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APR 17 2013

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Dear Ms. Reddy and Ms. Wells:

SUBJECT: 2012 ANNUAL GROUNDWATER REPORT FOR IR SITES 26 AND 28, FORMER NAVAL AIR STATION MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA

The Department of the Navy is pleased to transmit the 2012 Annual Groundwater Report for Installation Restoration Sites 26 and 28, Former Naval Air Station Moffett Field, Moffett Field, California. This document evaluates the progress of remedial actions performed during the 2012 calendar year. Should you have any questions or need additional information, please contact Mr. Bryce Bartelma, Project Manager, at (619) 532-0975 or me at (619) 532-0938.

Sincerely,

SCOTT D. ANDERSON
BRAC Environmental Coordinator
By direction of the Director

Enclosure: 1. *2012 Annual Groundwater Report for Installation Restoration Sites 26 and 28, Former Naval Air Station Moffett Field, Moffett Field, California, April 2013*

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2012 ANNUAL GROUNDWATER REPORT FOR INSTALLATION RESTORATION SITES 26 AND 28 FORMER NAVAL AIR STATION MOFFETT FIELD MOFFETT FIELD, CALIFORNIA

CONTRACT NO. N62473-07-D-3220
CTO NO. 0012

DCN: SEST-3220-0012-0055

April 2013

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2012 ANNUAL GROUNDWATER REPORT FOR INSTALLATION RESTORATION SITES 26 AND 28

FORMER NAVAL AIR STATION MOFFETT FIELD MOFFETT FIELD, CALIFORNIA

April 2013

DCN: SEST-3220-0012-0055

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EXECUTIVE SUMMARY

The objective of this 2012 Annual Groundwater Report is to document and evaluate the progress of remedial actions performed during the 2012 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.

<u>IR Site 28 and West-Side Aquifers Treatment System</u>

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 2012 reporting period, WATS operated 98.8 percent of the time. The volume of water treated and discharged by WATS during 2012 was approximately 22,911,768 gallons. Of that total, approximately 20,756,813 gallons was generated from groundwater extraction and approximately 2,154,955 gallons was generated from storm drain action (SDA). The calculated mass of VOCs removed during 2012 was approximately 200 pounds. Total operation and maintenance (O&M) costs for 2012 were approximately $355,500. The average cost per pound of contaminant removed in 2012 was $1,775. During 2012, 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 2012 (Sealaska Environmental, Inc. and Tetra Tech EC, Inc. [SES-TECH] 2013).

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 2012. 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.

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 2012 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 2012 were similar to those observed during 2011. Most groundwater elevations continue to exhibit seasonal fluctuations. Semiannual groundwater gauging events were completed in March and September 2012. 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 (September), respectively.

Groundwater in the upper and lower portions of the A aquifer flowed in a northerly direction across Moffett at a gradient of approximately 0.006 foot per foot (ft/ft) between U.S. Highway 101 and Hangar 1 in both March and September 2012, respectively. 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 0.003 ft/ft in March and September 2012, respectively.

IR Site 28 Groundwater Analytical Trends

Analytical data collected from wells in September 2012 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 2011.

TCE and cis-1,2-DCE made up approximately 97.6 percent of the mass removed by WATS in 2012. 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 for 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.

Of the five wells completed in the B2 aquifer and sampled for VOCs during 2012, only well W88-1 contained COCs in exceedance of their respective ROD cleanup standards (TCE: 36J μg/L; cis-1,2-DCE: 3,300 μg/L; PCE: 36J μg/L; and VC: 3,700 μg/L). Additionally, well W88-1 was the only B2 aquifer well sampled in 2012 that had a COC concentration that was higher than those reported within the B2 aquifer in 2011 (VC increased from 450 μg/L in 2011 to 3,700 μg/L in 2012). The increase of VC in well W88-1 can be attributed to effects from the treatability study in the Traffic Island Area. TCE, cis-1,2-DCE, and PCE concentrations in well W88-1 were lower than those reported in 2011 for this well. The other four B2 aquifer wells sampled for VOCs (W9-40, W9-15, W9-12, and 45B2) demonstrated concentrations of TCE, cis-1,2-DCE, PCE, and VC below laboratory detection limits, which is consistent with historical results.

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 2012 reporting period.

IR Site 26 Groundwater Potentiometric Trends

The groundwater elevation trends across IR Site 26 for 2012 were similar to those observed during 2011. The groundwater elevations in most monitoring wells exhibited seasonal fluctuations. Semiannual groundwater gauging events were completed in March and September 2012. 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 ranged from approximately 0.001 ft/ft in March 2012 to 0.002 ft/ft in September 2012. South of the intersection, the gradient was approximately 0.003 ft/ft in both March and September 2012.

IR Site 26 Groundwater Analytical Trends

Groundwater samples collected from monitoring wells in 2012 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 several wells screened within the upper portion of the A aquifer have exhibited a general overall increase over the last several 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.

<u>Planned Activities</u>

With respect to IR Site 28, O&M of WATS will continue in 2013. At IR Site 28, the semiannual groundwater gauging events will be completed in March and September 2013. Well gauging events are coordinated with the MEW companies and NASA as part of continued regional plume monitoring efforts. The 2013 annual groundwater sampling event will take place in September 2013. The Navy is currently conducting a supplemental investigation in the Former Building 88 Area and Traffic Island Area.

At IR Site 26, the semiannual groundwater gauging events will be completed in March and September 2013. The annual groundwater sampling event will take place in September 2013. In July 2012, the Navy finalized a Focused Feasibility Study for Site 26 that incorporates the results of the combined abiotic/biotic treatment using EHC®, which was completed in October 2011 (Shaw 2012).

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TABLES

FIGURES

FIGURES (continued)

FIGURES (continued)

FIGURES (continued)

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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
EDM	Eastern Diked Marsh
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	Sealaska Environmental Services, Inc
SES-TECH	Sealaska Environmental Services, Inc. and Tetra Tech EC, Inc.
Shaw	Shaw Environmental & Infrastructure, Inc.
SWRP	Storm Water Retention Ponds
TCE	trichloroethene
TDS	total dissolved solids
Tetra Tech EC	Tetra Tech EC, Inc
™	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 2012 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 SES-TECH Remediation Services (SES-TECH), a joint venture between Sealaska Environmental Services, LLC (SES), and Tetra Tech EC, Inc. (Tetra Tech EC) 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.) 0012, issued under Contract No. N62473-07-D-3220.

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 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 Hangar 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. During the 2012 reporting period, extraction wells EA1-1 and EA1-2 were off-line from January 1, 2012 through April 2, 2012 in support of treatability studies performed at Former Building 88 Area, Well W9-18 Area, and the Traffic Island Area. Upon receiving concurrence that the study was complete, wells EA1-1 and EA1-2 were restarted and began extracting groundwater on April 3, 2012. 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 NASA's Eastern Diked Marsh (EDM) and Storm Water Retention Ponds (SWRP). However, in 2012 a sediment removal project was conducted within the EDM and SWRP. Following approval from the Water Board and in concurrence with NASA personnel, the WATS effluent was diverted between May 21, 2012 and November 14, 2012. Over this time, the WATS effluent was temporarily discharged to the east-side of Moffett through a series of ditches and eventually to a pump station (Building 191), which pumps water to the northern channel. Water in the northern channel flows east approximately 1 mile beyond the eastern Moffett boundary and gravity feeds through a pipe to the terminus of the Lockheed Channel, where it is pumped into the Moffett Channel, flows to Guadalupe Slough, and eventually reaches San Francisco Bay. On November 14, 2012 the WATS effluent resumed discharging to the NASA EDM and SWRP (ITSI Gilbane 2013).

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 conducting a supplemental investigation at the Former Building 88 Area and in the Traffic Island Area and additional groundwater monitoring at two locations (Well W9-18 Area and Traffic Island Area) 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 2012 reporting period. In 2012 the Navy finalized 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 2012) currently present at IR Site 26. A recommended alternative for Site 26 will be presented in the Proposed Plan and, if needed, the Record of Decision will be amended.

1.4 SUMMARY OF 2012 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 2012 annual remedy performance checklists are provided in Appendix B.

