5 U
WU5-15	Upper A	8/23/2005	20	0.7	4	0.5 U
WU5-15	Upper A	9/20/2005	21	0.8	4	0.5 U
WU5-15	Upper A	12/13/2005	17	0.8	3	0.5 U
WU5-15	Upper A	6/19/2006	16	0.6	3	0.5 U
WU5-15	Upper A	9/20/2006	21	0.9	3	0.5
WU5-15	Upper A	12/4/2006	26	0.9	4	0.5 U
WU5-15	Upper A	12/5/2007	21	1	4	0.5 U
WU5-15	Upper A	12/2/2008	15	0.72	3.0	0.50 U
WU5-15	Upper A	11/30/2009	14	0.72	2.1	0.50 U
WU5-15	Upper A	11/30/2009	14	0.67	2.2	0.50 U
WU5-15	Upper A	11/30/2010	15	1.0 U	2.4	0.50 U
WU5-15	Upper A	9/21/2011	16	0.62 J	2.0	0.50 U

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-16	Upper A	11/20/1998	18	1	5	0.5 U
WU5-16	Upper A	3/26/1999	0.5 U	0.7	3.8	1 U
WU5-16	Upper A	6/22/1999	18	0.7 J	3.4	0.5 U
WU5-16	Upper A	1/17/2000	28	0.9 J	4.2	0.5 U
WU5-16	Upper A	8/22/2000	26	0.95 J	3.8	0.5 U
WU5-16	Upper A	11/29/2000	25	0.9 J	3.7	0.5 U
WU5-16	Upper A	12/4/2001	21	0.8 J	3	2 U
WU5-16	Upper A	11/5/2002	26	0.9 J	4	0.5 U
WU5-16	Upper A	9/18/2003	29	0.9	4	0.5 U
WU5-16	Upper A	12/9/2003	24	1	4	0.5 U
WU5-16	Upper A	3/3/2004	24	1	4	0.5 U
WU5-16	Upper A	6/17/2004	27	1	3	0.5 U
WU5-16	Upper A	9/15/2004	32	1	4	0.5 U
WU5-16	Upper A	12/8/2004	28	1	4	0.5 U
WU5-16	Upper A	12/13/2005	22	3	3	0.5 U
WU5-16	Upper A	12/6/2006	8	7	0.6	3
WU5-16	Upper A	12/5/2007	15	6	1	0.9
WU5-16	Upper A	12/5/2007	15	6	1	0.8
WU5-16	Upper A	12/3/2008	11	3.9	1.4	1.0
WU5-16	Upper A	11/30/2009	8.5	3.8	0.96	1.3
WU5-16	Upper A	11/30/2010	11	3.5	1.0	0.69
WU5-16	Upper A	9/21/2011	13	3.3	1.2	1.5
WU5-17	Upper A	11/20/1998	17	1	2	0.5 U
WU5-17	Upper A	3/23/1999	9.6	0.7	1.3	1 U
WU5-17	Upper A	6/22/1999	23	1	3.5	0.5 U
WU5-17	Upper A	1/17/2000	17	1	2.4	0.5 U
WU5-17	Upper A	8/22/2000	20	1.2	3.1	0.5 U
WU5-17	Upper A	11/27/2000	11	0.51 J	1.8	0.5 U
WU5-17	Upper A	12/4/2001	12	0.6 J	2	2 U
WU5-17	Upper A	11/5/2002	18	0.7 J	3	0.5 U
WU5-17	Upper A	9/18/2003	17	0.7	2	0.5 U
WU5-17	Upper A	12/8/2003	13	0.6	2	0.5 U
WU5-17	Upper A	12/8/2003	13	0.6	2	0.5 U
WU5-17	Upper A	3/3/2004	10	0.4 J	2	0.5 U
WU5-17	Upper A	6/15/2004	1	0.4 J	0.5 U	0.5 UJ
WU5-17	Upper A	9/15/2004	19	0.8	3	0.5 U
WU5-17	Upper A	12/7/2004	14	0.7	2	0.5 U
WU5-17	Upper A	12/13/2005	9	0.6	2	0.5 U
WU5-17	Upper A	12/6/2006	11	0.8	1	0.5 U
WU5-17	Upper A	12/5/2007	9	0.4 J	1	0.5 U
WU5-17	Upper A	12/2/2008	6.3	0.34 J	1.2	0.50 U
WU5-17	Upper A	11/30/2009	8.2	0.59	1.3	0.50 U
WU5-17	Upper A	12/1/2010	8.7 J	1.0 U	1.2 J	0.50 U
WU5-17	Upper A	9/22/2011	8.6 J	1.0 UJ	1.3 J	0.50 UJ

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-18	Upper A	11/18/1998	3	28	1	0.8
WU5-18	Upper A	3/22/1999	3.6	20.8	1.4	1 U
WU5-18	Upper A	6/21/1999	3.9	27	1	1.5
WU5-18	Upper A	1/18/2000	3.4	21	0.7 J	0.5 U
WU5-18	Upper A	8/23/2000	3.8 J	18 J	0.59 J	0.75 J
WU5-18	Upper A	11/27/2000	3.6	12	1	0.22 J
WU5-18	Upper A	11/6/2002	5	16	0.8 J	0.5
WU5-18	Upper A	5/29/2003	4	13	0.6	0.5 U
WU5-18	Upper A	9/24/2003	4	16	0.8	0.4 J
WU5-18	Upper A	12/11/2003	4	13	0.9	0.2 J
WU5-18	Upper A	3/4/2004	3	10	1	0.3 J
WU5-18	Upper A	6/17/2004	3	12	0.9	0.3 J
WU5-18	Upper A	9/15/2004	4	14	1	0.4 J
WU5-18	Upper A	12/9/2004	4	11	1	0.3 J
WU5-18	Upper A	12/14/2005	3	9	1	0.2 J
WU5-18	Upper A	12/5/2006	3	10	1	0.5 J
WU5-18	Upper A	12/3/2007	3	11	0.9	0.2 J
WU5-18	Upper A	12/4/2008	2.1	4.9	1.0	0.50 U
WU5-18	Upper A	12/2/2009	2.6	6.3	1.3	0.50 U
WU5-18	Upper A	12/1/2010	2.8 J	7.3 J	1.8 J	0.50 UJ
WU5-19	Upper A	11/18/1998	4	39	2	0.9
WU5-19	Upper A	3/22/1999	3.1	22.7	1.7	1 U
WU5-19	Upper A	6/21/1999	3.3	28	1	3.3
WU5-19	Upper A	1/18/2000	2.1	12	0.6 J	0.5 U
WU5-19	Upper A	8/23/2000	4.6	13	1.6	0.18 J
WU5-19	Upper A	11/27/2000	3.9	14	1.7	0.21 J
WU5-19	Upper A	12/4/2001	4	12	1 J	2 U
WU5-19	Upper A	11/7/2002	4	11	1 J	0.5 U
WU5-19	Upper A	9/19/2003	3	8	2	0.3 J
WU5-19	Upper A	12/11/2003	3	11	2	0.5 J
WU5-19	Upper A	3/4/2004	3	10	2	0.4 J
WU5-19	Upper A	6/16/2004	3	9	2	0.2 J
WU5-19	Upper A	9/15/2004	4	11	3	0.4 J
WU5-19	Upper A	12/9/2004	3	10	2	0.5 J
WU5-19	Upper A	12/14/2005	3	9	3	0.4 J
WU5-19	Upper A	12/5/2006	3	7	3	0.5 U
WU5-19	Upper A	12/3/2007	3	8	2	0.3 J
WU5-19	Upper A	12/3/2008	2.2	7.5	1.8	0.50 U
WU5-19	Upper A	12/2/2009	2.5	5.5	1.9	0.50 U
WU5-19	Upper A	12/1/2010	1.0 U	1.0 U	1.0 U	0.50 U

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-2	Upper A	8/1/1994	0.7 J	NA	2 U	14
WU5-2	Upper A	9/19/1994	0.9 U	NA	3 U	16
WU5-2	Upper A	12/1/1994	4 U	NA	4 U	13
WU5-2	Upper A	3/16/1995	4 U	NA	4 U	15
WU5-2	Upper A	6/1/1995	2 J	NA	3 U	24
WU5-2	Upper A	5/29/1997	3	62	1 J	13 J
WU5-2	Upper A	3/23/1999	2.6	54	0.5	2.8
WU5-2	Upper A	6/21/1999	1	50	1 U	7.2
WU5-2	Upper A	1/17/2000	3.3	74	0.8 J	6.2
WU5-2	Upper A	8/22/2000	3.8	80	0.99 J	11
WU5-2	Upper A	11/28/2000	2	61 J	0.49 J	11
WU5-2	Upper A	9/18/2003	2	51	0.3 J	7
WU5-2	Upper A	12/9/2003	2	63	0.5 J	7
WU5-2	Upper A	3/1/2004	3	66	0.8	6
WU5-2	Upper A	6/17/2004	2	51	0.5 J	5
WU5-2	Upper A	9/14/2004	2	53	0.5 J	5
WU5-2	Upper A	12/8/2004	2	53	0.4 J	6
WU5-2	Upper A	12/8/2004	2	52	0.4 J	6
WU5-2	Upper A	12/12/2005	4	31	2	2
WU5-2	Upper A	12/5/2006	2	44	0.8	5 J
WU5-2	Upper A	12/4/2007	4	33	3	1
WU5-2	Upper A	12/1/2008	2.0	31	0.95	2.2
WU5-2	Upper A	11/30/2009	2.5	31	0.98	2.4
WU5-2	Upper A	11/29/2010	2.3	21	1.1	0.50 U
WU5-2	Upper A	9/22/2011	3.2	26	2.0	1.6

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-20	Upper A	11/18/1998	2	40	2	6
WU5-20	Upper A	3/22/1999	1.4	3.8	1.3	1 U
WU5-20	Upper A	6/21/1999	1	5.2	1	0.5 U
WU5-20	Upper A	1/18/2000	1	4	0.8 J	0.5 U
WU5-20	Upper A	8/23/2000	0.85 J	2.1	0.62 J	0.5 U
WU5-20	Upper A	11/27/2000	1.2	4	0.91 J	0.5 U
WU5-20	Upper A	12/4/2001	0.9 J	2 J	0.6 J	2 U
WU5-20	Upper A	11/7/2002	1 J	1 J	0.5 J	0.5 U
WU5-20	Upper A	9/19/2003	0.5 J	6	0.5 U	0.5
WU5-20	Upper A	12/10/2003	0.8	7	0.4 J	0.5
WU5-20	Upper A	3/4/2004	1	6	0.6	0.4 J
WU5-20	Upper A	6/16/2004	0.9	9	0.4 J	0.8
WU5-20	Upper A	6/16/2004	0.9	9	0.5	0.7
WU5-20	Upper A	9/15/2004	1	8	0.6	0.7
WU5-20	Upper A	12/9/2004	1	9	0.6	0.7
WU5-20	Upper A	12/14/2005	1	8	1	0.3 J
WU5-20	Upper A	12/5/2006	1	11	0.4 J	0.9 J
WU5-20	Upper A	12/4/2007	0.8	16	0.5 U	1
WU5-20	Upper A	12/3/2008	0.80	9.9	0.33 J	0.64
WU5-20	Upper A	12/2/2009	0.9	14	0.35 J	0.84
WU5-20	Upper A	12/1/2010	1.0 U	2.1 J	1.0 U	0.50 U
WU5-20	Upper A	9/21/2011	1.3	10	0.84 J	0.24 J
WU5-21	Upper A	11/18/1998	1	9	0.6	0.8
WU5-21	Upper A	3/22/1999	0.8	3.6	0.4 J	1 U
WU5-21	Upper A	6/21/1999	1	2.8	0.6 J	0.5 U
WU5-21	Upper A	1/18/2000	0.6 J	2.6	1 U	0.5 U
WU5-21	Upper A	8/23/2000	0.55 J	1.6	0.33 J	0.5 U
WU5-21	Upper A	11/27/2000	0.63 J	2.6	0.4 J	0.5 U
WU5-21	Upper A	12/4/2001	0.6 J	1 J	0.3 J	2 U
WU5-21	Upper A	11/6/2002	0.6 J	0.9 J	0.3 J	0.5 U
WU5-21	Upper A	9/19/2003	0.4 J	1	0.3 J	0.5 U
WU5-21	Upper A	12/10/2003	0.5	1	0.2 J	0.5 U
WU5-21	Upper A	3/4/2004	0.6	1	0.4 J	0.5 U
WU5-21	Upper A	6/16/2004	0.3 J	2	0.5 U	0.3 J
WU5-21	Upper A	6/16/2004	0.3 J	2	0.5 U	0.4 J
WU5-21	Upper A	9/15/2004	0.5	2	0.3 J	0.5 U
WU5-21	Upper A	12/8/2004	0.5	2	0.3 J	0.5 U
WU5-21	Upper A	12/14/2005	0.6	1	0.4 J	0.5 U
WU5-21	Upper A	12/5/2006	0.1 J	4	0.5 U	0.8 J
WU5-21	Upper A	12/4/2007	0.6	1	0.4 J	0.5 U
WU5-21	Upper A	12/3/2008	0.37 J	1.5	0.27 J	0.50 U
WU5-21	Upper A	12/2/2009	0.43 J	2.3	0.21 J	0.50 U
WU5-21	Upper A	12/1/2010	1.0 U	2.0 J	1.0 U	0.50 U
WU5-21	Upper A	9/21/2011	0.29 J	3.4	0.18 J	0.50 U

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-23	Upper A	11/20/1998	3	12	3	2
WU5-23	Upper A	3/23/1999	2.3	8.3	2.5	1 U
WU5-23	Upper A	6/21/1999	2.5	9.3	2.5	0.5 U
WU5-23	Upper A	1/18/2000	2.8	12	2.8	0.5 U
WU5-23	Upper A	8/24/2000	18	6.4	3	0.16 J
WU5-23	Upper A	11/28/2000	2.7 J	6.4 J	2.8 J	0.23 J
WU5-23	Upper A	12/4/2001	2	4	2 J	2 U
WU5-23	Upper A	11/7/2002	2	3	2 J	0.5 U
WU5-23	Upper A	5/30/2003	1	1	0.9	0.5 U
WU5-23	Upper A	9/24/2003	2	2	1	0.5 U
WU5-23	Upper A	12/10/2003	2	2	1	0.5 U
WU5-23	Upper A	3/3/2004	1	2	1	0.5 U
WU5-23	Upper A	6/15/2004	1	2	1	0.5 U
WU5-23	Upper A	6/15/2004	1	2	1	0.5 UJ
WU5-23	Upper A	9/16/2004	2	3	2	0.5 U
WU5-23	Upper A	12/8/2004	1	3	1	0.5 U
WU5-23	Upper A	12/14/2005	2	3	2	0.5 U
WU5-23	Upper A	12/5/2006	1	2	1	0.2 J
WU5-23	Upper A	12/4/2007	1	2	1	0.2 J
WU5-23	Upper A	12/2/2008	0.91	1.9	0.69	0.50 U
WU5-23	Upper A	12/2/2009	1.3	4.3	0.21 J	0.47 J
WU5-23	Upper A	12/1/2010	1.8 J	4.8 J	1.4 J	0.50 U
WU5-23	Upper A	9/21/2011	1.5	3.0	1.6	0.50 U