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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 fourteenth year of operation in November 2012. 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 four liquid-phase GAC units remove 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 four preexisting 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 (EA1-1, EA1-2, EA1-3, EA1-4, EA1-5, EA1-6, EA2-1, EA2-2, and EA2-3) at the Site. During the 2012 reporting period, extraction wells EA1-1 and EA1-2 were off-line from January 1, 2012 through April 2, 2012 in support of the treatability studies performed at Former Building 88 Area, Well W9-18 Area, and the Traffic Island Area. Wells EA1-1 and EA1-2 were restarted and began extracting groundwater on April 3, 2012. 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. Figure 2-3 illustrates the locations of the monitoring wells completed within the B and C aquifers. Data from a selected set of wells shown on Figures 2-1 and 2-2 were used to develop potentiometric surface maps, capture zone maps, and contaminant distribution maps for this 2012 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 water treated by WATS since start-up is approximately 451,761,124 gallons. The volume of groundwater extracted and treated by WATS during 2012 is approximately 20,756,813 gallons. The volume of SDA water treated by WATS in 2012 is approximately 2,154,955 gallons, or 9.4 percent of the total WATS flow for the year (22,911,768 gallons). The mass of VOCs removed since WATS start-up is approximately 5,505 pounds. The mass of VOCs removed during 2012 is approximately 200 pounds (SES-TECH 2013).

Figure 2-4 shows cumulative volume of groundwater extracted and the contaminant mass removed by WATS from 1998 through 2012. This graph illustrates that the rate of groundwater treatment and contaminant mass removed has remained relatively constant since WATS began operating in 1998. However, a trend line analysis of Figure 2-4 shows that the plotted "cumulative contaminant removed" slope decreases disproportionately to the plotted "cumulative groundwater extracted" slope over the 2012 reporting period. This illustrates that the contaminant mass removal rate in 2012 was less than that of previous years.

Figure 2-5 illustrates PCE, TCE, cis-1,2-DCE, and VC average influent concentrations and the sum of these average concentrations to WATS from 1998 through 2012. Average influent VOC concentrations have fluctuated since system startup in November 1998; however concentrations have been decreasing since 2008. Figure 2-5 shows that between September 2011 and September 2012, a decrease in the average influent VOC concentration occurred.

Like 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 2012 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	64.5	66.4	38.0
cis-1,2-DCE	33.0	31.3	57.9
PCE	1.4	1.5	0.7
VC	1.0	0.8	3.4

WATS sampling was conducted from January through December 2012 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 2012, 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).

The WATS effluent is typically discharged to the Moffett storm drain system, which conveys the water to a settling basin and ultimately discharges to NASA's EDM and SWRP. However, in 2012 a sediment removal project was conducted within the EDM and SWRP. Following approval from the Water Board and in concurrence with NASA personnel, the WATS effluent was diverted between May 21, 2012 and November 14, 2012. Over this time, the WATS effluent was temporarily discharged to the east-side of Moffett through a series of ditches and eventually to a pump station (Building 191), which pumps water to the northern channel. Water in the northern channel flows east approximately 1 mile beyond the eastern Moffett boundary and gravity feeds through a pipe to the terminus of the Lockheed Channel, where it is pumped into the Moffett Channel, flows to Guadalupe Slough, and eventually reaches San Francisco Bay. On November 14, 2012 the WATS effluent resumed discharging to the NASA EDM and SWRP (ITSI Gilbane 2013).

2.1.2 System Performance

As of December 31, 2012, WATS had processed approximately 451,761,124 gallons (system data) of extracted groundwater and SDA water since system start-up. Of that total, approximately 22,911,768 gallons (system data) were processed during 2012 (Figure 2-4). Of the approximately 22,911,768 gallons processed by WATS in 2012, an estimated 2,154,955 gallons of water was produced by SDA and an estimated 20,756,813 gallons of groundwater was produced by extraction wells. The volume of water produced by extraction wells in 2012 is about 6.6 percent more than the 19,383,634 gallons removed from extraction wells in 2011. Typically, nine extraction wells are in operation for the duration of the calendar year. However, in 2011 and over the first quarter of the 2012 reporting period (between January 1 and April 2, 2012) 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 2012, an estimated 73 percent of the groundwater flow came from the lower portion of the A aquifer, and 27 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 2-6 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 2012 was $1,214, a slight increase from the $1,196-per-pound cumulative cost reported in 2011. The 2012 monthly cost per pound removed averaged $1,775, compared to an average of $1,674 in 2011. The total O&M costs decreased from $414,000 in 2011 to $355,500 in 2012.

WATS operated approximately 98.8 percent of the time during the 2012 calendar year. This was a slight decrease from the 99.0 percent WATS operated during the 2011 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 0.5 to 24 hours per event, with up to three events per month. During the 2012 reporting period, wells EA1-1 and EA1-2 were offline between January 1 to April 2, 2012 in support of the treatability studies performed at Former Building 88 Area, Well W9-18 Area and the Traffic Island Area. Additionally, all nine extraction wells were shut down for time periods ranging from 48 to 72 hour on a staggered schedule for well redevelopment activities and extraction pump maintenance or replacement. Descriptions of system downtime periods are provided below:

- One and a half hours during the January 2012 reporting period to perform monthly maintenance.
- Three hours during the February 2012 reporting period to perform monthly maintenance.
- Twenty-five hours during the March 2012 reporting period to perform monthly maintenance and to repair a hydrogen peroxide pump.
- One hour during the April 2012 reporting period to perform monthly maintenance.
- Forty-one hours during the May 2012 reporting period to perform monthly maintenance, perform annual service activities on the system air compressors, change out solenoid valve 118A, and to perform system optimization activities to include extraction well redevelopments and extraction pump servicing/replacements.
- Six and a half hours during the June 2012 reporting period to perform monthly maintenance.
- Three hours during the July 2012 reporting period to perform monthly maintenance and adjust ozone generators.
- Two hours during the August 2012 reporting period to perform monthly maintenance.
- Two hours during the September 2012 reporting period to perform monthly maintenance.
- Two and a half hours during the October 2012 reporting period to perform monthly maintenance and to rebuild the WATS discharge pump.
- Twelve hours during the November 2012 reporting period to perform monthly maintenance and to service the systems air compressors. Ten of the twelve down hours were due to a power outage.
- Four hours during the December 2012 reporting period to perform monthly maintenance.

2.2 WATS OPERATION AND MAINTENANCE

During the 2012 reporting period, WATS operated approximately 98.8 percent of the time. There were no unexpected O&M difficulties.

<u>Key System Events</u>

The key events for 2012 were as follows:

Extraction Wells EA1-1 and EA1-2

Over the 2012 reporting period, extraction wells EA1-1 and EA1-2 were offline from January 1 to April 2, 2012 in support of the treatability studies.

WATS System Optimization Activities

WATS optimization activities, which included well redevelopment and extraction pump replacement or servicing, were carried out between May 7 and May 18, 2012. During this time, eight of the nine extraction wells associated with WATS were redeveloped. In addition, four of the extraction wells (EA1-

2, EA1-3, EA1-4, and EA1-6) had their groundwater pumps and motors replaced. The four pumps and motors that were not replaced were inspected and repairs were made as needed.

Prior to well redevelopment, the well pump and associated plumbing was removed from each well. The redevelopment technique consisted of an initial bailing of sediments, followed by a manual surging and brushing of the well, and then a final bailing of sediments from the bottom of the well. After the bailing was complete, the well was purged with a submersible pump to remove fine sediments. A descaling chemical was then introduced to the well and surged into the formation. The descaling chemical was allowed time to react with the well screen, filter pack, and surrounding formation.

Well EA2-3 was not worked during this redevelopment mobilization as it is currently located within the footprint of the Hangar 1 construction exclusion zone. Following the analysis of the well EA2-3 production reports, it was determined that the wells current production has not decreased significantly. The performance of this well will be monitored for production loss in the future.

Below is an outline of the redevelopment work conducted in May 2012:

- **EA1-1:** Removed pump and motor: moderate fouling present (improved over past experience). Bailed well, surged well, purged well for approximately 25 minutes. Added treatment chemicals, scrubbed well screen with brush tool. Re-installed pump/motor. Left well offline for chemical contact time.
- **EA1-2:** Removed pump and motor: heavy fouling present (worse than past experience). Bailed well, surged well, purged well for approximately 20 minutes. Added treatment chemicals, scrubbed well screen with brush tool. Installed new pump/motor. Left well offline for chemical contact time.
- **EA1-3:** Removed pump and motor: heavy fouling present (improved over past experience). Bailed well, surged well, purged well for approximately 20 minutes. Added treatment chemicals, scrubbed screen with brush tool. Installed new pump/motor. Left well offline for chemical contact time. Returned next morning and removed pump and purged well again, added treatment chemicals. Left well offline for contact time.
- **EA1-4:** Removed pump and motor: moderate fouling present (improved over past experience). Bailed well, surged well, purged well for approximately 15 minutes. Added treatment chemicals, scrubbed screen with brush tool. Installed new pump/motor. Left well offline for chemical contact time.
- **EA1-5:** Removed pump and motor: moderate fouling present (improved over past experience). Bailed well, surged well, purged well for approximately 15 minutes. Added treatment chemicals, scrubbed screen with brush tool. Re-installed pump/motor. Left well offline for chemical contact time.
- **EA1-6:** Removed pump and motor: moderate fouling present (improved over past experience). Bailed well, surged well, purged for approximately 10 minutes. Added treatment chemicals, scrubbed screen with brush tool. Installed new pump/motor. Left well offline for chemical contact time.
- **EA2-1:** Removed pump and motor: no fouling present, some scale present (same as past experience). Bailed well, surged well, purged well for approximately 10 minutes. Added treatment chemicals, scrubbed well screen with brush tool. Re-installed pump/motor. Left well offline for chemical contact time.
- **EA2-2:** Removed pump and motor: no fouling present, some scale (same as past experience). Bailed well, surged well, purged well for approximately 10 minutes. Added treatment chemicals, scrubbed screen with brush tool. Re-installed pump/motor. Left well offline for chemical contact time.

- **EA2-3:** No action: inside Hangar 1 Exclusion Zone area.

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 2012

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

<u>Step 1 – Review Site Data, Site Conceptual Model, and Remedial Objectives</u>

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 2-7 and 2-8, 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 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 2-7). 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 2-7).

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 2-8). 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 2012. 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 2012. 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 is 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).

<u>Step 2 – Define Site-Specific Target Capture Zone</u>

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 2-9 through 2-53. 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 2-9 through 2-30 were prepared using monitoring wells close to extraction wells. Figures 2-31 through 2-53 were prepared using monitoring wells remote from extraction wells. Seasonal groundwater elevation trends for 2012 appear consistent with the trends described in the annual reports from 2001 to 2011.

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 (September; 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 2-33), 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 2012 base-wide groundwater gauging events (Figures 2-54 through 2-57). Using pump test data from 2004, well loss values were calculated in 2012 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 in March 2012 (see Step 4 – Perform Appropriate Calculations). The potentiometric surface maps were computer generated using Surfer™. 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. In March 2012 the upper A aquifer showed an approximate groundwater gradient 0.002 ft/ft north of Hangar 1, and approximately 0.006 ft/ft south of Hangar 1 (excluding extraction well cones of depression). In September 2012 the upper A aquifer showed an approximate groundwater gradient of 0.003 ft/ft north of Hangar 1, and approximately 0.006 ft/ft south of Hangar 1(excluding extraction well cones of depression). In March 2012 the lower A aquifer showed an approximate groundwater gradient of 0.003 ft/ft north of Hangar 1, and approximately 0.006 ft/ft south of Hangar 1 (excluding extraction well cones of depression). In September 2012 the lower A aquifer showed an approximate groundwater gradient of 0.003 ft/ft north of Hangar 1, and approximately 0.006 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 2012, 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 2-54 through 2-57). 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 0.006 ft/ft in March 2012 and 0.003 to 0.006 ft/ft in September 2012.

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 2-58 through 2-61 are conservative because the groundwater elevations from the WATS extraction wells have been corrected for well loss. Thus, the drawdown and extent of the capture zones associated with these WATS extraction wells may be underestimated. 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 WATS 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 2012 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). WATS 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). It should be noted that the RGRP extraction wells have not been corrected for well loss. Thus, the drawdown and extent of the capture zones associated with these RGRP extraction wells may be overestimated. However, the WATS extraction well capture zones eclipse these RGRP extraction well capture zones in almost all capture zone areas associated with WATS.

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 2-58 and 2-59). No extraction occurred from wells EA1-1 and EA1-2 in March 2012 due to a pilot study beginning in August 2010 and continuing through April 2, 2012. Extraction wells EA1-1 and EA1-2 were restarted on April 3, 2012 without incident.

<u>Step 5 – Evaluate Concentration Trends at Monitoring Wells</u>

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 2-7 and 2-59).

Time series concentration plots for TCE in monitoring wells W9-2, 14D12A, W9-10, and WU4-14 are provided on Figures 2-62 through 2-65. 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 2-65). These increasing TCE concentrations are likely due to the proximity of monitoring well WU4-14 to extraction well EA1-4 (Figure 2-7). 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 through 2012. 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 2-7).

In 2012, 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 2-7). 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 2-62). 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 2-7). A similar area of historically high TCE concentrations centered on well WU4-3 was apparent based on the 2012 data. TCE concentrations in WU4-3 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 2-7). However, in 2012 the TCE concentration in this well increased to 1,200J µg/L.

Historic data collected from wells 14D02A, 14D28A, WU4-16, and 14D24A (Figure 2-7) was utilized to assess the TCE concentration trend within the upper portion of the A aquifer downgradient of WATS. Figures 2-66 through 2-69 illustrate the time series TCE concentration trend downgradient of WATS for these four wells. Historically, the downgradient edge of the main lobe 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 (Figure 2-66) 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. The time series concentration plot for monitoring well 14D28A (Figure 2-67) 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. Monitoring well 14D28A was optimized out of the Navy groundwater sampling network following the 2010 sampling event and was not sampled in 2012 (ERS-JV 2011a). However, because the trend plot for this well spans from January 1995 to November 2010, the data remains pertinent to the TCE concentration trend analysis within the upper portion of the A aquifer downgradient of WATS. The time series plot for groundwater samples collected from monitoring well WU4-16 (Figure 2-68) indicates a decreasing TCE concentration trend falling below the TCE cleanup standard of 5 µg/L since late 2001. The time series plot for groundwater samples collected from monitoring well 14D24A (Figure 2-69) indicates a decreasing TCE concentration trend since 2008. 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, are located downgradient of the WATS extraction wells but are within the estimated extraction well system capture zone (Figure 2-61). These four wells were selected for TCE concentration trend analysis because these monitoring wells represent varying concentrations and they are historically located within the 5 µg/L TCE plume boundary (Figure 2-8). Monitoring well W29-7 is located in a zone that has recently shown a reduction in TCE concentration. However, well W29-7 will still be used for trend analysis despite the fact that this well is currently not within the 5 µg/L boundary of the plume (Figure 2-8).

Time series TCE plots for groundwater samples collected from monitoring wells 154B1, W9-25, W29-7, and WU4-15 are provided on Figures 2-70 through 2-73, respectively. Time series plots for groundwater samples collected from monitoring wells 154B1, W9-25, and W29-7 indicate general overall decreasing TCE concentration trends with time. The time series plot for groundwater samples collected from monitoring well 154B1 have shown a fluctuating but generally decreasing trend since sampling of this well was initiated in 2001. 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 11J µg/L in 2012. 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 2-8). The downgradient edge of the TCE plume in 2012 is located about 200 feet upgradient from monitoring well 139B1 (Figure 2-8). 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 2-74 through 2-76, 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 0.22J µg/L in 2011, and finely to 0.50U µg/L in 2012 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.

<u>Step 6 – Interpret Actual Capture</u>

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. Additionally, the concentration trend analysis conducted within the leading edge of the main lobe of the TCE plume show that concentrations have decreased to below 1,000 µg/L. However, based on the sampling of additional monitoring wells by the Navy and MEW between 2008 and 2012, 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 2-54 through 2-57). A localized groundwater depression in the upper and lower portions of the A aquifer occurs immediately north of Hangar 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 0.006 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 2012 (Figures 2-54 through 2-57) 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 2012, 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 2-54 and 2-55). 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 2012 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. VOCs, to include TCE, cis-1,2-DCE, PCE, and VC were analyzed by EPA Method 8260B. The TCE, cis-1,2-DCE, PCE, and VC trends are discussed in subsequent sections of this report.

In accordance with the five year sampling program (WATS LTGMP, TtFW, 2004b) groundwater samples from selected wells were analyzed for dissolved metals by EPA Method 6020 and TPH as gasoline by

EPA 8015B. None of the TPH gasoline results are above the ROD cleanup standards. The lone metal analyte to exceed the cleanup standards in 2012 was antimony (cleanup standard: 6 μg/L), which was detected in well W9SC-13 at a concentration of 12 μg/L. In 2007, none of the metals or TPH gasoline results were reported above the ROD cleanup standards (T N & Associates, Inc. [TN&A] 2008). In 2002, antimony was reported above the ROD cleanup standard within 5 samples, and TPH gasoline was reported above the ROD cleanup standard within 16 samples (FWENC 2002). Thus, the results of the metals and TPH gasoline samples collected and analyzed in 2012 as part of the five year sampling cycle fell below historic concentrations.

Analytical data for the 2012 IR Site 28 annual sampling event are provided in Table 2-5, 2-7, and 2-8. 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. 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). Following the 2011 sampling event, the following wells were optimized out of the Navy's IR Site 28 groundwater sampling network: 14D26A1, 14D28A, 80B1, W9-26, W9SC-7, WU4-8, WWR-1, and WWR-2 (SES-TECH 2012a, ERS JV 2011a). The Navy, NASA, and MEW continued sampling of their current monitoring well network in 2012.