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-24	Upper A	11/20/1998	38	8 UJ	62 D	0.5 U
WU5-24	Upper A	6/21/1999	29	7.6	43	0.5 U
WU5-24	Upper A	1/17/2000	31	10	59	0.5 U
WU5-24	Upper A	8/23/2000	22	6.2	33	0.5 U
WU5-24	Upper A	11/28/2000	30	9	49	0.5 U
WU5-24	Upper A	12/5/2001	31	9	43 D	2 U
WU5-24	Upper A	11/8/2002	30	10	40	0.5 U
WU5-24	Upper A	9/19/2003	31	7	45	0.5 U
WU5-24	Upper A	12/11/2003	30	7	45	0.5 U
WU5-24	Upper A	3/2/2004	33	8	44	0.5 U
WU5-24	Upper A	6/16/2004	31	7	40	0.5 U
WU5-24	Upper A	9/14/2004	33	8	48	0.5 U
WU5-24	Upper A	12/8/2004	33	7	44	0.5 U
WU5-24	Upper A	2/9/2005	31	7	41	0.5 U
WU5-24	Upper A	2/9/2005	33	8	42	0.5 U
WU5-24	Upper A	3/15/2005	29	7	39	0.5 U
WU5-24	Upper A	4/19/2005	32	8	49	0.3 J
WU5-24	Upper A	5/25/2005	28	6	32	0.5 U
WU5-24	Upper A	5/25/2005	29	6	33	0.5 U
WU5-24	Upper A	7/20/2005	31	10	46	0.5 U
WU5-24	Upper A	7/20/2005	33	10	40	0.5 U
WU5-24	Upper A	8/23/2005	26	10	39	0.5 U
WU5-24	Upper A	9/20/2005	28	14	36	0.5 U
WU5-24	Upper A	12/14/2005	29	14	25	0.5 U
WU5-24	Upper A	6/20/2006	29	8	38	0.2 J
WU5-24	Upper A	9/19/2006	29	13	28	0.5
WU5-24	Upper A	12/4/2006	28	16	23	0.8
WU5-24	Upper A	12/5/2007	26	19	52	1
WU5-24	Upper A	12/4/2008	16	12	18 J	0.77
WU5-24	Upper A	12/4/2008	19	12	29 J	0.97
WU5-24	Upper A	1/5/2010	1	2.7	1.0 U	4.9
WU5-24	Upper A	12/1/2010	1.0 U	1.0 U	1.0 U	0.74 J
WU5-24	Upper A	10/5/2011	0.22 J	0.84 J	1 U	2.6

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-25	Upper A	11/18/1998	3	38	0.9	1
WU5-25	Upper A	3/22/1999	2.2	24.7	0.8	0.8 J
WU5-25	Upper A	6/22/1999	2.6	39	0.7 J	1.4
WU5-25	Upper A	1/18/2000	2.3	24	1	0.5 U
WU5-25	Upper A	8/23/2000	2.3	20	0.96 J	0.69
WU5-25	Upper A	11/27/2000	2.5	19	1.1	0.3 J
WU5-25	Upper A	12/4/2001	2	17	0.9 J	2 U
WU5-25	Upper A	11/6/2002	2	15	0.8 J	0.3 J
WU5-25	Upper A	9/24/2003	2	7	0.7	0.5 U
WU5-25	Upper A	12/10/2003	2	7	0.6	0.5 U
WU5-25	Upper A	3/3/2004	2	10	0.7	0.3 J
WU5-25	Upper A	6/16/2004	1	5	0.6	0.5 UJ
WU5-25	Upper A	9/16/2004	2	4	0.8	0.5 U
WU5-25	Upper A	9/16/2004	1	4	0.8	0.5 U
WU5-25	Upper A	12/7/2004	1	5	0.8	0.5 U
WU5-25	Upper A	12/12/2005	1	5	0.6	0.5 U
WU5-25	Upper A	12/5/2006	1	4	0.5	0.5 U
WU5-25	Upper A	12/3/2007	1	5	0.5 J	0.5 U
WU5-25	Upper A	12/2/2008	0.86	2.7	0.40 J	0.50 U
WU5-25	Upper A	12/2/2009	1.3	4.2	0.6	0.50 U
WU5-25	Upper A	11/30/2010	1.5	4.6	1.0 U	0.50 U
WU5-25	Upper A	9/21/2011	1.6	5.4	0.77 J	0.50 U
WU5-4	Upper A	8/2/1994	31	NA	2 U	2 U
WU5-4	Upper A	9/19/1994	38	NA	2 U	2 U
WU5-4	Upper A	12/1/1994	32	NA	2 U	2 UJ-K
WU5-4	Upper A	3/7/1995	8	NA	2 U	2 U
WU5-4	Upper A	5/30/1995	15	NA	2 U	2 U
WU5-4	Upper A	11/17/1998	11	0.5 U	0.5 U	0.5 U
WU5-4	Upper A	3/23/1999	0.5 U	0.5 U	0.5 U	1 U
WU5-4	Upper A	6/22/1999	14	1 U	1 U	0.5 U
WU5-4	Upper A	1/18/2000	1 U	1 U	1 U	0.5 U
WU5-4	Upper A	8/24/2000	16 J	1 U	1 U	0.5 U
WU5-4	Upper A	11/28/2000	3	1 U	1 U	0.5 U
WU5-4	Upper A	12/5/2001	15	2 U	2 U	2 U
WU5-4	Upper A	11/5/2002	14	2 U	2 U	0.5 U
WU5-4	Upper A	12/6/2004	11	0.5 U	0.5 U	0.5 U
WU5-4	Upper A	12/15/2005	7	0.5 U	0.5 U	0.5 U
WU5-4	Upper A	12/15/2005	8	0.5 U	0.5 U	0.5 U
WU5-4	Upper A	12/5/2006	6	0.5 U	0.5 U	0.5 U
WU5-4	Upper A	12/4/2007	5	0.5 U	0.5 U	0.5 U
WU5-4	Upper A	12/3/2008	3.7	0.50 U	0.50 U	0.50 U
WU5-4	Upper A	12/3/2009	3.5	0.50 U	0.50 U	0.50 U
WU5-4	Upper A	11/30/2010	3.5	1.0 U	1.0 U	0.50 U
WU5-4	Upper A	9/21/2011	4.0	1.0 U	1.0 U	0.50 U

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-6	Upper A	8/4/1994	2 U	NA	0.6 J	2 U
WU5-6	Upper A	9/19/1994	1 U	NA	2 U	2 U
WU5-6	Upper A	12/1/1994	2 U	NA	2 U	2 UJ-K
WU5-6	Upper A	3/17/1995	2 U	NA	2 U	2 U
WU5-6	Upper A	5/31/1995	2 U	NA	2 U	2 U
WU5-6	Upper A	5/28/2003	0.5 U	0.5 U	0.5 U	0.5 U
WU5-6	Upper A	9/17/2003	0.5 U	0.5 U	0.5 U	0.5 U
WU5-6	Upper A	12/9/2003	0.5 U	0.5 U	0.5 U	0.5 U
WU5-6	Upper A	3/2/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU5-6	Upper A	6/14/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU5-6	Upper A	9/14/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU5-6	Upper A	12/6/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU5-6	Upper A	12/15/2005	0.5 U	0.1 J	0.5 U	0.5 U
WU5-6	Upper A	12/5/2006	0.5 U	0.2 J	0.5 U	0.5 U
WU5-6	Upper A	12/3/2007	0.5 U	0.2 J	0.5 U	0.5 U
WU5-6	Upper A	12/3/2008	0.50 U	0.29 J	0.50 U	0.50 U
WU5-6	Upper A	12/3/2009	0.50 U	0.38 J	0.50 U	0.50 U
WU5-6	Upper A	11/30/2010	1.0 U	1.0 U	1.0 U	0.50 U
WU5-8	Upper A	10/11/1994	2 J-H	NA	2 UJ-H	2 UJ-H
WU5-8	Upper A	11/11/1994	3 J	NA	10 U	10 U
WU5-8	Upper A	3/7/1995	5	NA	2 U	2 U
WU5-8	Upper A	5/30/1995	6	NA	2 U	2 U
WU5-8	Upper A	8/30/1995	4	2 U	2 U	0.5 U
WU5-8	Upper A	11/14/1995	3	NA	0.5 U	0.5 U
WU5-8	Upper A	11/17/1998	2	0.5 U	0.5 U	0.5 U
WU5-8	Upper A	3/23/1999	0.5 U	0.5 U	0.5 U	1 U
WU5-8	Upper A	6/22/1999	3.4	1 U	1 U	0.5 U
WU5-8	Upper A	1/18/2000	1 U	1 U	1 U	0.5 U
WU5-8	Upper A	8/24/2000	9	0.5 J	1 U	0.5 U
WU5-8	Upper A	11/28/2000	1.6	1 U	1 U	0.5 U
WU5-8	Upper A	12/6/2001	2 J	2 U	2 U	2 U
WU5-8	Upper A	11/7/2002	2 J	0.3 J	2 U	0.5 U
WU5-8	Upper A	12/6/2004	1	0.5 U	0.5 U	0.5 U
WU5-8	Upper A	12/15/2005	2	0.1 J	0.5 U	0.5 U
WU5-8	Upper A	12/5/2006	4	0.3 J	0.5 U	0.5 U
WU5-8	Upper A	12/4/2007	0.5 U	0.5 U	0.5 U	0.5 U
WU5-8	Upper A	12/2/2008	1.4	0.11 J	0.50 U	0.50 U
WU5-8	Upper A	12/1/2009	1.6	0.16 J	0.50 U	0.50 U
WU5-8	Upper A	11/29/2010	1.6 J	1.0 UJ	1.0 UJ	0.50 UJ

TABLE 3-3

HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE, CIS-1,2-DCE, PCE, AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-9	Upper A	10/11/1994	2 U	NA	2 U	2 U
WU5-9	Upper A	11/9/1994	10 U	NA	10 U	10 U
WU5-9	Upper A	3/7/1995	0.8 U	NA	2 U	2 U
WU5-9	Upper A	5/31/1995	0.3 J	NA	2 U	2 U
WU5-9	Upper A	8/30/1995	2 U	2 U	2 U	0.5 U
WU5-9	Upper A	11/14/1995	0.5 UJ-S	NA	0.5 UJ-S	0.5 UJ-S
WU5-9	Upper A	11/18/1998	0.5 U	0.5 U	0.5 U	0.5 U
WU5-9	Upper A	3/23/1999	0.5 U	0.5 U	0.5 U	1 U
WU5-9	Upper A	6/22/1999	1 U	1 U	1 U	0.5 U
WU5-9	Upper A	1/18/2000	1 U	1 U	1 U	0.5 U
WU5-9	Upper A	8/24/2000	0.8 J	1 U	1 U	0.5 U
WU5-9	Upper A	11/28/2000	1 U	1 U	1 U	0.5 U
WU5-9	Upper A	12/6/2001	2 U	2 U	2 U	2 U
WU5-9	Upper A	11/5/2002	2 U	2 U	2 U	0.5 U
WU5-9	Upper A	12/6/2004	0.5 U	0.5 U	0.5 U	0.5 U
WU5-9	Upper A	12/15/2005	0.5 U	0.5 U	0.5 U	0.5 U
WU5-9	Upper A	12/5/2006	0.6	0.3 J	0.5 U	0.5 U
WU5-9	Upper A	12/4/2007	0.5 U	0.5 U	0.5 U	0.5 U
WU5-9	Upper A	12/2/2008	0.50 U	0.11 J	0.50 U	0.50 U
WU5-9	Upper A	12/1/2009	0.13 J	0.13 J	0.50 U	0.50 U
WU5-9	Upper A	11/29/2010	1.0 U	1.0 U	1.0 U	0.50 U