As part of a treatability study, an additional 27 monitoring wells were sampled in September/October 2012 at IR Site 28. The data collected from the treatability study has been incorporated into this report and is posted on the IR Site 28 contaminant plume maps, discussed in text as part of concentration evaluations, and posted in Table 2-9. However, because limited contaminant concentration data over time is available for these 27 monitoring wells, this additional data will not be included in trend analyses.

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

Analytical data for the 2012 IR Site 28 annual sampling event are provided in Tables 2-5, 2-7, and 2-8. 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 2012 for samples collected from all IR Site 28 monitoring wells 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 are provided in Figures 2-77 through 2-112. Trend analysis and interpretation were based on a visual evaluation of the historical time series VOC concentration trend graphs. Data collected as part of the 2012 treatability study is not included in the trend analysis.

For the upper portion of the A aquifer, time series concentration plots have been prepared for 26 wells sampled within the Navy sampling network (Figures 2-77 through 2-102). Four of these 26 wells (W9SC-7 [Figure 2-87], WU4-8 [Figure 2-95], WWR-1 [Figure 2-101], and WWR-2 [Figure 2-102]) were optimized out of the Navy groundwater sampling network following the 2010 sampling event and were not sampled in 2012 (ERS-JV 2011a). However, because the trend plots for these four wells begin prior to the startup of WATS and continue through 2010, the data remains pertinent to the concentration trend analyses within the upper portion of the A aquifer and therefore the figures are included in this report. The current trend analysis discussions will only include 22 of the 26 wells within the upper portion of the A aquifer in which time series concentration plots have been created.

For the lower portion of the A aquifer, time series concentration plots have been prepared for ten wells sampled within the Navy sampling network (Figures 2-103 through 2-112). One of these ten wells (80B1 [Figure 2-103]) was optimized out of the Navy groundwater sampling network following the 2010 sampling event and were not sampled in 2012 (ERS-JV 2011a). However, because the trend plot for this well begins prior to the startup of WATS and continues through 2010, the data remains pertinent to the TCE concentration trend analysis within the lower portion of the A aquifer and the figure is included in this report. The current trend analysis discussions will only include nine of the ten wells in the following lower portion of the A aquifer in which time series concentration plots have been created.

2.4.1.1 TCE Evaluation

<u>Upper Portion of the A Aquifer – TCE Plume</u>

The regional TCE plume in the upper portion of the A aquifer extends downgradient (north) from south of U.S. Highway 101 (Figure 2-7). 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 2-7). However, the lack of sampling results from many of the NASA wells in 2012 has limited the ability to contour TCE concentrations downgradient of WATS (Figure 2-7).

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 2-7). The eastern groundwater plume periphery has higher concentrations than the western periphery. TCE concentrations during 2011 and

2012 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 2012 samples collected from groundwater monitoring wells within the Navy well network installed in the upper portion of the A aquifer at IR Site 28 continues to be from monitoring well W9-2. The reported TCE concentration in 2012 was 1,800 μg/L, which is within the historic range for this well. Monitoring well W9-2 is located approximately 750 ft west of Hangar 1. In 2012, the highest TCE concentration in samples collected from groundwater monitoring wells within the treatability study well network installed within the upper portion of the A aquifer at IR Site 28 was from monitoring well 14D30A (1,100 μg/L).

<u>Lower Portion of the A Aquifer – TCE Plume</u>

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 2-8): the eastern lobe through the WATS capture area and a western lobe west of the WATS capture area. The 2012 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 2011 and is generally similar in shape and extent to the 2012 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 2012 samples collected from groundwater monitoring wells within the Navy well network installed in the lower portion of the A aquifer at IR Site 28 was from monitoring well WU4-4 (4,900U μg/L), which is an increase in the TCE concentration reported in 2011 (2,900 μg/L). In 2012, the highest TCE concentration in samples collected from groundwater monitoring wells within the treatability study well network installed within the lower portion of the A aquifer at IR Site 28 was from monitoring well 28OW-04 (11,000 μg/L).

2.4.1.2 TCE Trends

Historical TCE data are included in Table 2-6 and in time series concentration graphs (Figures 2-76 through 2-111).

<u>Upper Portion of the A Aquifer – TCE Trends</u>

The historical time series TCE concentration plots prepared for groundwater samples collected from 22 monitoring wells sampled in 2012 and completed within the upper portion of the A aquifer are provided in Figures 2-77 through 2-102. Concentrations of TCE were not detected in groundwater samples from 9 out of 22 monitoring wells sampled in 2012. A decreasing trend of TCE concentrations was indicated in 13 out of 22 wells (14C33A [Figure 2-77], W9-10 [Figure 2-80], W9-18 [Figure 2-81], W9-19 [Figure 2-82], W9-31 [Figure 2-84], W9-37 [Figure 2-85], W9SC-13 [Figure 2-88], W9SC-14 [Figure 2-89], W29-1 [Figure 2-90], W56-2 [Figure 2-93], WIC-1 [Figure2-94], WU4-17 [Figure 2-98], and WU4-25 [Figure 2-100]). Stable TCE concentrations since at least the start of WATS operation were indicated in 8 out of

22 monitoring wells (14D05A [Figure 2-78], W9-2 [Figure 2-79], W9SC-1 [Figure 2-83], W9-45 [Figure 2-86], W29-3 [Figure 2-91], W29-4 [Figure 2-92], WU4-10 [Figure 2-96], and WU4-21 [Figure 2-99]). An increasing long-term trend of TCE concentrations was indicated in 1 out of 22 monitoring wells (WU4-14), with the exception of the 2010 through 2012 results, which showed short-term decreases (Figure 2-97).

<u>Lower Portion of the A Aquifer – TCE Trends</u>

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 2-103 through 2-112. . A decreasing trend of TCE concentrations was indicated in eight out of nine monitoring wells sampled in 2012 (W9-9 [Figure 2-104], W9-14 [Figure 2-105], W9-20 [Figure 2-106], W9-21 [Figure 2-107], W9-34 [Figure 2-108], W29-7 [Figure 2-109], WU4-9 [Figure 2-110], and WU4-11 [Figure 2-111]). An increasing long-term trend of TCE concentrations was indicated in monitoring well WU4-15 (Figure 2-112).

2.4.1.3 Cis-1,2-DCE Evaluation

<u>Upper Portion of the A Aquifer – cis-1,2-DCE Plume</u>

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 2-113). The 2012 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 2011. 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 2-113). 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 2-113).

The highest cis-1,2-DCE concentration in 2012 samples collected from the Navy monitoring well network wells installed in the upper portion of the A aquifer at IR Site 28 was from monitoring well 81A. The cis-1,2-DCE concentration reported from this well in September 2012 was 1,700 μg/L. This well is located in the same general area as monitoring well WNX-2, which in 2011 had the highest concentrations of cis-1,2-DCE within IR Site 28. In 2012, the highest cis-1,2-DCE concentration in samples collected from groundwater monitoring wells within the treatability study well network and installed within the upper portion of the A aquifer at IR Site 28 was from monitoring well 28OW-15 (6,500 μg/L).

<u>Lower Portion of the A Aquifer – cis-1,2-DCE Plume</u>

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 2-114). 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 2-114).

The highest cis-1,2-DCE concentration in 2012 samples collected from the Navy monitoring well network wells installed in the lower portion of the A aquifer was from well W9-8 (2,300J µg/L). This concentration was consistent with historical cis-1,2-DCE data from this well. In 2012, the highest cis-1,2-DCE concentration in samples collected from groundwater monitoring wells within the treatability study well network installed within the lower portion of the A aquifer at IR Site 28 was from monitoring well 28OW-03 (17,000 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.

2.4.1.4 Cis-1,2-DCE Trends

Historical cis-1,2-DCE data are included in Table 2-6 and on time series graphs (Figures 2-77 through 2-112).