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
EXW-4	1,1,1-Trichloroethane	0.28 J	0.24 J	15%
	1,1,2,2-Tetrachloroethane	0.5 UJ	0.5 UJ	--
	1,1,2-Trichloroethane	5 UJ	5 UJ	--
	1,1-Dichloroethane	1 UJ	1 UJ	--
	1,1-Dichloroethene	1.1 UJ	1 UJ	--
	1,2-Dichlorobenzene	3.3 UJ	3.1 UJ	--
	1,2-Dichloroethane	5 UJ	5 UJ	--
	1,2-Dichloropropane	0.35 J	0.36 J	3%
	2-Butanone	1 UJ	1 UJ	--
	2-Hexanone	5 UJ	1.6 J	--
	4-Methyl-2-Pentanone	5 UJ	5 UJ	--
	Acetone	5 UJ	5 UJ	--
	Benzene	10 UJ	24 J	--
	Bromodichloromethane	0.5 UJ	0.5 UJ	--
	Bromoform	5 UJ	5 UJ	--
	Bromomethane	5 UJ	5 UJ	--
	Carbon disulfide	5 UJ	5 UJ	--
	Carbon tetrachloride	5 UJ	5 UJ	--
	Chlorobenzene	0.65 J	0.67 J	3%
	Chloroethane	5 UJ	5 UJ	--
	Chloroform	5 UJ	5 UJ	--
	Chloromethane	5 UJ	0.14 J	--
	cis-1,2-Dichloroethene	5 UJ	5 UJ	--
	cis-1,3-Dichloropropene	4.5 J	4.2 J	7%
	Dibromochloromethane	0.5 UJ	0.5 UJ	--
	Ethylbenzene	5 UJ	5 UJ	--
	Freon 113	5 UJ	5 UJ	--
	Methylene chloride	1 UJ	1 UJ	--
	Methyl-tert-butyl ether	1 UJ	1 UJ	--
	Styrene	5 UJ	5 UJ	--
	Tetrachloroethene	1 UJ	1 UJ	--
	Toluene	5 UJ	5 UJ	--
	trans-1,2-Dichloroethene	0.18 J	0.26 J	36%
	trans-1,3-Dichloropropene	0.5 UJ	0.5 UJ	--
	Trichloroethene	3.3 J	3.3 J	0%
	Vinyl acetate	5 UJ	5 UJ	--
	Vinyl chloride	0.26 J	0.24 J	8%
	Xylenes (total)	5 UJ	5 UJ	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
EXW-5	1,1,1-Trichloroethane	5 UJ	5 UJ	--
	1,1,2,2-Tetrachloroethane	0.5 UJ	0.5 UJ	--
	1,1,2-Trichloroethane	5 UJ	5 UJ	--
	1,1-Dichloroethane	1 UJ	1 UJ	--
	1,1-Dichloroethene	1 UJ	1 UJ	--
	1,2-Dichlorobenzene	1 UJ	1 UJ	--
	1,2-Dichloroethane	5 UJ	5 UJ	--
	1,2-Dichloropropane	0.37 J	0.3 J	21%
	2-Butanone	1 UJ	1 UJ	--
	2-Hexanone	5 UJ	1.6 J	--
	4-Methyl-2-Pentanone	5 UJ	5 UJ	--
	Acetone	5 UJ	0.25 UJ	--
	Benzene	10 UJ	17 J	--
	Bromodichloromethane	0.5 UJ	0.5 UJ	--
	Bromoform	5 UJ	0.44 J	--
	Bromomethane	5 UJ	5 UJ	--
	Carbon disulfide	5 UJ	5 UJ	--
	Carbon tetrachloride	5 UJ	5 UJ	--
	Chlorobenzene	0.5 UJ	0.5 UJ	--
	Chloroethane	5 UJ	5 UJ	--
	Chloroform	5 UJ	5 UJ	--
	Chloromethane	0.14 J	2 J	174%
	cis-1,2-Dichloroethene	5 UJ	5 UJ	--
	cis-1,3-Dichloropropene	8 J	7.8 J	3%
	Dibromochloromethane	0.5 UJ	0.5 UJ	--
	Ethylbenzene	5 UJ	0.16 J	--
	Freon 113	5 UJ	5 UJ	--
	Methylene chloride	1 UJ	1 UJ	--
	Methyl-tert-butyl ether	1 UJ	1 UJ	--
	Styrene	5 UJ	5 UJ	--
	Tetrachloroethene	1.7 J	2.2 J	26%
	Toluene	5 UJ	5 UJ	--
	trans-1,2-Dichloroethene	0.2 J	0.21 J	5%
	trans-1,3-Dichloropropene	0.5 UJ	0.5 UJ	--
	Trichloroethene	2.6 J	2.7 J	4%
	Vinyl acetate	5 UJ	5 UJ	--
	Vinyl chloride	0.28 J	0.26 J	7%
	Xylenes (total)	5 UJ	5 UJ	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
W3-21	1,1,1-Trichloroethane	5 U	5 U	--
	1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	--
	1,1,2-Trichloroethane	1 U	1 U	--
	1,1-Dichloroethane	1.1	1.2	9%
	1,1-Dichloroethene	0.16 J	0.22 J	32%
	1,2-Dichlorobenzene	5 U	5 U	--
	1,2-Dichloroethane	0.5 U	0.5 U	--
	1,2-Dichloropropane	1 U	1 U	--
	2-Butanone	3.3 J	3.3 UJ	--
	2-Hexanone	0.27 J	5 U	--
	4-Methyl-2-Pentanone	5 U	0.3 J	--
	Acetone	10 U	18 U	--
	Benzene	0.5 U	0.5 U	--
	Bromodichloromethane	5 U	5 U	--
	Bromoform	5 U	5 U	--
	Bromomethane	5 U	5 U	--
	Carbon disulfide	5 UJ	5 UJ	--
	Carbon tetrachloride	0.2 J	0.26 J	26%
	Chlorobenzene	5 U	5 U	--
	Chloroethane	5 U	5 U	--
	Chloroform	5 U	5 U	--
	Chloromethane	5 U	5 U	--
	cis-1,2-Dichloroethene	1.8	1.9	5%
	cis-1,3-Dichloropropene	0.5 U	0.5 U	--
	Dibromochloromethane	5 U	5 U	--
	Ethylbenzene	5 U	5 U	--
	Freon 113	5 U	5 U	--
	Methylene chloride	1 U	1 U	--
	Methyl-tert-butyl ether	1 U	1 U	--
	Styrene	5 U	5 U	--
	Tetrachloroethene	1 U	0.1 J	--
	Toluene	5 U	5 U	--
	trans-1,2-Dichloroethene	0.18 J	0.19 J	5%
	trans-1,3-Dichloropropene	0.5 U	0.5 U	--
	Trichloroethene	3.2	3.8	17%
	Vinyl acetate	5 U	5 U	--
	Vinyl chloride	0.5 U	0.5 U	--
	Xylenes (total)	5 U	5 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
W43-2	1,1,1-Trichloroethane	5 U	5 U	--
	1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	--
	1,1,2-Trichloroethane	1 U	1 U	--
	1,1-Dichloroethane	0.26 J	0.25 J	4%
	1,1-Dichloroethene	0.3 J	0.21 J	35%
	1,2-Dichlorobenzene	5 U	5 U	--
	1,2-Dichloroethane	0.5 U	0.5 U	--
	1,2-Dichloropropane	1 U	1 U	--
	2-Butanone	5 U	3.1 UJ	--
	2-Hexanone	5 U	5 U	--
	4-Methyl-2-Pentanone	5 U	0.29 J	--
	Acetone	10 U	18 U	--
	Benzene	0.5 U	0.5 U	--
	Bromodichloromethane	5 U	5 U	--
	Bromoform	5 U	5 U	--
	Bromomethane	5 U	5 U	--
	Carbon disulfide	5 U	5 U	--
	Carbon tetrachloride	0.5 U	0.5 U	--
	Chlorobenzene	5 U	5 U	--
	Chloroethane	5 U	5 U	--
	Chloroform	5 U	5 U	--
	Chloromethane	5 U	5 U	--
	cis-1,2-Dichloroethene	9.3	9.4	1%
	cis-1,3-Dichloropropene	0.5 U	0.5 U	--
	Dibromochloromethane	5 U	5 U	--
	Ethylbenzene	5 U	5 U	--
	Freon 113	5 U	5 U	--
	Methylene chloride	1 U	1 U	--
	Methyl-tert-butyl ether	1 U	1 U	--
	Styrene	5 U	5 U	--
	Tetrachloroethene	50	45	11%
	Toluene	5 U	5 U	--
	trans-1,2-Dichloroethene	1.2 J	1.2 J	0%
	trans-1,3-Dichloropropene	0.5 U	0.5 U	--
	Trichloroethene	24	25	4%
	Vinyl acetate	5 U	5 U	--
	Vinyl chloride	0.55	0.53	4%
	Xylenes (total)	5 U	5 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
WT2-1	1,1,1-Trichloroethane	5 U	5 U	--
	1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	--
	1,1,2-Trichloroethane	1 U	1 U	--
	1,1-Dichloroethane	1 U	1 U	--
	1,1-Dichloroethene	1 U	1 U	--
	1,2-Dichlorobenzene	5 U	5 U	--
	1,2-Dichloroethane	0.5 U	0.5 U	--
	1,2-Dichloropropane	1 U	1 U	--
	2-Butanone	5 U	2.2 UJ	--
	2-Hexanone	5 U	5 U	--
	4-Methyl-2-Pentanone	5 U	0.28 J	--
	Acetone	10 U	11 U	--
	Benzene	0.5 U	0.5 U	--
	Bromodichloromethane	5 U	5 U	--
	Bromoform	5 U	5 U	--
	Bromomethane	5 U	5 U	--
	Carbon disulfide	5 U	5 U	--
	Carbon tetrachloride	0.5 U	0.5 U	--
	Chlorobenzene	5 U	5 U	--
	Chloroethane	5 U	5 U	--
	Chloroform	5 U	5 U	--
	Chloromethane	5 U	5 U	--
	cis-1,2-Dichloroethene	1 U	1 U	--
	cis-1,3-Dichloropropene	0.5 U	0.5 U	--
	Dibromochloromethane	5 U	5 U	--
	Ethylbenzene	5 U	5 U	--
	Freon 113	5 U	5 U	--
	Methylene chloride	1 U	1 U	--
	Methyl-tert-butyl ether	1 U	1 U	--
	Styrene	5 U	5 U	--
	Tetrachloroethene	0.67 J	0.75 J	11%
	Toluene	5 U	5 U	--
	trans-1,2-Dichloroethene	2 U	2 U	--
	trans-1,3-Dichloropropene	0.5 U	0.5 U	--
	Trichloroethene	2.2	2.6	17%
	Vinyl acetate	5 U	5 U	--
	Vinyl chloride	0.5 U	0.5 U	--
	Xylenes (total)	5 U	5 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
WU5-13	1,1,1-Trichloroethane	5 U	5 U	--
	1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	--
	1,1,2-Trichloroethane	1 U	1 U	--
	1,1-Dichloroethane	1 U	1 U	--
	1,1-Dichloroethene	1 U	1 U	--
	1,2-Dichlorobenzene	5 U	5 U	--
	1,2-Dichloroethane	0.5 U	0.5 U	--
	1,2-Dichloropropane	1 U	1 U	--
	2-Butanone	5 U	4.3 UJ	--
	2-Hexanone	5 U	5 U	--
	4-Methyl-2-Pentanone	5 U	0.34 J	--
	Acetone	10 U	19 U	--
	Benzene	0.5 U	0.5 U	--
	Bromodichloromethane	5 U	5 U	--
	Bromoform	5 U	5 U	--
	Bromomethane	5 U	5 U	--
	Carbon disulfide	5 UJ	5 UJ	--
	Carbon tetrachloride	0.5 U	0.5 U	--
	Chlorobenzene	5 U	5 U	--
	Chloroethane	5 U	5 U	--
	Chloroform	5 U	5 U	--
	Chloromethane	5 U	5 U	--
	cis-1,2-Dichloroethene	1 U	1 U	--
	cis-1,3-Dichloropropene	0.5 U	0.5 U	--
	Dibromochloromethane	5 U	5 U	--
	Ethylbenzene	5 U	5 U	--
	Freon 113	5 U	5 U	--
	Methylene chloride	1 U	1 U	--
	Methyl-tert-butyl ether	1 U	1 U	--
	Styrene	5 U	5 U	--
	Tetrachloroethene	1 U	1 U	--
	Toluene	5 U	5 U	--
	trans-1,2-Dichloroethene	2 U	2 U	--
	trans-1,3-Dichloropropene	0.5 U	0.5 U	--
	Trichloroethene	1 U	1 U	--
	Vinyl acetate	5 U	5 U	--
	Vinyl chloride	0.5 U	0.5 U	--
	Xylenes (total)	5 U	5 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
WU5-16	1,1,1-Trichloroethane	5 U	5 U	--
	1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	--
	1,1,2-Trichloroethane	1 U	1 U	--
	1,1-Dichloroethane	0.13 J	0.14 J	7%
	1,1-Dichloroethene	0.44 J	0.57 J	26%
	1,2-Dichlorobenzene	5 U	5 U	--
	1,2-Dichloroethane	0.5 U	0.5 U	--
	1,2-Dichloropropane	1 U	1 U	--
	2-Butanone	0.95 J	2.7 UJ	--
	2-Hexanone	5 U	5 U	--
	4-Methyl-2-Pentanone	5 U	0.31 J	--
	Acetone	10 U	15 U	--
	Benzene	0.5 U	0.5 U	--
	Bromodichloromethane	5 U	5 U	--
	Bromoform	5 U	5 U	--
	Bromomethane	5 U	5 U	--
	Carbon disulfide	5 UJ	5 UJ	--
	Carbon tetrachloride	0.5 U	0.5 U	--
	Chlorobenzene	5 U	5 U	--
	Chloroethane	5 U	5 U	--
	Chloroform	5 U	5 U	--
	Chloromethane	5 U	5 U	--
	cis-1,2-Dichloroethene	3.3	3.2	3%
	cis-1,3-Dichloropropene	0.5 U	0.5 U	--
	Dibromochloromethane	5 U	5 U	--
	Ethylbenzene	5 U	5 U	--
	Freon 113	5 U	5 U	--
	Methylene chloride	1 U	1 U	--
	Methyl-tert-butyl ether	1 U	1 U	--
	Styrene	5 U	5 U	--
	Tetrachloroethene	1.2	1.9	45%
	Toluene	5 U	5 U	--
	trans-1,2-Dichloroethene	3.6	3.9	8%
	trans-1,3-Dichloropropene	0.5 U	0.5 U	--
	Trichloroethene	13	15	14%
	Vinyl acetate	5 U	5 U	--
	Vinyl chloride	1.5	1.8	18%
	Xylenes (total)	5 U	5 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
WU5-20	1,1,1-Trichloroethane	5 U	5 U	--
	1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	--
	1,1,2-Trichloroethane	1 U	1 U	--
	1,1-Dichloroethane	0.23 J	0.21 J	9%
	1,1-Dichloroethene	1 U	1 U	--
	1,2-Dichlorobenzene	5 U	5 U	--
	1,2-Dichloroethane	0.63	0.95	41%
	1,2-Dichloropropane	1 U	1 U	--
	2-Butanone	5 U	4.3 UJ	--
	2-Hexanone	5 U	5 U	--
	4-Methyl-2-Pentanone	5 U	0.36 J	--
	Acetone	10 U	22 U	--
	Benzene	0.5 U	0.5 U	--
	Bromodichloromethane	5 U	5 U	--
	Bromoform	5 U	5 U	--
	Bromomethane	5 U	5 U	--
	Carbon disulfide	5 UJ	5 UJ	--
	Carbon tetrachloride	0.5 U	0.5 U	--
	Chlorobenzene	5 U	5 U	--
	Chloroethane	5 U	5 U	--
	Chloroform	5 U	5 U	--
	Chloromethane	5 U	5 U	--
	cis-1,2-Dichloroethene	10	16	46%
	cis-1,3-Dichloropropene	0.5 U	0.5 U	--
	Dibromochloromethane	5 U	5 U	--
	Ethylbenzene	5 U	5 U	--
	Freon 113	5 U	5 U	--
	Methylene chloride	1 U	1 U	--
	Methyl-tert-butyl ether	1 U	1 U	--
	Styrene	5 U	5 U	--
	Tetrachloroethene	0.84 J	0.34 J	85%
	Toluene	5 U	5 U	--
	trans-1,2-Dichloroethene	0.14 J	0.16 J	13%
	trans-1,3-Dichloropropene	0.5 U	0.5 U	--
	Trichloroethene	1.3	0.97 J	29%
	Vinyl acetate	5 U	5 U	--
	Vinyl chloride	0.24 J	0.36 J	40%
	Xylenes (total)	5 U	5 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
14D05A	1,1,1-Trichloroethane	100 U	120 UJ	--
	1,1,2,2-Tetrachloroethane	10 U	12 UJ	--
	1,1,2-Trichloroethane	20 U	25 UJ	--
	1,1-Dichloroethane	8.1 J	13 J	46%
	1,1-Dichloroethene	9.5 J	18 J	62%
	1,2-Dichlorobenzene	100 U	120 UJ	--
	1,2-Dichloroethane	10 U	12 UJ	--
	1,2-Dichloropropane	20 U	25 UJ	--
	2-Butanone	100 U	120 UJ	--
	2-Hexanone	100 U	120 UJ	--
	4-Methyl-2-Pentanone	100 U	120 UJ	--
	Acetone	200 U	250 UJ	--
	Benzene	10 U	12 UJ	--
	Bromodichloromethane	100 U	120 UJ	--
	Bromoform	100 UJ	120 UJ	--
	Bromomethane	100 UJ	120 UJ	--
	Carbon disulfide	100 U	120 UJ	--
	Carbon tetrachloride	10 U	12 UJ	--
	Chlorobenzene	100 U	120 UJ	--
	Chloroethane	100 U	120 UJ	--
	Chloroform	100 U	120 UJ	--
	Chloromethane	100 U	120 UJ	--
	cis-1,2-Dichloroethene	530	1100 J	70%
	cis-1,3-Dichloropropene	10 U	12 UJ	--
	Dibromochloromethane	100 U	120 UJ	--
	Ethylbenzene	100 U	120 UJ	--
	Freon 113	100 UJ	120 UJ	--
	Methylene chloride	20 U	25 UJ	--
	Methyl-tert-butyl ether	20 U	25 UJ	--
	Styrene	100 U	120 UJ	--
	Tetrachloroethene	20 U	25 UJ	--
	Toluene	100 U	120 UJ	--
	trans-1,2-Dichloroethene	3.8 J	6 J	45%
	trans-1,3-Dichloropropene	10 U	12 UJ	--
	Trichloroethene	120	28 J	124%
	Vinyl acetate	100 UJ	120 UJ	--
	Vinyl chloride	160	180 J	12%
	Xylenes (total)	100 U	120 UJ	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
14D31A2	1,1,1-Trichloroethane	5 U	5 U	--
	1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	--
	1,1,2-Trichloroethane	1 U	1 U	--
	1,1-Dichloroethane	0.61 J	0.41 J	39%
	1,1-Dichloroethene	1 U	1 U	--
	1,2-Dichlorobenzene	5 U	5 U	--
	1,2-Dichloroethane	0.5 U	0.5 U	--
	1,2-Dichloropropane	1 U	1 U	--
	2-Butanone	0.51 J	4.2 UJ	--
	2-Hexanone	5 U	5 U	--
	4-Methyl-2-Pentanone	5 U	5 U	--
	Acetone	10 U	25 U	--
	Benzene	0.5 U	0.5 U	--
	Bromodichloromethane	5 U	5 U	--
	Bromoform	5 U	5 U	--
	Bromomethane	5 U	5 U	--
	Carbon disulfide	5 U	5 U	--
	Carbon tetrachloride	0.5 U	0.5 U	--
	Chlorobenzene	5 U	5 U	--
	Chloroethane	5 U	5 U	--
	Chloroform	5 U	5 U	--
	Chloromethane	5 U	5 U	--
	cis-1,2-Dichloroethene	0.49 J	0.25 J	65%
	cis-1,3-Dichloropropene	0.5 U	0.5 U	--
	Dibromochloromethane	5 U	5 U	--
	Ethylbenzene	5 U	5 U	--
	Freon 113	5 U	5 U	--
	Methylene chloride	1 U	1 U	--
	Methyl-tert-butyl ether	1 U	1 U	--
	Styrene	5 U	5 U	--
	Tetrachloroethene	1 U	1 U	--
	Toluene	5 U	5 U	--
	trans-1,2-Dichloroethene	2 U	2 U	--
	trans-1,3-Dichloropropene	0.5 U	0.5 U	--
	Trichloroethene	0.26 J	1 U	--
	Vinyl acetate	5 U	5 U	--
	Vinyl chloride	0.5 U	0.5 U	--
	Xylenes (total)	5 U	5 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
W9-20	1,1,1-Trichloroethane	120 U	50 U	--