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

The historical time series graphs for cis-1,2-DCE concentrations in 22 monitoring wells completed within the upper portion of the A aquifer and sampled in 2012 are provided in Figures 2-77 through 2-102. A decreasing trend of cis-1,2-DCE concentrations was indicated in 4 out of 22 monitoring wells (14C33A [Figure 2-77], W9-18 [Figure 2-81], W29-1 [Figure 2-90], and WU4-17 [Figure 2-98]). Stable cis-1,2-DCE concentrations since at least the start of WATS operation were indicated in 16 out of 22 monitoring wells (14D05A [Figure 2-78], W9-10 [Figure 2-80], W9-19 [Figure 2-82], W9SC-1 [Figure 2-83], W9-31 [Figure 2-84], W9-37 [Figure 2-85], W9-45 [Figure 2-86], W9SC-13 [Figure 2-88], W9SC-14 [Figure 2-89], W29-3 [Figure 2-91], W29-4 [Figure 2-92], W56-2 [Figure 2-93], WIC-1 [Figure2-94], WU4-10 [Figure 2-96], WU4-14 [Figure 2-97], and WU4-25 [Figure 2-100]). An increasing long-term trend of cis-1,2-DCE concentrations was indicated in 2 out of 22 monitoring wells (W9-2 and WU4-21) from the upper portion of the A aquifer (Figures 2-79 and 2-99). Although the long-term trend for well W9-2, which is located within the center of the plume and had relatively high concentration of cis-1,2-DCE (780 µg/L) is increasing, this well has shown a stable to decreasing cis-1,2-DCE trend since the 2008 sampling event. Well WU4-21, which is located on the leading eastern edge of the plume and had relatively low concentrations of cis-1,2-DCE (19 µg/L), has shown a relatively stable trend since the 2004 sampling event. The cis-1,2-DCE trend within well WU4-21 will continue to be assessed as it represents the leading eastern edge of the plume.

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 2-103 through 2-112. 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 (wells W9-9 [Figure 2-104] and WU4-9 [Figure 2-110]). Stable cis-1,2-DCE concentrations since at least the start of WATS operation were indicated in three out of nine monitoring wells (W9-21 [Figure 2-107], W9-34 [Figure 2-108], and

W29-7 [Figure 2-109]). An increasing long-term trend of cis-1,2-DCE concentrations was indicated in four out of nine monitoring wells (W9-14 [Figure 2-105], W9-20 [Figure 2-106], WU4-11 [Figure 2-111], and WU4-15 [Figure 2-112]).

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 2011 PCE plume. The highest PCE concentration within the Navy monitoring well network was reported in extraction well EA1-1 at 33 μg/L in 2012, which was lower than the 2011 value of 290 μg/L. PCE trends in well EA1-1 have demonstrated a decreasing trend since 2008. In 2012, the highest PCE concentration in samples collected from groundwater monitoring wells within the treatability study well network installed within the upper portion of the A aquifer at IR Site 28 was from monitoring well W9-29 (900 μg/L).

PCE concentrations detected in a sample collected from monitoring well 72A (3.7 µg/L) in 2012 indicate PCE near Highway 101 and Ellis Street in the southeastern corner of the base (Figure 2-114). 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 2012 PCE plume above 5 μg/L in the lower portion of the A aquifer is similar in shape and extent to 2011. The highest PCE concentration in the September 2012 samples collected from groundwater monitoring wells completed in the lower portion of the A aquifer at IR Site 28 was from well W9-20 (130 μg/L). This concentration is lower than the maximum PCE concentrations reported in 2010 (10,000 μg/L for 28OW-23) and 2011 (340 μg/L W9-20). In 2012, the highest PCE concentration in samples collected from groundwater monitoring wells within the treatability study well network installed within the lower portion of the A aquifer at IR Site 28 was from monitoring well 28OW-04 (15,000 μg/L).

2.4.1.6 PCE Trends

Historical PCE data are included in Table 2-6 and for select wells on time series graphs (Figures 2-77 through 2-112).

Upper Portion of the A Aquifer – PCE Trends

Historical time series PCE concentration plots prepared for groundwater samples collected from 22 monitoring wells completed within the upper portion of the A aquifer are provided on Figures 2-77 through 2-102. 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 2-115).

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 (well WIC-1 [Figure 2-94]). An increasing trend of PCE concentrations were indicated in six out of the seven evaluated monitoring wells (W9SC-1 [Figure

2-83], W9-31 [Figure 2-84], W9-37 [Figure 2-85], W9-45 [Figure 2-86], W9SC-14 [Figure 2-89], and W29-4 [Figure 2-92]).

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 2-103 through 2-112. 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 2-116). Stable PCE concentrations were indicated in two of the three monitoring wells (W9-9 [Figure 2-104] and W9-20 [Figure 2-106]). An overall decreasing trend is indicated in well W9-14 (Figure 2-105) between 1993 and 2003. Between 2004 and 2012, the PCE concentrations for well W9-14 have been below detection levels and thus a trend cannot be established over this time.

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 2-117. Lower laboratory detection limits used during the 2012 sampling event added additional resolution to the VC plume within the upper portion of the A aquifer. Specifically, wells located within the southern portion of the upper A aquifer (REG-5A, REG-8A, 65A, and 82A) showed VC detections in 2012 that were below the VC laboratory detection limits used in 2011. Thus, boundaries that were inferred within the southern portion of the VC plume in 2011 are no longer inferred in 2012. The resulting 2012 VC plume for the upper portion of the A aquifer shows a single plume that originates to the south of U.S. Highway 101 and terminates approximately 200 feet south of well 14D36A. In 2011, the VC plume was depicted as two separate plumes divided by an inferred boundary located within the vicinity of wells REG-5A, REG-8A, 65A, and 82A.

The sample collected from well W89-2, located near the southern site border, had a VC concentration of 45 μg/L, which is higher than the 2011 value of 2.8 μg/L. VC concentrations detected in well W89-2 are likely associated with a plume originating south of U.S. Highway 101 (Figure 2-117).

The highest VC concentration in groundwater samples collected from groundwater monitoring wells within the Navy well network and installed in the upper portion of the A aquifer at IR Site 28 in 2012 is in the sample from monitoring well W9-37, located downgradient of Former Building 88. The reported VC concentration in 2012 was 510J μg/L in the sample from well W9-37. This concentration is a decrease from the 2011 concentration for this well (750 μg/L). 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. In September 2012, the VC concentration in well W9-18 increased to 530 μg/L. In 2012, the highest VC concentration in samples collected from groundwater monitoring wells within the treatability study well network installed within the upper portion of the A aquifer at IR Site 28 was from monitoring well 28OW-16 (860 μg/L).

Lower Portion of the A Aquifer – VC Plume

The areal extent of VC detected in wells completed within the lower portion of the A aquifer is illustrated in Figure 2-118. Lower laboratory detection limits used during the 2012 sampling event added additional resolution to the VC plume within the lower portion of the A aquifer. Specifically, wells located within the southern portion of the lower A aquifer (REG-5B(1), REG-6B(1), REG-12B(1), WU4-2, WU4-6, W9-41, W9SC-20, and 46B1) showed VC detections in 2012 that were below the VC laboratory detection limits used in 2011. Thus, boundaries that were inferred within the southern portion of the VC plume in 2011 are no longer inferred in 2012. The resulting 2012 VC plume for the lower portion of the A aquifer shows similar size and extent to previous interpretations. The VC concentrations in the south of the site are likely associated with a plume originating south of U.S. Highway 101 (Figure 2-118).

The highest VC concentration in 2012 samples collected from groundwater monitoring wells within the Navy well network was from well W29-7 (380J μg/L). This is lower than the highest recorded concentrations in 2010 (28OW-4: 7,700 μg/L) and 2011 (W29-7: 510 μg/L). In 2012, the highest VC concentration in samples collected from groundwater monitoring wells within the treatability study well network installed within the lower portion of the A aquifer at IR Site 28 was from monitoring well 28OW-04 (1,900 μg/L).

2.4.1.8 VC Trends

Historical VC data are included in Table 2-6 and on time series graphs (Figures 2-77 through 2-112).

Upper Portion of the A Aquifer – VC Trends

The historical VC time series concentration graphs prepared for groundwater samples collected from 22 monitoring wells completed within the upper portion of the A aquifer are provided in Figures 2-77 through 2-102. A decreasing trend of VC concentrations was indicated in 1 out of 22 monitoring wells evaluated within the upper portion of the A aquifer (well 14C33A [Figure 2-77]). Stable VC concentrations since the start of WATS operation were indicated in 11 out of 22 monitoring wells evaluated within the upper portion of the A aquifer (wells W9-2 [Figure 2-79], W9-10 [Figure 2-80], W9-18 [Figure 2-81], W9-45 [Figure 2-86], W9SC-13 [Figure 2-88], W29-1 [Figure 2-90], W29-4 [Figure 2-92], WU4-10 [Figure 2-96], WU4-14 [Figure 2-97], WU4-17 [Figure 2-98], and WU4-25 [Figure 2-100]). An increasing long-term trend of VC concentrations was indicated in 10 out of 22 monitoring wells within the upper portion of the A aquifer (wells 14D05A [Figure 2-78], W9-19 [Figure 2-82], W9SC-1 [Figure 2-83], W9-31 [Figure 2-84], W9-37 [Figure 2-85], W9SC-14 [Figure 2-89], W29-3 [Figure 2-91], W56-2 [Figure 2-93], WIC-1 [Figure 2-94], and WU4-21 [Figure 2-99]). The long-term increasing VC concentration trend seen within the upper portion of the A aquifer 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.