	1,1,2,2-Tetrachloroethane	12 U	5 U	--
	1,1,2-Trichloroethane	25 U	10 U	--
	1,1-Dichloroethane	10 J	1.3 J	154%
	1,1-Dichloroethene	31	3.4 J	160%
	1,2-Dichlorobenzene	120 U	4 J	--
	1,2-Dichloroethane	12 U	5 U	--
	1,2-Dichloropropane	25 U	10 U	--
	2-Butanone	120 U	50 U	--
	2-Hexanone	120 U	50 U	--
	4-Methyl-2-Pentanone	120 U	50 U	--
	Acetone	250 U	100 U	--
	Benzene	12 U	5 U	--
	Bromodichloromethane	120 U	50 U	--
	Bromoform	120 U	50 U	--
	Bromomethane	120 U	50 U	--
	Carbon disulfide	120 U	50 U	--
	Carbon tetrachloride	12 U	5 U	--
	Chlorobenzene	120 U	50 U	--
	Chloroethane	120 U	50 U	--
	Chloroform	120 U	50 U	--
	Chloromethane	120 U	50 U	--
	cis-1,2-Dichloroethene	1500	310	131%
	cis-1,3-Dichloropropene	12 U	5 U	--
	Dibromochloromethane	120 U	50 U	--
	Ethylbenzene	120 U	50 U	--
	Freon 113	27 J	50 U	--
	Methylene chloride	25 U	10 U	--
	Methyl-tert-butyl ether	25 U	10 U	--
	Styrene	120 U	50 U	--
	Tetrachloroethene	340	3.2 J	196%
	Toluene	120 U	50 U	--
	trans-1,2-Dichloroethene	13 J	1.4 J	161%
	trans-1,3-Dichloropropene	12 U	5 U	--
	Trichloroethene	1700	56	187%
	Vinyl acetate	120 U	50 U	--
	Vinyl chloride	43	5 U	--
	Xylenes (total)	120 U	50 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
W9-31	1,1,1-Trichloroethane	250 U	250 U	--
	1,1,2,2-Tetrachloroethane	25 U	25 U	--
	1,1,2-Trichloroethane	50 U	50 U	--
	1,1-Dichloroethane	7.1 J	6.7 J	6%
	1,1-Dichloroethene	50 U	50 U	--
	1,2-Dichlorobenzene	250 U	250 U	--
	1,2-Dichloroethane	25 U	25 U	--
	1,2-Dichloropropane	50 U	50 U	--
	2-Butanone	250 U	250 U	--
	2-Hexanone	250 U	250 U	--
	4-Methyl-2-Pentanone	250 U	250 U	--
	Acetone	500 U	500 U	--
	Benzene	25 U	25 U	--
	Bromodichloromethane	250 U	250 U	--
	Bromoform	250 U	250 U	--
	Bromomethane	250 U	250 U	--
	Carbon disulfide	250 U	250 U	--
	Carbon tetrachloride	25 U	25 U	--
	Chlorobenzene	250 U	250 U	--
	Chloroethane	250 U	250 U	--
	Chloroform	250 U	250 U	--
	Chloromethane	250 U	13 J	--
	cis-1,2-Dichloroethene	1200	1200	0%
	cis-1,3-Dichloropropene	25 U	25 U	--
	Dibromochloromethane	250 U	250 U	--
	Ethylbenzene	250 U	250 U	--
	Freon 113	250 U	250 U	--
	Methylene chloride	50 U	50 U	--
	Methyl-tert-butyl ether	50 U	50 U	--
	Styrene	250 U	250 U	--
	Tetrachloroethene	50 U	50 U	--
	Toluene	250 U	250 U	--
	trans-1,2-Dichloroethene	100 U	100 U	--
	trans-1,3-Dichloropropene	25 U	25 U	--
	Trichloroethene	50 U	50 U	--
	Vinyl acetate	250 U	250 U	--
	Vinyl chloride	210	290	32%
	Xylenes (total)	250 U	250 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
W9-33	1,1,1-Trichloroethane	100 U	250 U	--
	1,1,2,2-Tetrachloroethane	10 U	25 U	--
	1,1,2-Trichloroethane	20 U	50 U	--
	1,1-Dichloroethane	3.5 J	13 J	115%
	1,1-Dichloroethene	4.8 J	33 J	149%
	1,2-Dichlorobenzene	100 U	250 U	--
	1,2-Dichloroethane	10 U	25 U	--
	1,2-Dichloropropane	20 U	50 U	--
	2-Butanone	100 U	250 U	--
	2-Hexanone	100 U	250 U	--
	4-Methyl-2-Pentanone	100 U	250 U	--
	Acetone	200 U	500 U	--
	Benzene	10 U	25 U	--
	Bromodichloromethane	100 U	250 U	--
	Bromoform	100 U	250 U	--
	Bromomethane	100 U	250 U	--
	Carbon disulfide	100 U	250 U	--
	Carbon tetrachloride	10 U	25 U	--
	Chlorobenzene	100 U	250 U	--
	Chloroethane	100 U	250 U	--
	Chloroform	100 U	250 U	--
	Chloromethane	100 U	250 U	--
	cis-1,2-Dichloroethene	550	790	36%
	cis-1,3-Dichloropropene	10 U	25 U	--
	Dibromochloromethane	100 U	250 U	--
	Ethylbenzene	100 U	250 U	--
	Freon 113	100 U	36 J	--
	Methylene chloride	20 U	50 U	--
	Methyl-tert-butyl ether	20 U	50 U	--
	Styrene	100 U	250 U	--
	Tetrachloroethene	20 U	50 U	--
	Toluene	100 U	250 U	--
	trans-1,2-Dichloroethene	40 U	100 U	--
	trans-1,3-Dichloropropene	10 U	25 U	--
	Trichloroethene	13 J	2100	198%
	Vinyl acetate	100 UJ	250 U	--
	Vinyl chloride	23	25 U	--
	Xylenes (total)	100 U	250 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
W9-34	1,1,1-Trichloroethane	100 U	120 U	--
	1,1,2,2-Tetrachloroethane	10 U	12 U	--
	1,1,2-Trichloroethane	20 U	25 U	--
	1,1-Dichloroethane	10 J	13 J	26%
	1,1-Dichloroethene	3.3 J	14 J	124%
	1,2-Dichlorobenzene	100 U	120 U	--
	1,2-Dichloroethane	10 U	12 U	--
	1,2-Dichloropropane	20 U	25 U	--
	2-Butanone	100 U	120 U	--
	2-Hexanone	100 U	120 U	--
	4-Methyl-2-Pentanone	100 U	120 U	--
	Acetone	200 U	250 U	--
	Benzene	10 U	12 U	--
	Bromodichloromethane	100 U	120 U	--
	Bromoform	100 U	120 U	--
	Bromomethane	100 U	120 U	--
	Carbon disulfide	100 U	120 U	--
	Carbon tetrachloride	10 U	12 U	--
	Chlorobenzene	100 U	120 U	--
	Chloroethane	100 U	120 U	--
	Chloroform	100 U	120 U	--
	Chloromethane	100 U	120 U	--
	cis-1,2-Dichloroethene	560	1200	73%
	cis-1,3-Dichloropropene	10 U	12 U	--
	Dibromochloromethane	100 U	120 U	--
	Ethylbenzene	100 U	120 U	--
	Freon 113	8.1 J	11 J	30%
	Methylene chloride	20 U	25 U	--
	Methyl-tert-butyl ether	20 U	25 U	--
	Styrene	100 U	120 U	--
	Tetrachloroethene	20 U	25 U	--
	Toluene	100 U	120 U	--
	trans-1,2-Dichloroethene	2.5 J	3.3 J	28%
	trans-1,3-Dichloropropene	10 U	12 U	--
	Trichloroethene	29	13 J	76%
	Vinyl acetate	100 UJ	120 UJ	--
	Vinyl chloride	340	140	83%
	Xylenes (total)	100 U	120 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
W9-40	1,1,1-Trichloroethane	5 UJ	5 UJ	--
	1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	--
	1,1,2-Trichloroethane	1 U	1 U	--
	1,1-Dichloroethane	1.6	1 U	--
	1,1-Dichloroethene	1 U	1 U	--
	1,2-Dichlorobenzene	5 U	5 U	--
	1,2-Dichloroethane	0.5 U	0.5 U	--
	1,2-Dichloropropane	1 U	1 U	--
	2-Butanone	5 U	3.4 UJ	--
	2-Hexanone	5 U	5 U	--
	4-Methyl-2-Pentanone	5 U	0.36 J	--
	Acetone	10 U	24 U	--
	Benzene	0.5 U	0.5 U	--
	Bromodichloromethane	5 U	5 U	--
	Bromoform	5 U	5 U	--
	Bromomethane	5 U	5 U	--
	Carbon disulfide	5 U	5 U	--
	Carbon tetrachloride	0.5 U	0.5 U	--
	Chlorobenzene	5 U	5 U	--
	Chloroethane	5 U	5 U	--
	Chloroform	5 U	5 U	--
	Chloromethane	5 U	5 U	--
	cis-1,2-Dichloroethene	0.26 J	1 U	--
	cis-1,3-Dichloropropene	0.5 U	0.5 U	--
	Dibromochloromethane	5 U	5 U	--
	Ethylbenzene	5 U	5 U	--
	Freon 113	5 U	5 U	--
	Methylene chloride	1 U	1 U	--
	Methyl-tert-butyl ether	1 U	1 U	--
	Styrene	5 U	5 U	--
	Tetrachloroethene	1 U	1 U	--
	Toluene	5 U	5 U	--
	trans-1,2-Dichloroethene	0.11 J	2 U	--
	trans-1,3-Dichloropropene	0.5 U	0.5 U	--
	Trichloroethene	0.28 J	1 U	--
	Vinyl acetate	5 U	5 U	--
	Vinyl chloride	7.2	0.5 U	--
	Xylenes (total)	5 U	5 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
W9-44	1,1,1-Trichloroethane	100 U	100 U	--
	1,1,2,2-Tetrachloroethane	10 U	10 U	--
	1,1,2-Trichloroethane	20 U	20 U	--
	1,1-Dichloroethane	11 J	9.6 J	14%
	1,1-Dichloroethene	15 J	16 J	6%
	1,2-Dichlorobenzene	100 U	100 U	--
	1,2-Dichloroethane	10 U	10 U	--
	1,2-Dichloropropane	20 U	20 U	--
	2-Butanone	100 U	100 U	--
	2-Hexanone	100 U	100 U	--
	4-Methyl-2-Pentanone	100 U	100 U	--
	Acetone	200 U	200 U	--
	Benzene	10 U	10 U	--
	Bromodichloromethane	100 U	100 U	--
	Bromoform	100 U	100 U	--
	Bromomethane	100 U	100 U	--
	Carbon disulfide	100 UJ	100 UJ	--
	Carbon tetrachloride	10 U	10 U	--
	Chlorobenzene	100 U	100 U	--
	Chloroethane	100 U	100 U	--
	Chloroform	100 U	100 U	--
	Chloromethane	100 U	100 U	--
	cis-1,2-Dichloroethene	440	420	5%
	cis-1,3-Dichloropropene	10 U	10 U	--
	Dibromochloromethane	100 U	100 U	--
	Ethylbenzene	100 U	100 U	--
	Freon 113	14 J	14 J	0%
	Methylene chloride	20 U	20 U	--
	Methyl-tert-butyl ether	20 U	20 U	--
	Styrene	100 U	100 U	--
	Tetrachloroethene	2.8 J	20 U	--
	Toluene	100 U	100 U	--
	trans-1,2-Dichloroethene	4.2 J	4.2 J	0%
	trans-1,3-Dichloropropene	10 U	10 U	--
	Trichloroethene	830	810	2%
	Vinyl acetate	100 U	100 U	--
	Vinyl chloride	10 U	10 U	--
	Xylenes (total)	100 U	100 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
W9-7	1,1,1-Trichloroethane	100 U	100 U	--
	1,1,2,2-Tetrachloroethane	10 U	10 U	--
	1,1,2-Trichloroethane	20 U	20 U	--
	1,1-Dichloroethane	6.6 J	7.6 J	14%
	1,1-Dichloroethene	20 U	14 J	--
	1,2-Dichlorobenzene	100 U	100 U	--
	1,2-Dichloroethane	10 U	10 U	--
	1,2-Dichloropropane	20 U	20 U	--
	2-Butanone	100 U	100 U	--
	2-Hexanone	100 U	100 U	--
	4-Methyl-2-Pentanone	100 U	100 U	--
	Acetone	200 UJ	200 UJ	--
	Benzene	10 U	10 U	--
	Bromodichloromethane	100 U	100 U	--
	Bromoform	100 U	100 U	--
	Bromomethane	100 U	100 U	--
	Carbon disulfide	100 U	100 U	--
	Carbon tetrachloride	10 U	10 U	--
	Chlorobenzene	100 U	100 U	--
	Chloroethane	100 U	100 U	--
	Chloroform	100 U	100 U	--
	Chloromethane	100 U	100 U	--
	cis-1,2-Dichloroethene	740	710	4%
	cis-1,3-Dichloropropene	10 U	10 U	--
	Dibromochloromethane	100 U	100 U	--
	Ethylbenzene	100 U	100 U	--
	Freon 113	5.8 J	9.9 J	52%
	Methylene chloride	20 U	20 U	--
	Methyl-tert-butyl ether	20 U	20 U	--
	Styrene	100 U	100 U	--
	Tetrachloroethene	20 U	20 U	--
	Toluene	100 U	100 U	--
	trans-1,2-Dichloroethene	56	5.1 J	167%
	trans-1,3-Dichloropropene	10 U	10 U	--
	Trichloroethene	11 J	480	191%
	Vinyl acetate	100 U	100 U	--
	Vinyl chloride	38	31	20%
	Xylenes (total)	100 U	100 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
W9SC-13	1,1,1-Trichloroethane	100 U	25 U	--
	1,1,2,2-Tetrachloroethane	10 U	2.5 U	--
	1,1,2-Trichloroethane	20 U	5 U	--
	1,1-Dichloroethane	19 J	10	62%
	1,1-Dichloroethene	16 J	3.7 J	125%
	1,2-Dichlorobenzene	100 U	25 U	--
	1,2-Dichloroethane	10 U	1.7 J	--
	1,2-Dichloropropane	20 U	5 U	--
	2-Butanone	100 U	25 U	--
	2-Hexanone	100 U	25 U	--
	4-Methyl-2-Pentanone	100 U	25 U	--
	Acetone	200 UJ	27 UJ	--
	Benzene	11	6	59%
	Bromodichloromethane	100 U	25 U	--
	Bromoform	100 U	25 U	--
	Bromomethane	100 U	25 U	--
	Carbon disulfide	100 U	25 U	--
	Carbon tetrachloride	10 U	2.5 U	--
	Chlorobenzene	100 U	25 U	--
	Chloroethane	100 U	25 U	--
	Chloroform	100 U	25 U	--
	Chloromethane	100 U	25 U	--
	cis-1,2-Dichloroethene	810	310	89%
	cis-1,3-Dichloropropene	10 U	2.5 U	--
	Dibromochloromethane	100 U	25 U	--
	Ethylbenzene	100 U	25 U	--
	Freon 113	100 U	25 U	--
	Methylene chloride	20 U	5 U	--
	Methyl-tert-butyl ether	20 U	5 U	--
	Styrene	100 U	25 U	--
	Tetrachloroethene	20 U	5 U	--
	Toluene	100 U	25 U	--
	trans-1,2-Dichloroethene	3.9 J	1.1 J	112%
	trans-1,3-Dichloropropene	10 U	2.5 U	--
	Trichloroethene	20 U	5 U	--
	Vinyl acetate	100 U	2 J	--
	Vinyl chloride	140	130	7%
	Xylenes (total)	100 U	25 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
W9SC-3	1,1,1-Trichloroethane	120 U	500 U	--
	1,1,2,2-Tetrachloroethane	12 U	50 U	--
	1,1,2-Trichloroethane	25 U	100 U	--
	1,1-Dichloroethane	14 J	13 J	7%
	1,1-Dichloroethene	34	45 J	28%
	1,2-Dichlorobenzene	120 U	500 U	--
	1,2-Dichloroethane	12 U	50 U	--
	1,2-Dichloropropane	25 U	100 U	--
	2-Butanone	120 U	500 U	--
	2-Hexanone	120 U	500 U	--
	4-Methyl-2-Pentanone	120 U	500 U	--
	Acetone	250 U	1000 U	--
	Benzene	12 U	50 U	--
	Bromodichloromethane	120 U	500 U	--
	Bromoform	120 U	500 U	--
	Bromomethane	120 U	500 U	--
	Carbon disulfide	120 U	500 U	--
	Carbon tetrachloride	12 U	50 U	--
	Chlorobenzene	120 U	500 U	--
	Chloroethane	120 U	500 U	--
	Chloroform	120 U	500 U	--
	Chloromethane	120 U	500 U	--
	cis-1,2-Dichloroethene	1100	1100	0%
	cis-1,3-Dichloropropene	12 U	50 U	--
	Dibromochloromethane	120 U	500 U	--
	Ethylbenzene	120 U	500 U	--
	Freon 113	12 J	500 U	--
	Methylene chloride	25 U	100 U	--
	Methyl-tert-butyl ether	25 U	100 U	--
	Styrene	120 U	500 U	--
	Tetrachloroethene	25 U	40 J	--
	Toluene	120 U	500 U	--
	trans-1,2-Dichloroethene	5.2 J	200 U	--
	trans-1,3-Dichloropropene	12 U	50 U	--
	Trichloroethene	1900 J	3200	51%
	Vinyl acetate	120 U	500 UJ	--
	Vinyl chloride	12 U	29 J	--
	Xylenes (total)	120 U	500 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
WU4-14	1,1,1-Trichloroethane	100 U	100 U	--
	1,1,2,2-Tetrachloroethane	10 U	10 U	--
	1,1,2-Trichloroethane	20 U	20 U	--
	1,1-Dichloroethane	9.8 J	11 J	12%
	1,1-Dichloroethene	7.7 J	8 J	4%
	1,2-Dichlorobenzene	100 U	100 U	--
	1,2-Dichloroethane	10 U	10 U	--
	1,2-Dichloropropane	20 U	20 U	--
	2-Butanone	100 U	100 U	--
	2-Hexanone	100 U	100 U	--
	4-Methyl-2-Pentanone	100 U	100 U	--
	Acetone	200 U	200 U	--
	Benzene	10 U	10 U	--
	Bromodichloromethane	100 U	100 U	--
	Bromoform	100 U	100 U	--
	Bromomethane	100 U	100 U	--
	Carbon disulfide	100 U	100 U	--
	Carbon tetrachloride	10 U	10 U	--
	Chlorobenzene	100 U	100 U	--
	Chloroethane	100 U	100 U	--
	Chloroform	100 U	100 U	--
	Chloromethane	100 U	100 U	--
	cis-1,2-Dichloroethene	520	500	4%
	cis-1,3-Dichloropropene	10 U	10 U	--
	Dibromochloromethane	100 U	100 U	--
	Ethylbenzene	100 U	100 U	--
	Freon 113	100 U	100 U	--
	Methylene chloride	20 U	20 U	--
	Methyl-tert-butyl ether	20 U	20 U	--
	Styrene	100 U	100 U	--
	Tetrachloroethene	20 U	20 U	--
	Toluene	100 U	100 U	--
	trans-1,2-Dichloroethene	3.2 J	3.4 J	6%
	trans-1,3-Dichloropropene	10 U	10 U	--
	Trichloroethene	3.6 J	3.9 J	8%
	Vinyl acetate	100 U	100 U	--
	Vinyl chloride	11	11	0%
	Xylenes (total)	100 U	100 U	--