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 2-103 through 2-112. A decreasing trend of VC concentrations was indicated in one out of nine monitoring wells evaluated within the lower portion of the A aquifer (well WU4-9 [Figure 2-110]). Stable VC concentrations were indicated in three out of nine monitoring wells (W9-9 [Figure 2-104], W9-21 [Figure 2-107], and WU4-11 [Figure 2-111]). 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 (W9-14 [Figure 2-105], W9-20 [Figure 2-106], W9-34 [Figure 2-108], W29-7 [Figure 2-109], and WU4-15 [Figure 2-112]). The increasing VC concentrations may be due to TCE and PCE degradation.

2.4.2 Chemical Data Evaluation in B2

In 2012, groundwater samples were collected from six monitoring wells within the Navy well network completed in the B2 aquifer (45B2, W88-1, W9-12, W9-15, W9-39, and W9-40). Five of these six wells were analyzed for VOCs. Well W9-39 was sampled as part of the 5-year sampling cycle in 2012, and was only sampled for TPH. Analytical data for the 2012 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 2012 for samples collected from B2 aquifer monitoring wells currently sampled by the Navy are provided in Table 2-6. In addition to the wells sampled within the Navy well network, three wells screened within the B2 aquifer were sampled as part of the 2012 treatability study (51B2, W88-2, and W88-3). Analytical data from the 2012 treatability study is provided in Table 2-9.

TCE, cis-1,2-DCE, PCE, and VC were reported above laboratory detection limits within the B2 aquifer from only one well within the Navy well network: W88-1. TCE was detected in well W88-1 at a concentration of 36J μg/L. Cis-1,2-DCE was detected in well W88-1 at a concentration of 3,300 μg/L. PCE was detected in well W88-1 at a concentration of 36J μg/L. VC was detected in monitoring well W88-1 at a concentration of 3,700 μg/L. All of these detections within well W88-1 are above the respective ROD cleanup standards. The reported concentrations of TCE, cis-1,2-DCE, and PCE, within well W88-1 were lower than the reported levels in 2010 and 2011. The 2012 VC concentration in well W88-1 is the highest recorded since sampling of this well began in 2005. These analytical trends within well W88-1 are likely related to the treatability study being conducted within the vicinity of this well.

TCE was reported above laboratory detection limits within the B2 aquifer from two wells within the treatability study well network: 51B2 (8.7 μg/L) and W88-3 (0.3 μg/L). Cis-1,2-DCE was detected within the B2 aquifer in a single well within the treatability study well network: W88-3 (0.2 μg/L). Both PCE and VC values were below laboratory detection limits in the B2 aquifer within the treatability study well network in 2012.

3.0 EAST-SIDE AQUIFER TREATMENT SYSTEM

This section provides a description of EATS and an evaluation of 2012 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). This treatability study is discussed in detail in Section 4.2.

EATS remained off-line through the 2012 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 2012. 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 2012. 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. Wells W10-2 (Figure 3-7), W3-12 (Figure 3-9), and W10-3 (Figure 3-17) have not been gauged since 2005. However, plots for these three wells contain pertinent historic groundwater elevation trend data and thus these figures are included in this report. Seasonal groundwater elevation trends for 2012 appear consistent with the trends described in previous reports (FWENC 2002, 2003a; TtFW 2004a, 2005a, 2005b; TtEC 2006;

TN&A 2007, 2008; SES-TECH 2009, 2010; ERS-JV 2011b, 2012) 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 2012, 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 2012, 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 0.001 ft/ft in March 2012 and 0.002 ft/ft in September 2012. South of the intersection, the gradient was approximately 0.003 ft/ft in March 2012 and 0.003 ft/ft in September 2012. 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 IR Site 26 northern and southern plumes occurred during 2012. Analytical results are summarized in this section. A total of 33 wells were sampling in 2012 at IR Site 26. Per the Final Addendum 1 to the Final SAP (SES-TECH 2012a), wells W4-3 and W19-4 have been removed from the Site 26 sampling network and were not sampled in 2012. The four wells completed within the lower portion of the A aquifer, wells W6-2, WU5-11, WU5-12, and WU5-13, are on a biennial sampling cycle and were not sampled in 2012. In addition, per the Final Addendum 1 to the Final SAP (SES-TECH 2012a), wells WU5-8 and WU5-9 were moved to the IR Site 26 biennial sampling schedule and were not sampled in 2012. All IR Site 26 biennial wells will next be sampled in 2013. Well WT2-1 is on a 5-year sampling cycle and was included in the 2012 IR Site 26 sampling event. All COCs in well WT2-1 were below the established cleanup standards in 2012. In addition, all COCs in well WT2-1 were below the established cleanup standards in 2007 (TN&A 2008). Because the COCs have remained below the established cleanup standards over two 5-year sampling events, well WT2-1 will be removed from the IR Site 26 sampling network per the Final SAP (ERS JV 2011a).

The 2012 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 2012 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 Macon 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 2012 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. Well W4-3 (Figure 3-20) was optimized out of the Navy sampling network following the 2011 sampling event (SES-TECH 2012a). However, because the trend plot for this well begins prior to the startup of EATS and continues through 2011, the data remains pertinent to the concentration trend analyses at IR Site 26 and therefore this figure is included in this report. The current trend analysis discussions will only include nine of the 10 wells in which time series concentration plots have been created.

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 2012 VOC concentrations remained relatively stable. However, slight TCE increases recorded along the western boundary of the plume and slight TCE decreases recorded along the northwestern boundary of the plume in 2012 have augmented the plumes boundary (Figure 3-30). Additionally, 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 2012 appears to have decreased in areal extent and/or is stable when compared to the 2005 through 2008 historical depictions.

In 2012, the highest concentration of TCE in the upper portion of the A aquifer was reported as 19 μg/L in the groundwater sample collected from monitoring well W43-2. The highest TCE concentration reported in 2011 was 24 μg/L, which was also collected from well W43-2. TCE concentrations reported in groundwater samples collected in 2012 were generally consistent with those from 2011.

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. An overall decreasing trend of TCE concentrations was indicated in 4 out of the 9 wells sampled in 2012 (W4-14 [Figure 3-21], WSW-6 [Figure 3-24], WU5-4 [Figure 3-25], and WU5-14 [Figure 3-27]). Stable overall TCE concentrations were indicated in 5 out of the 9 monitoring wells sampled in 2012 (W4-15 [Figure 3-22], W7-10 [Figure 3-23], WU5-10 [Figure 3-26], WU5-21 [Figure 3-28], and WU5-25 [Figure 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, 2010; ERS-JV 2011b, 2012). The EATS TCE plume has remained stable and decreased in areal extent since July 2003 when EATS was taken off-line.

3.3.1.3 Cis-1,2-DCE Evaluation

Figure 3-31 illustrates the 2012 cis-1,2-DCE plume in the upper portion of the A at IR Site 26. The shape and location of the upper portion of the A aquifer cis-1,2-DCE plume areas have remained relatively stable and/or decreased when compared to historical depictions of the 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). Historically, there has also been a small cis-1,2-DCE plume near extraction well EXW-2; however, no concentrations within this area exceeded the cis-1,2-DCE cleanup standard of 6 μg/L in 2012.

In 2012, the highest concentration of cis-1,2-DCE in the upper portion of the A aquifer was reported as 17J μg/L in monitoring well WU5-1. In both 2010 and 2011, the highest concentration of cis-1,2-DCE in the upper portion of the A aquifer was found in well WU5-2 (21 µg/L in 2010, 31 µg/L in 2011, and 15 µg/L in 2012). Cis-1,2-DCE concentrations reported in groundwater samples collected in 2012 were generally consistent with those from 2011.

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 3 out of the 9 wells sampled in 2012 show a long-term overall 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 (W4-15 [Figure 3-22], WSW-6 [Figure 3-24], and WU5-25 [Figure 3-29]). A stable trend of cis-1,2-DCE concentrations was indicated in 5 of the 9 wells sampled in 2012 (W4-14 [Figure 3-21], W7-10 [Figure 3-23], WU5-4 [Figure 3-25], WU5-10 [Figure 3-26], and WU5-21 [Figure 3-28]). In 2005 an increasing trend of cis-1,2-DCE concentrations was indicated in well WU5-14 (Figure 3-27). However, the cis-1,2-DCE concentration decreased in 2009 and dropped below the 6 µg/L cleanup standard. The cis-1,2-DCE trend has exhibited a slight decrease in concentration from 2011 to 2012 and has remained below the cleanup standard since 2009.