TABLE 4-1

PDB AND LOW-FLOW ANALYTICAL RESULTS

Well	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	Relative Percent Difference
WU4-15	1,1,1-Trichloroethane	10 U	10 U	--
	1,1,2,2-Tetrachloroethane	1 U	1 U	--
	1,1,2-Trichloroethane	2 U	2 U	--
	1,1-Dichloroethane	3.2	3.5	9%
	1,1-Dichloroethene	2.8	3.3	16%
	1,2-Dichlorobenzene	10 U	10 U	--
	1,2-Dichloroethane	1 U	1 U	--
	1,2-Dichloropropane	2 U	2 U	--
	2-Butanone	10 U	4.8 UJ	--
	2-Hexanone	10 U	10 U	--
	4-Methyl-2-Pentanone	10 U	10 U	--
	Acetone	20 U	23 U	--
	Benzene	1 U	1 U	--
	Bromodichloromethane	10 U	10 U	--
	Bromoform	10 U	10 U	--
	Bromomethane	10 U	10 U	--
	Carbon disulfide	10 UJ	10 UJ	--
	Carbon tetrachloride	1 U	1 U	--
	Chlorobenzene	10 U	10 U	--
	Chloroethane	10 U	10 U	--
	Chloroform	10 U	10 U	--
	Chloromethane	10 U	10 U	--
	cis-1,2-Dichloroethene	56	60	7%
	cis-1,3-Dichloropropene	1 U	1 U	--
	Dibromochloromethane	10 U	10 U	--
	Ethylbenzene	10 U	10 U	--
	Freon 113	10 U	0.57 J	--
	Methylene chloride	2 U	2 U	--
	Methyl-tert-butyl ether	2 U	2 U	--
	Styrene	10 U	10 U	--
	Tetrachloroethene	1.6 J	2.3	36%
	Toluene	10 U	10 U	--
	trans-1,2-Dichloroethene	0.6 J	0.75 J	22%
	trans-1,3-Dichloropropene	1 U	1 U	--
	Trichloroethene	15	20	29%
	Vinyl acetate	10 U	10 U	--
	Vinyl chloride	1.8	1.8	0%
	Xylenes (total)	10 U	10 U	--

Notes:

Relative percent difference (RPD) is calculated as the difference between the low-flow and passive diffusion bag (PDB) concentrations divided by the average of the low-flow and PDB concentrations. RPDs are not calculated when one or both results are not detected (U-flagged or UJ-flagged data). In these situations, the RPD is listed as "--". All values displayed are absolute values.

TABLE 4-2

PDB, 2011 LOW-FLOW, 2010 LOW-FLOW RPDS

Location	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	2010 Low-Flow Sampling Method Results (ug/L)	RPD (2011 Low-Flow vs. PDB)	RPD (2011 Low-Flow vs. 2010 Low-Flow)
EXW-4	1,1,1-Trichloroethane	0.28 J	0.24 J	0.32 J	15%	13%
	trans-1,2-Dichloroethene	0.18 J	0.26 J	0.21 J	36%	15%
	Trichloroethene	3.3 J	3.3 J	3.3 J	0%	0%
	Vinyl chloride	0.26 J	0.24 J	0.29 J	8%	11%
EXW-5	Tetrachloroethene	1.7 J	2.2 J	1.3 J	26%	27%
	trans-1,2-Dichloroethene	0.2 J	0.21 J	0.55 J	5%	93%
	Trichloroethene	2.6 J	2.7 J	2.3 J	4%	12%
	Vinyl chloride	0.28 J	0.26 J	0.24 J	7%	15%
W3-21	1,1-Dichloroethane	1.1	1.2	1.3	9%	17%
	cis-1,2-Dichloroethene	1.8	1.9	1.7	5%	6%
	Trichloroethene	3.2	3.8	3.2	17%	0%
W43-2	cis-1,2-Dichloroethene	9.3	9.4	9.4 J	1%	1%
	Tetrachloroethene	50	45	52 J	11%	4%
	Trichloroethene	24	25	24 J	4%	0%
WT2-1	Trichloroethene	2.2	2.6	2.4 J	17%	9%
WU5-16	cis-1,2-Dichloroethene	3.3	3.2	3.5	3%	6%
	Tetrachloroethene	1.2	1.9	1	45%	18%
	trans-1,2-Dichloroethene	3.6	3.9	4.1	8%	13%
	Trichloroethene	13	15	11	14%	17%
	Vinyl chloride	1.5	1.8	0.69	18%	74%
WU5-20	cis-1,2-Dichloroethene	10	16	2.1 J	46%	131%
14D05A	cis-1,2-Dichloroethene	530	1100 J	810	70%	42%
	Trichloroethene	120	28 J	210	124%	55%
	Vinyl chloride	160	180 J	100	12%	46%
14D31A2	1,1-Dichloroethane	0.61 J	0.41 J	1	39%	48%

TABLE 4-2

PDB, 2011 LOW-FLOW, 2010 LOW-FLOW RPDS

Location	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	2010 Low-Flow Sampling Method Results (ug/L)	RPD (2011 Low-Flow vs. PDB)	RPD (2011 Low-Flow vs. 2010 Low-Flow)
W9-20	cis-1,2-Dichloroethene	1500	310	820	131%	59%
	Tetrachloroethene	340	3.2 J	360	196%	6%
	Trichloroethene	1700	56	2100	187%	21%
W9-31	cis-1,2-Dichloroethene	1200	1200	2500	0%	70%
	Vinyl chloride	210	290	740	32%	112%
W9-33	cis-1,2-Dichloroethene	550	790	620 J	36%	12%
	Trichloroethene	13 J	2100	1600 J	198%	197%
W9-34	1,1-Dichloroethane	10 J	13 J	1.7	26%	142%
	cis-1,2-Dichloroethene	560	1200	20	73%	186%
	Vinyl chloride	340	140	1.6	83%	198%
W9-44	cis-1,2-Dichloroethene	440	420	430	5%	2%
	Trichloroethene	830	810	810	2%	2%
W9-7	cis-1,2-Dichloroethene	740	710	1100	4%	39%
	Trichloroethene	11 J	480	120 J	191%	166%
	Vinyl chloride	38	31	120 J	20%	104%
W9SC-13	cis-1,2-Dichloroethene	810	310	2.7	89%	199%
W9SC-3	cis-1,2-Dichloroethene	1100	1100	1300	0%	17%
	Trichloroethene	1900 J	3200	3000	51%	45%
WU4-14	1,1-Dichloroethane	9.8 J	11 J	3 J	12%	106%
	cis-1,2-Dichloroethene	520	500	4.2 J	4%	197%
	Trichloroethene	3.6 J	3.9 J	2.9 J	8%	22%
WU4-15	1,1-Dichloroethane	3.2	3.5	4	9%	22%
	1,1-Dichloroethene	2.8	3.3	3.8	16%	30%
	cis-1,2-Dichloroethene	56	60	65	7%	15%
	Tetrachloroethene	1.6 J	2.3	2.3	36%	36%
	Trichloroethene	15	20	17	29%	13%
	Vinyl chloride	1.8	1.8	1.8	0%	0%

TABLE 4-2

PDB, 2011 LOW-FLOW, 2010 LOW-FLOW RPDS

Location	Analyte	Low-Flow Sampling Method Results (ug/L)	PDB Sampling Method Results (ug/L)	2010 Low-Flow Sampling Method Results (ug/L)	RPD (2011 Low-Flow vs. PDB)	RPD (2011 Low-Flow vs. 2010 Low-Flow)
Minimum					0%	0%
Maximum					198%	199%
Median					16%	21%

Notes:

Relative percent difference (RPD) is calculated as the difference between the low-flow and passive diffusion bag (PDB) concentrations divided by the average of the low-flow and PDB concentrations. RPDs are not calculated when one or both results are not detected (U-flagged or UJ-flagged data). All values displayed are absolute values.

TABLE 4-3

PDB VERSUS LOW-FLOW HYPOTHESIS TESTING RESULTS

Scenario	Analyte	Mean		Median		Standard Deviation		P-Value	Reject / Do Not Reject Null Hypothesis[1]
		Low-flow	PDB	Low-flow	PDB	Low-flow	PDB		
All Wells	Trichloroethene	260	423	12	17.5	594	920	0.32	Do not reject
	Tetrachloroethene	49.9	10.6	1.65	2.2	119	18.1	0.81	Do not reject
	cis-1,2-Dichloroethene	423	430	440	310	475	468	0.96	Do not reject
	Vinyl chloride	65.1	62.8	11	11	26.3	25.8	0.85	Do not reject
Long Screened Wells	Trichloroethene	171	299	3.6	13	508	693	0.36	Do not reject
	Tetrachloroethene	114	1.91	1.7	2.2	196	1.45	0.66	Do not reject
	cis-1,2-Dichloroethene	402	464	520	405	468	468	0.81	Do not reject
	Vinyl chloride	62.3	51.8	17	11	109	75.6	0.77	Do not reject
Short Screened Wells	Trichloroethene	398	582	15	20	729	1192	0.75	Do not reject
	Tetrachloroethene	11.3	15.0	1.6	2.1	21.7	21.4	0.93	Do not reject
	cis-1,2-Dichloroethene	453	388	248	185	516	496	0.88	Do not reject
	Vinyl chloride	70.8	75.5	1.8	15.4	98.3	116	0.93	Do not reject

Notes:

Wilcoxon-Mann-Whitney approach with an alpha value of 0.05. Non detects were not included in the analysis.

[1]Null Hypothesis: Low-flow mean/median is equal to PDB mean/median.

TABLE 9-1

IR SITES 26 AND 28 MONITORING AND REPORTING SCHEDULE FOR 2012

Event	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
WATS NPDES Sampling	X	X	X	X	X	X	X	X	X	X	X	X
WATS NPDES Reporting	X			X			X			X		
EATS NPDES Sampling[a]												
EATS NPDES Reporting[a]												
Basewide Well Gauging			X						X			
Annual Groundwater Sampling for IR Sites 26 and 28									X			
2011 Annual Groundwater Report for IR Sites 26 and 28				X								

Note:

[a] EATS was turned off on July 2, 2003 and its operational status placed on standby. No NPDES sampling or reporting is necessary.

Abbreviations and Acronyms:

EATS - East-Side Aquifer Treatment System

NPDES - National Pollutant Discharge Elimination System

WATS - West-Side Aquifers Treatment System

APPENDIX A

PROGRESS TOWARD COMPLETING

FIVE-YEAR REVIEW RECOMMENDATIONS

PROGRESS TOWARD COMPLETING FIVE-YEAR REVIEW RECOMMENDATIONS

Issues and recommendations for the West-Side Aquifers Treatment System (WATS) area were identified in Tables 7-1 and 7-2 of the United States (U.S.) Environmental Protection Agency (EPA) *Draft Five- Year Review Report for the Middlefield-Ellis-Whisman (MEW) Superfund Study Area, Mountain View, California* (EPA 2004) and *Final Second Five-Year Review Report for MEW Superfund Study Area, Mountain View, California* (EPA 2009). EPA identified issues and recommendations for Installation Restoration (IR) Site 28, and the corresponding U.S. Department of the Navy (Navy) actions taken or planned are included on Table A.1.

Issues and recommendations for the East-Side Aquifer Treatment System (EATS) were identified in Section 8 of the Navy *Final East-Side Aquifer Treatment System (Operable Unit 5) Five-Year Review Report for the Period January 1999 to December 2002* (Navy 2005) and *Final Five-Year Review Report, Installation Restoration Sites 1, 22, 26, and 28* (Navy 2010). EATS issues, recommendations, and actions taken or planned are included on Table A.2.

REFERENCES

U.S. Department of the Navy (Navy). 2005. Final East-Side Aquifer Treatment System (Operable Unit 5) Five-Year Review Report for the Period January 1999 to December 2002. February.

__________________. 2010. Final Five-Year Review Report, Installation Restoration Sites 1, 22, 26 and 28, Former Naval Air Station Moffett Field, Moffett Field, California. February 12.

U.S. Environmental Protection Agency (EPA). 2004. Draft Five-Year Review Report for the Middlefield-Ellis-Whisman (MEW) Superfund Study Area, Mountain View, California. June.

__________________. 2009. Final Second Five-Year Review Report for Middlefield-Ellis-Whisman (MEW) Superfund Study Area, Mountain View, California. September.

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TABLE A.1
PROGRESS TOWARDS COMPLETING WATS FIVE-YEAR REVIEW RECOMMENDATIONS

Issue [a]	Recommendation and Follow-up Action [a]	Action Taken or Planned	Timeframe
GROUNDWATER			
TCE, cis-1,2-DCE, and VC contamination may be migrating off the WATS area to the north near 14D09A in the A aquifer zone (EPA 2004).	Evaluate options to increase capture in the A aquifer.	Re-evaluated capture zones in 2005 and 2006; evaluation showed complete capture in the upper portion of the A aquifer of the regional plume in the area of Navy's responsibility. Evaluation in 2008 supported this action.	Evaluation completed in 2005. Continue to evaluate result for 2011.
Elevated TCE concentrations in excess of 1,000 µg/L are in the A2/B1 aquifer near Hangar 1 (EPA 2004).	Installed new A2 extraction well, EA2-3. Evaluate capture of area.	New lower portion of the A aquifer well EA2-3 was installed. Capture has been evaluated in annual reports. Positive results reported.	EA2-3 brought online in January 2004. Continue to evaluate through 2011.
The source of contamination in the A2/B1 Aquifer in the vicinity of NASA Ames well 14D25A2 and WU4-19 is unknown (EPA 2004).	Evaluate options to increase capture in this area.	Re-evaluated capture zones in 2005 and 2006; evaluation showed complete capture in the upper portion of the A aquifer of the regional plume in the area of Navy's responsibility. Evaluation in 2008 supported this action.	Evaluation completed in 2005. Continue to evaluate capture zones through 2011.
TCE has been detected in the B2 aquifer, indicating that vertical downgradient migration of contaminants may be occurring (EPA 2004).	Monitor selected wells in the B2 aquifer on an annual basis.	Selected B2 wells have been included in annual sampling.	Ongoing.
Potential contaminant sources exist in the former Building 88 area, associated sewer lines and the Traffic Island Area (Navy 2010).	Continue implementing the treatability study and determine the next course of action based on the results.	The hot spot characterization portion of the treatability test has been completed. Observation wells installation and substrate injection have been performed. Evaluation of effectiveness is underway	2012
The mass removal efficiency is decreasing due to decreasing influent treatment system VOC concentrations. Based on concentrations trends, the existing remedy is not expected to achieve Site cleanup levels for many more decades. (EPA 2009)	The Navy disagrees with the statement "The mass removal efficiency of the current groundwater remedy is ineffective" for IR Site 28. The Navy's recommendation is to "Continue to participate in a regional strategy to address groundwater contamination and document the strategy in a Feasibility Study."	The Site-wide Groundwater Feasibility Study is currently on hold pending the results of the treatability tests currently being conducted by several responsible parties.	2009-2012

TABLE A.1
PROGRESS TOWARDS COMPLETING WATS FIVE-YEAR REVIEW RECOMMENDATIONS

Issue [a]	Recommendation and Follow-up Action [a]	Action Taken or Planned	Timeframe
Groundwater contamination plume is not fully captured by existing extraction wells (EPA 2009).	The Navy disagrees with the statement "Groundwater contamination plume is not fully captured" for IR Site 28. The Navy's recommendation is to "Continue to participate in a regional strategy to address groundwater contamination and document the strategy in an FS report."	The treatability test currently being performed at IR Site 28 is looking at one option for enhancing mass removal in potential source areas.	2009-2012
No institutional controls for groundwater remedy. (EPA, Navy)	Evaluate need for institutional controls in Site-wide Groundwater Feasibility Study.	The Site-wide Groundwater Feasibility Study is currently on hold pending the results of the treatability tests currently being conducted by several responsible parties.	2009-2012
WATS is functioning as intended; however, dissolved VOCs in the regional plume continue to migrate into IR Site 28 with groundwater underflow from upgradient source areas. The upgradient sources are contributing contaminants at concentrations greater than cleanup standards. As long as contaminants migrate into IR Site 28, remediation goals are unlikely to be met. (Navy)	Continue to participate in a regional strategy to address groundwater contamination and document the strategy in a Feasibility Study report.	The Site-wide Groundwater Feasibility Study is currently on hold pending the results of the treatability tests currently being conducted by several responsible parties.	2012
AIR			
There is a potential vapor intrusion of TCE into buildings overlying the shallow TCE groundwater plume (EPA 2004).	Sampling/evaluation of additional buildings overlying shallow TCE groundwater plume. Develop and implement long-term monitoring program.	The Navy, EPA and Water Board signed an agreement dated February 9, 2011 stating the Navy will implement the vapor intrusion remedy as selected in EPA's 2010 MEW Record of Decision amendment for the vapor intrusion pathway in areas impacted by Navy sources. The Navy is preparing a draft Work Plan for air sampling.	An amendment to the Moffett Field Federal Facility Agreement schedule is in progress. The draft Work Plan is planned for submittal in Spring 2012.

TABLE A.1
PROGRESS TOWARDS COMPLETING WATS FIVE-YEAR REVIEW RECOMMENDATIONS

Issue [a]	Recommendation and Follow-up Action [a]	Action Taken or Planned	Timeframe
Elevated levels of TCE were detected in indoor air above EPA's health protective risk range at selected buildings overlying the regional TCE plume north and south of U.S. Highway 101 (EPA 2004).	Identify potential pathways and implement mitigation measures to reduce levels in the indoor air. Implement long-term monitoring program.	The Navy, EPA and Water Board signed an agreement dated February 9, 2011 stating the Navy will implement the vapor intrusion remedy as selected in EPA's 2010 MEW Record of Decision amendment for the vapor intrusion pathway in areas impacted by Navy sources. The Navy assessed buildings in November 2011 to identify potential pathways and air sampling locations.	An amendment to the Moffett Field Federal Facility Agreement schedule is in progress.
Indoor air sampling has not been performed at many of the buildings within the Vapor Intrusion Study Area (EPA 2009).	Sample and evaluate buildings not sampled within the Vapor Intrusion Study Area.	The Navy, EPA and Water Board signed an agreement dated February 9, 2011 stating the Navy will implement the vapor intrusion remedy as selected in EPA's 2010 MEW Record of Decision amendment for the vapor intrusion pathway in areas impacted by Navy sources. The Navy is preparing a draft Work Plan for air sampling.	An amendment to the Moffett Field Federal Facility Agreement schedule is in progress. The draft Work Plan is planned for submittal in Spring 2012.
Existing remedy does not address the vapor intrusion pathway (EPA 2009).	Amend the Record of Decision to select a remedy to address the vapor intrusion pathway.	EPA completed the August 16, 2010 MEW Record of Decision Amendment for the Vapor Intrusion Pathway. The Navy, EPA and Water Board signed an agreement dated February 9, 2011 stating the Navy will implement the vapor intrusion remedy as selected in EPA's 2010 MEW Record of Decision amendment for the vapor intrusion pathway in areas impacted by Navy sources.	August 16, 2010.
Potential actions need to be taken to ensure long-term protectiveness from vapor intrusion (Navy 2010).	NASA to update its internal directive on environment and incorporate institutional controls related to vapor intrusion. NASA to follow EPA's Vapor	NASA incorporated measures to address VOC vapor intrusion into new construction and existing buildings in its March 1, 2005 Environmental Issues Management Plan.	March 1, 2005

TABLE A.1
PROGRESS TOWARDS COMPLETING WATS FIVE-YEAR REVIEW RECOMMENDATIONS

Issue [a]	Recommendation and Follow-up Action [a]	Action Taken or Planned	Timeframe
	Intrusion Pathway Study and incorporate relevant measures into Ames construction permits normally required of permittees and lessees when redeveloping or remodeling structures and sites at Ames.		

Note:
[a] From *Draft Five-Year Review Report for the Middlefield-Ellis-Whisman (MEW) Superfund Study Area, Mountain View, California* (EPA 2004) or *Final Second Five-Year Review Report for Middlefield-Ellis-Whisman (MEW) Superfund Study Area, Mountain View, California* (EPA 2009) or *Final Five-Year Review Report, Installation Restoration Sites 1, 22, 26 and 28, Former Naval Air Station Moffett Field, Moffett Field, California* (Navy 2010).

Abbreviations and Acronyms:
µg/L – micrograms per liter
cis-1,2-DCE – cis-1,2-dichloroethene
EPA – U.S. Environmental Protection Agency
IR – installation Restoration
MEW – Middlefield-Ellis-Whisman
NASA – National Aeronautics and Space Administration
Navy – U.S. Department of the Navy
TCE – trichloroethene
VC – vinyl chloride
WATS – West-Side Aquifers Treatment System

TABLE A.2
PROGRESS TOWARDS COMPLETING EATS FIVE-YEAR REVIEW RECOMMENDATIONS

Issue [a]	Recommendation and Follow-up Action [a]	Action Taken or Planned	Timeframe
EATS may not be efficient in cleaning up the low concentrations of VOCs in the groundwater (Navy 2005)	Complete implementation of the EATS Evaluation Work Plan to collect field data for evaluation of the effectiveness and efficiency of EATS and applicability of other potential remedial options in achieving the groundwater cleanup standards specified in the Record of Decision. Due to the low concentrations of extracted contaminants and low mass removal rates, opportunity exists to optimize and/or select more effective and economical remedies through implementation of the EATS Evaluation Work Plan.	EATS Evaluation Work Plan was implemented by the Navy beginning in May 2003. Recommendations for continued EATS system operation, modifications, and/or alternative long-term remedial strategies are summarized in the *Final Site 26, East-Side Aquifer Treatment System Evaluation Report* (TtEC, 2008a) and the *Final Site 26 Technical Memorandum (Optimization Evaluation)* (TtEC 2008c).	2008-2012
The *Final Site 26 EATS Evaluation Report* determined that the EATS groundwater extraction and treatment remedy is an inefficient and ineffective method to address groundwater contamination at IR Site 26 (Navy 2010).	Continue implementing the pilot test and determine the next course of action based on the results.	The last sampling event for the pilot tests was completed in October 2011. The Navy prepared a draft FFS (Shaw 2011b) to evaluate other potential remedial alternatives along with the current remedy of groundwater extraction and treatment. Data from the treatability study were incorporated into the FFS.	2009-2012
NASA has not restricted groundwater use in its land use planning documents for the EATS areas as required in the Record of Decision (Navy 2010).	Incorporate institutional controls into NASA's Master Plan. Report completion and documentation of this task to the Agencies. Provide a schedule for future reporting of the status and efficacy of institutional controls.	The Navy is in discussion with NASA regarding the best way to get this recommendation accomplished.	2012

Note:
[a] From Final *East-Side Aquifer Treatment System (Operable Unit 5) Five-Year Review Report for the Period January 1999 to December 2002* (Navy 2005) and *Final Five-Year Review Report, Installation Restoration Sites 1, 22, 26 and 28, Former Naval Air Station Moffett Field, Moffett Field, California* (Navy 2010).

Abbreviations and Acronyms:
EATS – East-Side Aquifer Treatment System
FFS – Focused Feasiblity Study
FWENC – Foster Wheeler Environmental Corporation
NASA – National Aeronautics and Space Administration
Navy – U.S. Department of the Navy
TtEC – Tetra Tech EC, Inc.
VOC – volatile organic compound

APPENDIX B

2011 ANNUAL REMEDY

PERFORMANCE CHECKLIST

2011 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST

I. GENERAL SITE INFORMATION	
Facility Name: West-Side Aquifers Treatment System (WATS)	
Facility Address, City, State: Former Naval Air Station Moffett Field (Moffett) Moffett Field, CA 94035 Environmental Protection Agency (EPA) Region 9	
Checklist completion date: April 15, 2012	EPA Site ID: CA21700900078
Site Lead: ☐ Fund ☐ PRP ☐ State ☐ State Enforcement ☑ Federal Facility ☐ Other, specify:	
Site Remedy Components (include other reference documents for more information, as appropriate): WATS is a groundwater pump and treat system. WATS currently consists of nine extraction wells, an advanced oxidation process (AOP), and a liquid phase granular activated carbon (GAC) adsorber. However, in 2011 two extraction wells were off-line (EA1-1 and EA1-2) to support Treatability Studies at Former Building 88, Well 9-18, and Traffic Island Areas. The AOP unit destroys the majority of the influent volatile organic compounds (VOCs). The liquid phase GAC units polish the effluent of any remaining VOCs. See *Final West-Side Aquifers Treatment System Operation and Maintenance Manual Addendum 4, Appendix A* (Tetra Tech FW, Inc. [TtFW] 2005) for record drawings.	

II. CONTACTS

List important personnel associated with the Site: Name, title, phone number, e-mail address:

	Name/Title	Phone	E-mail
PRP / Facility Representative	Scott Anderson, BEC U.S. Department of the Navy	619-532-0938	scott.anderson@navy.mil
PRP Contractor/ Consultant	Howard Wittenberg, PM ERS Joint Venture	310-519-4000	howard@hai-ers.com
O&M Contractor	Duane Harrison, Site Supervisor SES-TECH	650-564-9868	duane.harrison@tetratech.com
Other			

2011 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST

(Continued)

III. O&M COSTS (OPTIONAL)

What is your annual O&M cost total for the reporting year? $414.000

Breakout your annual O&M cost total into the following categories (use either dollars or %):

- Analytical (e.g., lab costs): 15%
- Labor (e.g., site maintenance, sampling): 20%
- Materials (e.g., treatment chemicals): 25%
- Oversight (e.g., project management): 10%
- Utilities (e.g., electric, gas, phone, water): 10%
- Reporting (e.g., NPDES, progress): 15%
- Other (e.g., capital improvements): 5%

Describe unanticipated/unusually high or low O&M costs (go to section [fill in] to recommend optimization methods): O&M costs were normal.

IV. ON-SITE DOCUMENTS AND RECORDS (Check all that apply)

☑ O&M Manual ☑ O&M Maintenance Logs ☑ O&M As-built drawings ☑ O&M reports
☑ Daily access/Security logs
☑ Site-Specific Health & Safety Plan ☑ Contingency/Emergency Response Plan
☑ O&M/OSHA Training Records ☐ Settlement Monument Records
☐ Gas Generation Records ☑ Groundwater monitoring records ☐ Leachate extraction records
☑ Discharge Compliance Records
☐ Air discharge permit ☑ Effluent discharge permit ☐ Waste disposal, POTW permit

Are these documents currently readily available? ☑ Yes ☐ No If no, where are records kept?

V. INSTITUTIONAL CONTROLS (as applicable)

List institutional controls called for (and from what enforcement document):

The following institutional controls are required for at IR Site 28 (Record of Decision Amendment for the Vapor Intrusion Pathway, EPA, August 2010).

- For properties within the Moffett Field Area, sampling, operations, maintenance, and monitoring requirements should be incorporated into the appropriate NASA Ames planning documents.
- Similar requirements to those in the March 2005 NASA Environmental Issues Management Plan (EIMP) should be adopted for new construction within the Moffett Field Area and for ongoing implementation and monitoring of the remedy.
-

Status of their implementation:

- The Navy is preparing a Work Plan for collecting air samples and assessing vapor intrusion for Moffett Field buildings in the Navy's area of responsibility. Sampling, operations, maintenance, and monitoring requirements are yet to be determined.