3.3.1.5 PCE Evaluation

The shape and location of the 2012 PCE plume remained relatively stable compared to the 2011 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 2012, the highest concentration of PCE in the upper portion of the A aquifer was reported as 31 µg/L in the groundwater sample collected from monitoring well W43-2. The PCE concentration within this well has shown a decreasing trend since 2010 (50 µg/L in 2011; 52 µg/L in 2010). This well is located upgradient of the TS and was not affected by the application of EHC®.

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 9 wells located within the southern plume and sampled in 2012 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 (W4-15 [Figure 3-22], W7-10 [Figure 3-23], and WSW-6 [Figure 3-24]). Samples collected from 5 of the 9 monitoring wells sampled in 2012 show a long term trend of stable PCE concentrations (WU5-4 [Figure 3-25], WU5-10 [Figure 3-26], WU5-14 [Figure 3-27], WU5-21 [Figure 3-28], and WU5-25 [Figure 3-29]). PCE concentrations in wells W4-3 and W4-14 (Figures 3-20 and 3-21) have been below laboratory detection limits since the mid 1990's, and thus a trend cannot be established for these two wells. 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, 2010; ERS-JV 2011b, and ERS-JV 2012). The EATS PCE plume has decreased in areal extent since July 2003 when EATS was taken off-line.

3.3.1.7 VC Evaluation

The shape and location of the 2012 VC plume remained relatively stable compared to the 2011 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 2012, the highest concentration of VC in the upper portion of the A aquifer was reported as 8.6 µg/L in monitoring well W4-14. This is a decrease in VC concentration within well W4-14 since the 2011 sampling event (14 µg/L). Overall, VC concentrations reported in groundwater samples collected in 2012 were generally similar to or lower than those from 2011.

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 2 out of the 9 wells located within the southern plume and sampled in 2012 show a long-term trend of decreasing VC concentrations in the upper portion of the A aquifer since operation of EATS (WSW-6 [Figure 3-24] and WU5-25 [Figure 3-29]). Groundwater samples from 4 of the 9 monitoring wells sampled in 2012 showed a long-term of trend of generally stable VC concentrations (W4-15 [Figure 3-22], WU5-4 [Figure 3-25], WU5-10 [Figure 3-26], and WU5-21 [Figure 3-28]). Groundwater samples from 2 of the 9 monitoring wells sampled in 2012 showed a long-term trend of increasing VC concentrations (W4-14 [Figure 3-21 and WU5-14 [Figure 3-27]). TCE 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. The VC concentrations in well W7-10 (Figure 3-23) showed an increasing trend between 2005 and 2007. However, since 2007 the VC trend in this well has demonstrated an overall decreasing trend.

3.3.1.9 1,1-DCE Evaluation

1,1-DCE was detected in 25 of the groundwater samples collected from wells completed in the upper portion of the A aquifer during the 2012 annual sampling event. Concentrations of 1,1-DCE ranged from 0.088J µg/L in well WU5-15 to 2.5 µg/L in well EXW-4 (Table 3-2). None of these 1,1-DCE concentrations exceeded the cleanup standard of 6 µg/L.

3.3.1.10 1,2-DCA Evaluation

The compound 1,2-DCA was detected in 10 of the groundwater samples collected from wells completed in the upper portion of the A aquifer during the 2012 annual sampling event. Concentrations of 1,2-DCA ranged from 0.13J µg/L in well WU5-23 to 0.78J µg/L in well WU5-20. The reported 1,2-DCA concentration in the sample from wells WU5-15DUP (0.61J µg/L), WU5-20 (0.78J µg/L), and WU5-21 (0.71J µg/L) were all above the California Maximum Contaminant Level of 0.5 µg/L. These values are similar to the 2011 results.

3.3.1.11 Trans-1,2-DCE Evaluation

Trans-1,2-DCE was detected above laboratory quantitation limits in 29 of the groundwater samples from monitoring wells completed in the upper portion of the A aquifer during the 2012 sampling event. The detections ranged from 0.087J µg/L in well WU5-10 to 2.8 µg/L in well WU5-16. No trans-1,2-DCA detections in 2012 exceeded the cleanup standard of 6.0 μg/L. These values are similar to the 2011 results.

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 2012, 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 2012 had TCE, PCE, cis-DCE, VC, 1,1-DCE, 1,2-DCA, and trans-1,2-DCE concentrations all below the cleanup standards. Concentrations of all analytes in samples from wells in the northern plume have not been above their respective cleanup standard during the last five years of sampling.

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4.0 OTHER 2012 ACTIVITIES

This section describes activities related to IR Site 26 and IR Site 28 that were conducted during the 2012 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 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 former Building 88.

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 former Building 88. The final results are discussed in the *Final Technical Memorandum, In-Situ Anerobic Biotic/Abiotic Treatability Study, Installation Restoration, Site 28* (Shaw 2012). .

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 or 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 participated in the All Parties meetings and technical workgroup meetings held by the EPA. Additionally, the Navy provided comments on the preliminary draft Supplemental Sitewide Groundwater Feasibility Study develop by the EPA for the MEW Study Area (Supplemental FS). In March 2013, the EPA announced that it will not be finalizing the Supplemental FS at this time. The Navy will be working with the EPA to develop a plan to optimize groundwater treatment and remove contaminant mass in the WATS area.

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 was not completed.

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 PCE and TCE; however, the concentrations of DCE and VC increased in the downgradient wells. A technical memorandum describing the activities performed and remediation results was prepared (Shaw 2012). 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 Navy finalized the FFS to evaluate remedial alternatives that may be more efficient than pump and treat to address the low VOC concentrations (Shaw 2012) currently present at IR Site 26. A recommended alternative for Site 26 will be presented in the Proposed Plan and, if needed, the Record of Decision will be amended.

4.3 INITIATION OF PDB SAMPLING PROGRAM

A study testing the use of passive diffusion bags (PDBs) to collect groundwater samples for VOC analysis at IR Sites 26 and 28 was performed during the 2011 sampling event (ERS-JV 2012). 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 supported the conclusion that both methods yield VOC concentrations that are comparable to historical results. The study supported implementing PDB sampling for VOC analysis for all wells at IR Sites 26 and 28. The study also showed that the deployment of PDB samplers would result in improved cost-effectiveness for the monitoring program while maintaining data quality and compliance with the ROD. Details on the study can be found in the report *Final 2011 Annual*

Groundwater Report for WATS and EATS, Former Naval Air Station Moffett Field, Moffett Field California (ERS-JV 2012).

The intention to change groundwater sampling methods for VOCs from low-flow to PDB samplers at Sites 26 and 28 was presented in the Addendum 1 to the Final SAP (SES-TECH 2012a). The Draft SAP Addendum 1 was submitted to the regulatory agencies for review. Upon receiving approval from the regulatory agencies to proceed with implementing PDB sampling for the collection of VOCs at IR Sites 26 and 28, the SAP Addendum was moved to final status. Details on the PDB sampling procedure can be found in the report *Final Addendum 1 to the Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan), Groundwater Monitoring Plan for IR Sites 26 and 28, Former Naval Air Station Moffett Field, Moffett Field, California* (SES-TECH 2012a).

In 2012, all monitoring wells located at IR Sites 26 and 28 were sampled for VOCs with PDB samplers.

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 2011 and March 2011 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. The Water Board rejected the request to halt quarterly copper sampling at this time. Thus, quarterly copper sampling of the WATS effluent continued on a quarterly basis throughout 2012.

In 2012, an investigation into the source of the copper was initiated. In April 2012, all ten of the extraction wells associated with WATS were sampled for copper. The samples collected in April 2012 were obtained directly from the extraction wellhead sampling ports. All ten copper samples collected exceeded the trigger concentration, with copper values ranging from 7.2 μg/L to 167 μg/L and a mean copper concentration of 75.2 μg/L. In July 2012, six of the ten extraction wells were sampled for copper using a peristaltic pump. All six of the July 2012 extraction well copper results exceeded the trigger concentration, with copper concentrations ranging from 6.0 μg/L to 130 μg/L and a mean copper concentration of 34.1 μg/L. In September 2012, four of the ten extraction wells were sampled. The samples collected in September 2012 were obtained directly from the extraction wellhead sampling ports. Only one of the samples collected in September 2012 exceeded the trigger level (15 μg/L) with copper results ranging from 0.71 μg/L to 15 μg/L and a mean copper concentration of 5.5 μg/L.

The extraction well copper sample results collected in 2012 show that the background copper concentrations found in the groundwater being extracted for treatment generally exceeds the copper trigger concentration set in the NPDES permit. Over the three extraction well sampling events (April, July, and September 2012), the extraction well copper results show a median copper concentration of 27.1 μg/L and a mean copper concentration of 49.0 μg/L. In comparison, since 2010 the WATS effluent median copper concentration is 6.8 μg/L and the mean system effluent copper concentration is 6.9 μg/L.