- NASA is in the process of adopting similar requirements to those of the EIMP for new construction within the Moffett Field Area.

Where are the ICs documented and/or reported? These ICs are not currently documented.

ICs are being properly implemented and enforced? ☐ Yes ☑ No, elaborate below

The Navy is preparing a Work Plan for collecting air samples and assessing vapor intrusion for Moffett Field buildings in the Navy's area of responsibility. Sampling, operations, maintenance, and monitoring requirements are yet to be determined. NASA is in the process of adopting similar requirements to those of the EIMP for new construction within the Moffett Field Area.

ICs are adequate for site protection? ☐ Yes ☑ No, elaborate below

The Navy is preparing a Work Plan for collecting air samples and assessing vapor intrusion for Moffett Field buildings in the Navy's area of responsibility. Sampling, operations, maintenance, and monitoring requirements are yet to be determined. NASA is in the process of adopting similar requirements to those of the EIMP for new construction within the Moffett Field Area.

Additional remarks regarding ICs:

VI. SIGNIFICANT SITE EVENTS

Check all Significant Site Events since the Last Checklist that Affects or May Affect Remedy Performance

☐ Community Issues
☐ Vandalism
☐ Maintenance Issues
☐ Other:

Please elaborate on Significant Site Events: Extraction wells EA1-1 and EA1-2 were shut down in August 2010 for the duration of Treatability Studies being conducted by the Navy. The Agencies previously agreed to keep the wells shut off until January 3, 2012. In December 2011, the Navy requested an extension to keep the wells off line until Mid-April 2012. This was to allow for additional groundwater sampling conducted in February 2012 in support of the Treatability Studies. The results were evaluated in March 2012 and based on this evaluation, the Navy requested the extraction wells be placed back on-line in April 2012.

VII. REDEVELOPMENT

Is redevelopment on property planned? ☑Yes ☐ No

If yes, what is planned? Please describe below.

National Aeronautics and Space Administration (NASA). 1994. *Moffett Field Comprehensive Use Plan*. Moffett Field, California. September.

Is redevelopment plan complete ☐ Yes, date:________________________; ☑ No ? ☐ Not Applicable

Redevelopment proposal in progress? ☐ Yes, elaborate below
☑No; If no, is a proposal anticipated? ☐ Yes ☑ No

☐ Is the redevelopment proposal compatible with remedy performance? ☐ Yes ☐ No

Elaborate on redevelopment proposal and how it affects remedy performance:

2011 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST

(Continued)

VIII. GROUNDWATER REMEDY (reference isoconcentration, capture zone maps, trend analysis, and other documentation to support analysis)

Groundwater Quality Data

List the types of data that are available: What is the source report?

2011 Data Table, Historical Data Table Plume Maps, Estimated and Simulated Capture Zone Maps, Long-Term VOC Time Series Plots — *2011 Annual Groundwater Report for IR Sites 26 and 28* (ERS-JV 2012)

☑ Contaminant trend(s) tracked during O&M (i.e., temporal analysis of groundwater contaminant trends).
☑ Groundwater data tracked with software for temporal analyses.
☐ Reviewed monitored natural attenuation (MNA) parameters to ensure health of substrate (e.g., dissolved oxygen [DO], pH, temperature), if appropriate?

Groundwater Pump & Treat Extraction Well and Treatment System Data

List the types of data that are available: What is the source report?

Volume & Mass Process Data; Downtime Summary; and Influent and Effluent Data Tables Compliance Evaluation Summary — Quarterly and Annual National Pollutant Discharge Elimination System (NPDES) Self-Monitoring Report for WATS

☑ The system is functioning adequately.
☐ The system has been shut down for significant periods of time in the past year. Please elaborate below.

Discharge Data

List the types of data that are available: What is the source report?

Effluent Data Tables Compliance Evaluation Summary — Quarterly and Annual NPDES Self-Monitoring Report for WATS

☑ The system is in compliance with discharge permits.

Slurry Wall Data

List the types of data that are available: What is the source report?

Not applicable to WATS.

Is slurry wall operating as designed? ☐ Yes ☐ No

If not, what is being done to correct the situation?

Elaborate on technical data and/or other comments:

IX. AIR MONITORING/VAPOR INTRUSION PATHWAY EVALUATION (Include in Annual Progress Report and reference document)

Walk-throughs/Surveys:

No WATS area air monitoring surveys were conducted or planned.

Summary of Results:

Problems Encountered:

Recommendations/Next Steps:

Schedule:

X. REMEDY PERFORMANCE ASSESSMENT

A. Groundwater Remedies

What are the remedial goals for groundwater? ☑ Plume containment (prevent plume migration); ☑ Plume restoration (attain Record of Decision [ROD]-specific cleanup levels in aquifer); ☐ Other goals, please explain:____

Have you done a trend analysis? ☑ Yes ☐ No; If Yes, what does it show? Underflow of VOCs onto IR Site 28 A aquifer from regional plume commingling with site source areas. Degradation of tetrachloroethene (PCE) and trichloroethene (TCE) with localized increases in daughter product concentrations.

Is it inconclusive due to inadequate data? Are the concentrations increasing or decreasing? Explain and provide source document reference . The data are adequate and conclusive. VOCs within the comingled plume (site and off site sources) are degrading (decreasing). In 2011, VOCs were captured by seven Navy extraction wells, and treated by WATS; however, dissolved VOCs at concentrations greater than remedial objective goals in the regional plume continue to commingle with the Navy site sources at Installation Restoration (IR) Site 28 (ERS-JV 2012).

If plume containment is a remedial goal, check all that apply:
☑ Plume migration is under control (explain basis below)
☐ Plume migration is not under control (explain basis below)
☐ Insufficient data to determine plume stability (explain below)
(Include attachments that substantiate your answers, e.g., reference plume, trend analysis, and capture zone maps in source document)

Elaborate on basis for determining that plume containment goal is being met or not being met:

Capture zone estimation based on potentiometric surface map interpretation, and capture zone simulations using reverse particle tracking modeling historically show complete capture of the Navy's portion of the regional plume in the target capture zone. Capture zone analysis for 2011 indicated incomplete capture of the eastern plume periphery. Increased groundwater extraction rates are recommended to extend the capture zone eastward. Historical concentration graphs show long-term trends for samples from upper and lower A aquifer monitoring wells located downgradient of the target capture zone with decreasing or stable TCE concentrations.

If plume restoration is a cleanup objective, check all that apply:

☑Progress is being made toward reaching cleanup levels (explain basis below)
☐ Progress is not being made toward reaching cleanup levels (explain basis below)
☐ Insufficient data to determine progress toward restoration goal (explain below)

2011 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST
(Continued)

Elaborate on basis for determining progress or lack of progress toward restoration goal:

TCE, cis-1,2-dichloroethene (cis-1,2-DCE), PCE, and vinyl chloride (VC) plume maps in 2011 show contaminant plumes consistent in size and shape with plumes from previous years indicating contaminant plume stability. Historical VOC concentration graphs show decreasing or stable long-term trends from analysis of groundwater samples collected from monitoring wells considered representative of chemical conditions in the WATS area.

Although WATS is functioning as intended, dissolved VOCs in the regional plume continue to migrate into, and commingle with site sources in the WATS area, with groundwater underflow from upgradient of the WATS area. The upgradient source is contributing contaminants to the WATS area at concentrations greater than cleanup standards. As long as there is contaminant flow into and from IR Site 28 above cleanup standards, the remedial objective to restore WATS area groundwater quality to cleanup standards cannot be reached.

B. Vertical Migration

Have you done an assessment of vertical gradients? ☐ Yes ☑ No; If Yes, what does it show? (Is it inconclusive due to inadequate data?

Are the concentrations increasing or decreasing? Explain and provide source document reference.

C. Source Control Remedies

What are the remedial goals for source control?
Remedial goals for vadose zone sources are met. A treatability study to characterize the potential source areas in the saturated zone near former Building 88 and the Traffic Island Area near former Building 126 was implemented in 2011. Additionally, the Navy is planning supplemental investigation in the Former Building 88 and Traffic Island Area in 2012.

Elaborate on basis for determining progress or lack of progress toward these goals:

XI. PROJECTIONS

Administrative Issues
Dates of next monitoring and sampling events for next annual reporting period: Monthly NPDES sampling and Quarterly NPDES reporting in 2012; March and September 2012 base wide water gauging; September 2012 Annual Groundwater sampling; 2012 Annual Report for IR Sites 26 and 28 due April 2013.

A. Groundwater Remedies - Projections for the upcoming year and long-term (Check all that apply)

Remedy Projections for **the upcoming year (2012)**
☐ No significant changes projected.
☐ Groundwater remedy will be converted to monitored natural attenuation. Target date:
☐ Groundwater Pump & Treat will be shut down. Target date:
☐ Groundwater cleanup standards to be modified. Target date:
☐ PRP will request remedy modification. Target date of request:
☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date:
☐ Change in the number and/or types of analytes being analyzed. ☐ Increasing or ☐ decreasing? Target date:
☐ Change in groundwater extraction system. Expansion or minimization (i.e., number of extraction wells and/or pumping rate)? Target date:
☐ Modification on groundwater treatment? Elaborate below. Target date:

2011 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST

(Continued)

☐ Change in discharge location. Target date:
☑ Other modification(s) anticipated Supplemental Investigation Elaborate below. Target date: 2012

Elaborate on Remedy Projections: A request to place extraction wells EA1-1 and EA1-2 back on-line was made in April 2012. It is anticipated that these wells will be back on line in April 2012.

Remedy Projections for **the long-term** (Check all that apply)
☑ No significant changes projected.
☐ Groundwater remedy will be converted to monitored natural attenuation. Target date:
☐ Groundwater Pump & Treat will be shut down. Target date:
☐ Groundwater cleanup standards to be modified. Target date:
☐ PRP will request remedy modification. Target date of request:
☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date:
☐ Change in the number and/or types of analytes being analyzed. ☐ Increasing or ☐ decreasing? Target date:
☐ Change in groundwater extraction system. Expansion or minimization (i.e., number of extraction wells and/or pumping rate)? Target date:
☑ Modification on groundwater treatment? Elaborate below. Target date: 2011
☐ Change in discharge location. Target date:
☐ Other modification(s) anticipated:_____________________ Elaborate below. Target date:

Elaborate on Remedy Projections: It is anticipated that there will be some changes to groundwater treatment based on the implemented Treatability Studies and subsequent supplemental investigation currently in progress. .

B. Projections – Slurry Walls (Check all that apply) – Not Applicable

Remedy Projections for **the upcoming year (2012)**
☐ No significant changes projected.
☐ PRP will request remedy modification. Target date of request:
☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date:
☐ Other modification(s) anticipated:______________________ Elaborate below. Target date:

Elaborate on Remedy Projections:

Remedy Projections for **the long-term**
☐ No significant changes projected.
☐ PRP will request remedy modification. Target date of request:
☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date:
☐ Other modification(s) anticipated:______________________ Elaborate below. Target date:

Elaborate on Remedy Projections:

2011 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST

(Continued)

C. Projections – Other Remedial Options Being Reviewed to Enhance Cleanup

Progress implementing recommendations from last report or Five-Year Review
Has optimization study been implemented or scheduled? ☑ Yes; ☐ No; If Yes, please elaborate.

The *WATS Optimization Work Plan* (Foster Wheeler Environmental Corporation [FWENC] 2003) has been implemented. The system will continue to be monitored for opportunities to optimize.

The optimization of WATS was documented in the *WATS Optimization Completion Report* (May 2005).

The *Final Work Plan, In Situ Anaerobic Biotic/abiotic Treatability Study, IR Site 28* (Shaw 2010) has been implemented. The last groundwater sampling event in support of the Treatability Studies was performed in February 2012. Further investigation (Supplemental) in the treatability study areas is proposed in 2012. The EPA is currently preparing a Site-wide Groundwater Feasibility Study for the regional groundwater plume that is likely to result in the selection of a new remedy and ROD amendment for groundwater.

XII. ADMINISTRATIVE ISSUES (Check all that apply)

☐ Explanation of Significant Differences in progress ☑ ROD Amendment in progress
☐ Site in operational and functional ("shake down") period;
☐ Notice of Intent to Delete in progress ☐ Partial site deletion in progress ☐ TI Waivers
☐ Other administrative issues:

Date of Next EPA Five-Year Review: September 30, 2014

EPA is preparing an amendment to the Middlefield-Ellis-Whisman (MEW) Companies ROD.

XIII. RECOMMENDATIONS

Continue to operate, maintain, and monitor WATS and WATS area monitoring wells as scheduled.

Evaluate long-term alternatives to pump and treat technology for WATS area contamination.

2011 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST

I. GENERAL SITE INFORMATION

Facility Name: East-Side Aquifer Treatment System (EATS)

Facility Address, City, State: Former Naval Air Station Moffett Field (Moffett)
Moffett Field, CA 94035
Environmental Protection Agency (EPA) Region 9

Checklist completion date: April 15, 2012	EPA Site ID: CA21700900078

Site Lead: ☐ Fund ☐ PRP ☐ State ☐ State Enforcement ☑ Federal Facility ☐ Other, specify:

Site Remedy Components (include other reference documents for more information, as appropriate):

EATS is a groundwater pump and treat system. EATS consists of five extraction wells, an air stripper, and a liquid phase granular activated carbon (GAC) adsorber in series. See *Final East-Side Aquifer Treatment System Operation and Maintenance Manual, Appendix A* (Tetra Tech EM, Inc.[TtEMI] 2000) for record drawings. EATS has remained off-line since the 2004 reporting period as part of the *Final East-Side Aquifer Treatment System Evaluation Work Plan* (Foster Wheeler Environmental Corporation [FWENC] 2003) implementation.

II. CONTACTS

List important personnel associated with the Site: Name, title, phone number, e-mail address:

	Name/Title	Phone	E-mail
PRP / Facility Representative	Scott Anderson, BEC U.S. Department of the Navy	619-532-0938	scott.anderson@navy.mil
PRP Contractor/ Consultant	Howard Wittenberg, PM ERS Joint Venture	310-519-4000	howard@hai-ers.com
O&M Contractor	Duane Harrison, Site Supervisor SES-TECH	650-564-9868	duane.harrison@tetratech.com
Other			

2011 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST

(Continued)

III. O&M COSTS (OPTIONAL)

What is your annual O&M cost total for the reporting year? $37, 397

Breakout your annual O&M cost total into the following categories (use either dollars or %):

- Analytical (e.g., lab and validation costs): 0%
- Labor (e.g., site maintenance, sampling): 75%
- Materials (e.g., treatment chemicals): 5%
- Oversight (e.g., project management): 5%
- Utilities (e.g., electric, gas, phone, water): 5%
- Reporting (e.g., NPDES, progress): 5%
- Other (e.g., capital improvements): 5%

Describe unanticipated/unusually high or low O&M costs (go to section [fill in] to recommend optimization methods):

2011 operation and maintenance (O&M) costs were appropriate for work performed at EATS, which has remained off-line since the 2004 reporting period as part of the *Final East-Side Aquifer Treatment System Evaluation Work Plan* (Foster Wheeler Environmental Corporation [FWENC] 2003) implementation. The majority of O&M costs at EATS are labor hours associated with periodic upkeep, cleaning and maintenance of EATS and the pumping of the sump and secondary containment during rain events.

IV. ON-SITE DOCUMENTS AND RECORDS (Check all that apply)

☑ O&M Manual ☑O&M Maintenance Logs ☑O&M As-built drawings ☑O&M reports

☑Daily access/Security logs

☑Site-Specific Health & Safety Plan ☑Contingency/Emergency Response Plan

☑O&M/OSHA Training Records ☐ Settlement Monument Records

☐ Gas Generation Records ☑Groundwater monitoring records ☐ Leachate extraction records

☑Discharge Compliance Records

☐ Air discharge permit ☐ Effluent discharge permit ☐ Waste disposal, POTW permit

Are these documents currently readily available? ☑Yes ☐ No If no, where are records kept?

V. INSTITUTIONAL CONTROLS (as applicable)

List institutional controls called for (and from what enforcement document):

The Record of Decision (ROD) included a requirement that access restrictions on the domestic use of the OU5 groundwater be placed in agency land use planning documents (identified in the ROD as "the Master Plan"). Additionally, the selected remedy states the necessity of continued operation and maintenance of the Building 191 pump station will be noted in the National Aeronautic and Space Administration (NASA) Master Plan for the government land uses. The 1999 Navy-NASA Memorandum of Agreement (MOA) states NASA will maintain Building 191 and record the maintenance requirement in their Environmental Resources Document (ERD).

Status of their implementation:

Since the Navy no longer owns the property, the Navy cannot implement such a restriction itself. Terms and conditions of the MOAs have been incorporated into the revised Ames Procedural Requirements (APR) 8500.1, Environmental Work Instruction on Restoration. The APR 8500.1 will be referenced in the APR on the Construction Permit Review Process when that APR is updated. In the meantime, the Master Plan currently requires compliance with all NASA environmental requirements.

NASA has fulfilled the requirement of the 1999 Navy-NASA MOA to include maintenance of the Building 191 pump station in NASA's Environmental Resource Document. The NASA ERD (NASA Ames Research Center, October 2009) Section 20.6 titled "NASA Navy MOU 1999" of Chapter 20 titled "Institutional Controls" states: NASA will maintain the Building 191 pump station and drain/sub drain system under the airfield runways." Maintenance of the drain/sub drain system includes annual cleaning of the piping catch basins.

2011 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST
(Continued)

Residential land use is not authorized for sites covered under the MOAs under the NASA Ames Development Plan Environmental Impact Statement Record of Decision (2002). See: http://environment.arc.nasa.gov, under "E", or http://researchpark.arc.nasa.gov, under "Public Documents". Development at Site 26 is restricted due the continued presence of the golf course, DESC tanks, and clear zones around Hangars 2 and 3 and proximity to the Airfield. Tenants, contractors, subcontractors, and institutional directorates are required to follow all NASA requirements, including APR 8500.1.

Where are the ICs documented and/or reported?

They are currently not documented; however, the Navy and NASA are currently working together and NASA is revising its land use plans to incorporate ICs. GIS layers indicating restricted areas under the MOAs are being prepared and will describe the Master Plan process.

The IC for maintenance of the Building 191 pump station is documented in the NASA ERD (NASA Ames Research Center, October 2009).

ICs are being properly implemented and enforced? ☐ Yes ☑ No, elaborate below

As noted above, ICs are currently not documented and enforced. In the meantime, the Master Plan currently requires compliance with all NASA environmental requirements which are protective of human health and the environment. See additional remarks regarding ICs (below). However, the IC for maintenance of the Building 191 pump station is documented in the NASA ERD.

ICs are adequate for site protection? ☐ Yes ☑ No, elaborate below

Additional remarks regarding ICs: ICs are not currently enforced; however, groundwater at OU5 is not currently being used. Access restrictions on the domestic use of groundwater will be adequate for site protection.

VI. SIGNIFICANT SITE EVENTS
Check all Significant Site Events since the Last Checklist that Affects or May Affect Remedy Performance

☐ Community Issues
☐ Vandalism
☐ Maintenance Issues
☑ Other:

Please elaborate on Significant Site Events: EATS remained off-line during the 2011 reporting period to evaluate the treatability study that was implemented in 2009. EATS was turned off in 2004 to implement the *Final East-Side Aquifer Treatment System Evaluation Work Plan* (FWENC 2003). The Work Plan was implemented to evaluate plume stability, contaminant rebound, natural attenuation, and the efficiency of Hydrogen Release Compound® in remediating plume hot spots. Recommendations for continued EATS system operation, modifications, and/or alternative long-term remedial strategies are summarized in the *Site 26, East-Side Aquifer Treatment System Evaluation Report* (TtEC 2008a) and the *Final Site 26 Technical Memorandum (Optimization Evaluation)* (TtEC 2008c). Additionally, an abiotic/biotic treatability study using EHC® commenced in May 2009 and was completed in October 2011. The draft Focused Feasibility Study (FFS) was issued to the agencies for comment in November 2011 (Shaw 2011b). The results of the final round of groundwater samples will be included in the draft final FFS report and a Final document is scheduled for submittal in May 2012. EATS has remained off-line for the entire 2011 reporting period.

VII. REDEVELOPMENT

Is redevelopment on property planned? ☐ Yes ☑ No

If yes, what is planned? Please describe below.

Is redevelopment plan complete ☐ Yes, date:________________________; ☐ No ? ☑ Not Applicable

Redevelopment proposal in progress? ☐ Yes, elaborate below
☑No; If no, is a proposal anticipated? ☐ Yes ☐ No

2011 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST
(Continued)

☐ Is the redevelopment proposal compatible with remedy performance? ☐ Yes ☐ No

Elaborate on redevelopment proposal and how it affects remedy performance:

VIII. GROUNDWATER REMEDY (reference isoconcentration, capture zone maps, trend analysis, and other documentation to support analysis)

Groundwater Quality Data

List the types of data that are available: What is the source report?

2011 Data Table, Historical Data Table Plume Maps, Long-Term VOC Time Series Plots — *2011 Annual Groundwater Report for WATS and EATS* (ERS-JV 2012)

☑ Contaminant trend(s) tracked during O&M (i.e., temporal analysis of groundwater contaminant trends).
☑ Groundwater data tracked with software for temporal analyses.
☐ Reviewed MNA parameters to ensure health of substrate (e.g., DO, pH, temperature), if appropriate?

Groundwater Pump & Treat Extraction Well and Treatment System Data

List the types of data that are available: What is the source report?

EATS remained off-line during the 2011 reporting period.

☐ The system is functioning adequately.
☑ The system has been shut down for significant periods of time in the past year. Please elaborate below.

Discharge Data

List the types of data that are available: What is the source report?

EATS remained off-line during the 2011reporting period.

☐ The system is in compliance with discharge permits.

Slurry Wall Data

List the types of data that are available: What is the source report?

Not applicable to EATS.

Is slurry wall operating as designed? ☐ Yes ☐ No

If not, what is being done to correct the situation?

Elaborate on technical data and/or other comments:

EATS was shut down and placed on standby status in July 2003 to evaluate plume stability, chemical of concern (COC) rebound, natural attenuation, and the efficiency of Hydrogen Release Compound® in remediating plume hot spots. EATS remained off-line for the entire 2004 through 2011 reporting periods. Recommendations for continued EATS system operation, modifications, and/or alternative long-term remedial strategies are summarized in the *Site 26, East-Side Aquifer Treatment System Evaluation Report* (TtEC 2008a) and the *Final Site 26 Technical*

Memorandum (Optimization Evaluation) (TtEC 2008c). The Navy has implemented an Abiotic/Biotic Treatability Study at IR Site 26 to address these alternative long-term remedial strategies (Shaw 2009). This treatability study using EHC® commenced in May 2009 and was completed in October 2011. The draft FFS was issued to the agencies for comment in November 2011 (Shaw 2011b). The results of the final round of groundwater samples will be included in the draft final FFS report. The Final FFS is scheduled for submittal in May 2012. EATS remained off-line for the entire 2011 reporting period.

IX. AIR MONITORING/VAPOR INTRUSION PATHWAY EVALUATION (Include in Annual Progress Report and reference document)

Walk-throughs/Surveys:

No EATS area air monitoring surveys were conducted or planned.

Summary of Results:

Problems Encountered:

Recommendations/Next Steps:

Schedule:

X. REMEDY PERFORMANCE ASSESSMENT

A. Groundwater Remedies

What are the remedial goals for groundwater? ☑ Plume containment (prevent plume migration); ☑ Plume restoration (attain ROD-specific cleanup levels in aquifer); ☐ Other goals, please explain:________________________
____

Have you done a trend analysis? ☑ Yes ☐ No; If Yes, what does it show?

Trichloroethene (TCE) concentrations for groundwater samples collected from monitoring wells in 2011 in the upper portion of the A aquifer exhibited generally decreasing trends and the TCE plume has generally decreased in areal extent. Similarly, cis-1,2-dichloroethene (cis-1,2-DCE) concentrations in the upper portion of the A aquifer exhibited generally decreasing trends and the cis-1,2-DCE plume has generally decreased in areal extent. However, vinyl chloride (VC) concentrations in the upper portion of the A aquifer have increased in some wells in the past few years. These results could be attributed to natural attenuation of cis-1,2-DCE. The decrease in TCE, along with an increase in VC, appear to be a result of continued dechlorination effects associated with the pilot studies in the EATS area.

If plume containment is a remedial goal, check all that apply:
☑ Plume migration is under control (explain basis below)
☐ Plume migration is not under control (explain basis below)
☐ Insufficient data to determine plume stability (explain below)
(Include attachments that substantiate your answers, e.g., reference plume, trend analysis, and capture zone maps in source document)

2011 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST
(Continued)

Elaborate on basis for determining that plume containment goal is being met or not being met:

The general COC plume locations and shapes were stable or decreasing in size during 2011 compared to previous years, which is significant since EATS was turned off in July 2003 and remained off through 2011. The tetrachloroethene (PCE) and TCE plumes are decreasing and/or have remained stable since 2001.

If plume restoration is a cleanup objective, check all that apply:

☑ Progress is being made toward reaching cleanup levels (explain basis below)
☐ Progress is not being made toward reaching cleanup levels (explain basis below)
☐ Insufficient data to determine progress toward restoration goal (explain below)

Elaborate on basis for determining progress or lack of progress toward restoration goal:

TCE, cis-1,2-DCE, PCE, and VC 2011 plume maps show contaminant plumes are stable or decreasing in size and shape with plumes from previous years, indicating contaminant plume stability and progress towards reaching cleanup levels.

B. Vertical Migration

Have you done an assessment of vertical gradients? ☐ Yes ☑ No; If Yes, what does it show? (Is it inconclusive due to inadequate data?

Are the concentrations increasing or decreasing? Explain and provide source document reference.

C. Source Control Remedies

What are the remedial goals for source control?
All potential sources have been identified, and remedial action/closure has taken place. There are no other known sources at this time.

Elaborate on basis for determining progress or lack of progress toward these goals:

XI. PROJECTIONS

Administrative Issues

Dates of next monitoring and sampling events for next annual reporting period: March and September 2012 base wide water gauging; September 2012 Annual Groundwater sampling; 2012 Annual Report for IR Sites 26 and 28 due April 2013.

A. Groundwater Remedies - Projections for the upcoming year and long-term (Check all that apply)

Remedy Projections for **the upcoming year (2012)**
☐ No significant changes projected.
☐ Groundwater remedy will be converted to monitored natural attenuation. Target date:
☐ Groundwater Pump & Treat will be shut down. Target date:

☐ Groundwater cleanup standards to be modified. Target date:
☐ PRP will request remedy modification. Target date of request:
☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date:
☐ Change in the number and/or types of analytes being analyzed. ☐ Increasing or ☐ decreasing?
Target date:
☐ Change in groundwater extraction system. Expansion or minimization (i.e., number of extraction wells and/or pumping rate)? Target date:
☐ Modification on groundwater treatment? Elaborate below. Target date:
☐ Change in discharge location. Target date:
☑ Other modification(s) anticipated: outlined in FFS Elaborate below. Target date: 2012

Elaborate on Remedy Projections:

The Navy has implemented an Abiotic/Biotic Treatability Study at IR Site 26 to address these alternative long-term remedial strategies (Shaw 2009). This treatability study using EHC® commenced in May 2009 and was completed in October 2011. The draft FFS was issued to the agencies for comment in November 2011 (Shaw 2011b). The results of the final round of groundwater samples will be included in the draft final FFS report. The Final FFS is scheduled for submittal in May 2012. Based on initial results of the treatability study, the technology being evaluated appears to be reducing concentrations. It is likely that continued monitoring of the area will be recommended for the upcoming year.

Remedy Projections for **the long-term** (Check all that apply)
☐ No significant changes projected.
☐ Groundwater remedy will be converted to monitored natural attenuation. Target date:
☐ Groundwater Pump & Treat will be shut down. Target date:
☐ Groundwater cleanup standards to be modified. Target date:
☐ PRP will request remedy modification. Target date of request:
☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date:
☐ Change in the number and/or types of analytes being analyzed. ☐ Increasing or ☐ decreasing?
Target date:
☐ Change in groundwater extraction system. Expansion or minimization (i.e., number of extraction wells and/or pumping rate)? Target date:
☐ Modification on groundwater treatment? Elaborate below. Target date:
☐ Change in discharge location. Target date:
☑ Other modification(s) anticipated: outlined in FFS Elaborate below. Target date: 2012

Elaborate on Remedy Projections:

EATS remained off-line for the 2004 through 2011 reporting period to evaluate plume stability, COC rebound, natural attenuation, and the efficiency of Hydrogen Release Compound® in remediating plume hot spots. Data are currently being evaluated. EATS system operation, modifications, and/or alternative long-term remedial strategies are included in the *Site 26, East-Side Aquifer Treatment System Evaluation Report* (TtEC 2008a) and the *Final Site 26 Technical Memorandum (Optimization Evaluation)* (TtEC 2008c). The Navy has implemented an Abiotic/Biotic Treatability Study at IR Site 26 to address these alternative long-term remedial strategies (Shaw 2009). This treatability study using EHC® commenced in May 2009 and was completed in October 2011. The draft FFS) was issued to the agencies for comment in November 2011 (Shaw 2011b). The Final FFS is scheduled for submittal in May 2012.

B. Projections – Slurry Walls (Check all that apply) – Not Applicable

Remedy Projections for **the upcoming year (2012)**
☐ No significant changes projected.
☐ PRP will request remedy modification. Target date of request:

☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date:
☐ Other modification(s) anticipated:______________________ Elaborate below. Target date:

Elaborate on Remedy Projections:

Remedy Projections for **the long-term**
☐ No significant changes projected.
☐ PRP will request remedy modification. Target date of request:
☐ Change in the number of monitoring wells. ☐ Increasing or ☐ decreasing? Target date:
☐ Other modification(s) anticipated:______________________ Elaborate below. Target date:

Elaborate on Remedy Projections:

C. Projections – Other Remedial Options Being Reviewed to Enhance Cleanup

Progress implementing recommendations from last report or Five-Year Review
Has optimization study been implemented or scheduled? ☑ Yes; ☐ No; If Yes, please elaborate.

The *Final East-Side Aquifer Treatment System Evaluation Work Plan* (FWENC 2003) was implemented in 2004. Recommendations for continued EATS system operation, modifications, and/or alternative long-term remedial strategies are summarized in the *Site 26, East-Side Aquifer Treatment System Evaluation Report* (TtEC 2008a) and the *Final Site 26 Technical Memorandum (Optimization Evaluation)* (TtEC 2008c). The Navy has implemented an Abiotic/Biotic Treatability Study at IR Site 26 to address these alternative long-term remedial strategies (Shaw 2009). This treatability study using EHC® commenced in May 2009 and was completed in October 2011. The draft FFS was issued to the agencies for comment in November 2011 (Shaw 2011b). The Final FFS is scheduled for submittal in May 2012.

XII. ADMINISTRATIVE ISSUES (Check all that apply)

☐ Explanation of Significant Differences in progress ☐ ROD Amendment in progress
☐ Site in operational and functional ("shake down") period;
☐ Notice of Intent to Delete in progress ☐ Partial site deletion in progress ☐ TI Waivers
☐ Other administrative issues:

Date of Next EPA Five-Year Review: September 30, 2014

XIII. RECOMMENDATIONS

Continue to monitor EATS area wells as scheduled.

Finalize FFS. Projected completion date May 2012.