A Technical Memorandum submitted on November 21, 2012 (SES-TECH 2012b) requested that the Executive Officer concur that the "triggered pollutants" investigation for copper be complete and that no additional sampling of the system effluent for copper be required until the next routine triennial sampling event for Title 22 metals, which is currently scheduled for December 2013. On January 25, 2013 concurrence was received via electronic mail from the Executive Officer stating that the "triggered pollutants" investigation for copper is complete on the condition that system influent and effluent copper samples are collected on an annual basis for two years. The first annual system influent and effluent copper sampling will occur during the next routine triennial sampling event for Title 22 metals (December 2013). The second annual system influent and effluent copper sampling will occur in December 2014. Routine reporting and additional sampling (if required) will continue in accordance with the trigger limits, as specified in the NPDES permit. However, in the event that copper concentrations exceed the trigger limit in either of these annual copper sampling events but are reported within the systems established historic range (i.e., background concentrations), no additional sampling associated with a copper trigger concentration exceedance is necessary.

4.5 IR SITE 28 VAPOR INTRUSION

The Navy prepared a Work Plan for collecting indoor and outdoor air samples for assessing potential vapor intrusion in buildings within the Navy's area of responsibility [Final Air Sampling Work Plan for Vapor Intrusion Tier Response Evaluation (Accord MACTEC. May 17, 2012)]. Air sampling was conducted in May and June 2012. The air sampling results were reported in the Draft Air Sampling and Vapor Intrusion Tier Response Evaluation Report (Accord MACTEC. October 23, 2012).

Building 10 had relatively higher concentrations of TCE in indoor air compared to the TCE cleanup goal established by the EPA in the Record of Decision Amendment for the Vapor Intrusion Pathway [US Environmental Protection Agency Region 9. Record of Decision Amendment for the Vapor Intrusion Pathway Middlefield-Ellis-Whisman (MEW) Superfund Study Area. August 16, 2010]. Building 10 has an underground utility corridor that can act as a conduit for VOC vapors. In May 2012, the Navy installed a ventilation system, including a blower, inside the utility corridor as an interim measure for reducing the VOC indoor air concentrations of Building 10. Indoor air samples from Building 10 are collected quarterly for monitoring.

5.0 PROBLEMS ENCOUNTERED

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. Due to this exceedance, monitoring of the system effluent for copper was accelerated to a quarterly basis and an investigation into the copper source was completed. In November 2012, a Technical Memorandum (SES-TECH 2012b) outlining the copper sampling and copper source investigation was submitted. This Technical Memorandum requested that the Executive Officer concur that the “triggered pollutants” investigation for copper be complete and that no additional sampling of the system effluent for copper be required until the next routine triennial sampling event for Title 22 metals, which is scheduled for December 2013. On January 25, 2013 concurrence was received via electronic mail from the Executive Officer stating that the “triggered pollutants” investigation for copper is complete on the condition that system influent and effluent copper samples are collected on an annual basis for two years. The first annual system influent and effluent copper sampling will occur during the next routine triennial sampling event for Title 22 metals (December 2013). The second annual system influent and effluent copper sampling will occur in December 2014. Routine reporting and additional sampling (if required) will continue in accordance with the trigger limits, as specified in the NPDES permit. However, in the event that copper concentrations exceed the trigger limit in either of these annual copper sampling events but are reported within the systems established historic range (i.e., background concentrations), no additional sampling associated with a copper trigger concentration exceedance is necessary.

Difficulties were encountered during well gauging activities. There have been consistent issues during the gauging of wells WU4-2 and W9-13. WU4-2 had an obstruction at roughly 4.0 feet bgs and the well casing for W9-13 had been covered by concrete which prevented the well head from being opened. The obstruction in well WU4-2 was cleared in September 2012 and the well was gauged as part of the September 2012 gauging event. The concrete within the well vault of W9-13 was not removed prior to the September 2012 gauging event, and thus well W9-13 was not gauged during either the March or September 2012 gauging events. The concrete within well W9-13 has since been removed and access to this well is no longer an issue. Well WSW-1 is located within a secured armament magazine area and access to the well requires an escort. During the September 2012 gauging event, the magazine was shuttered and unmanned. Thus, no escort was available and well WSW-1 was not gauged in September 2012.

Well WFH-06, located at IR Site 26, contained groundwater elevation data that is an outlier to the potentiometric maps in both March and September 2012. Thus, groundwater elevation data collected from this well was not used in the 2012 potentiometric maps for IR Site 26. This well has exhibited outlier groundwater elevation data since the 2007 gauging events. For this reason, optimization of the IR Site 26 well gauging network to remove and decommission well WFH-06 should be considered. Well WFH-06 is not part of the IR Site 26 groundwater sampling network.

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

There were no unexpected O&M difficulties, cost exceedances, or violation notices for WATS during the 2012 reporting period.

The QA/QC Evaluation of Analytical Data did not reveal issues requiring attention in future sampling events.

EATS remained off-line during 2012. Therefore, no unexpected O&M difficulties, cost exceedances, or violation notices were related to EATS during the 2012 reporting period.

6.0 TECHNICAL ASSESSMENT

This section provides the technical assessment developed from the 2012 analysis performed for IR Site 26 and IR Site 28 areas.

6.1 IR SITE 28

WATS is functioning as intended. The volume of water treated by WATS since start-up is approximately 451,761,124 gallons. The volume of groundwater extracted and treated by WATS during 2012 is approximately 20,756,813 gallons. The volume of SDA water treated by WATS in 2012 is approximately 2,154,955 gallons. The total volume processed by WATS in 2012 is approximately 22,911,768 gallons. The mass of VOCs removed since the WATS start-up is approximately 5,505 pounds. The mass of VOCs removed during 2012 is approximately 200 pounds. All 2012 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 2012 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 2-7, 2-8, and 2-112 through 2-117). A comparison of 2011 and 2012 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 2012 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 2012 capture zone maps (Figures 2-58, 2-59, 2-60 and 2-61) indicate the groundwater extraction system intercepted the majority of the VOC contamination in the target zone. It should be noted that the WATS extraction wells have been corrected for well loss, and thus the associated capture zones illustrated on these figures are conservative.

In the upper portion of the A aquifer, the capture zone appears to encompass the VOC plumes except for potentially minor sections of the eastern portion of the TCE and cis-1,2-DCE plumes east and southeast of Hangar 1. However, the general analytical trends along this eastern and southeastern border area indicate a relatively stable to decreasing trend for these two compounds over time, which is indicative of effective plume capture. Additionally, due to the conservative nature of the capture zones drawn for the WATS extraction wells, it is likely that more of the TCE and cis-1,2-DCE plumes are being captured than what is illustrated in the associated capture zone figures.

In the lower portion of the A aquifer, the capture zone appears to encompass the VOC plumes except for potentially minor portions of the TCE and cis-1,2-DCE plumes' furthest downgradient reach and potentially minor sections of the eastern portion east and southeast of Hangar 1. However, TCE and 1,2-

DCE concentrations within this eastern and southeastern border area are near cleanup goals and the general analytical trends along this eastern and southeastern border area indicate a relatively stable to decreasing trend for these two compounds over time. This data indicates that effective plume capture within this area is likely occurring. Additionally, due to the conservative nature of the capture zones drawn for the WATS extraction wells, it is likely that more of the TCE and cis-1,2-DCE plumes within the lower portion of the A aquifer are being captured than what is illustrated in the associated capture zone figures.

Optimization efforts for regional plume capture were evaluated in the preliminary draft Supplemental Sitewide Groundwater Feasibility Study develop by the EPA for the MEW Study Area (Supplemental FS). In March 2013, the EPA announced that it will not be finalizing the Supplemental FS at this time. The Navy will be working with the EPA to develop a plan to optimize groundwater treatment and remove contaminant mass in the WATS area.

6.2 IR SITE 26

EATS was taken off-line in July 2003. EATS remained off-line throughout the 2012 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 Navy finalized the FFS to evaluate remedial alternatives that may be more efficient than pump and treat to address the low VOC concentrations (Shaw 2012) currently present at IR Site 26. A recommended alternative for Site 26 will be presented in the Proposed Plan and, if needed, the Record of Decision will be amended.

7.0 CONCLUSIONS AND RECOMMENDATIONS

This section presents conclusions and recommendations developed from the 2012 analysis performed for WATS and EATS.

7.1 IR SITE 28

WATS continues to function as intended. The 2012 capture zone maps indicate the groundwater extraction system intercepted the majority 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 minor sections of the eastern portion of the TCE and cis-1,2-DCE plumes east and southeast of Hangar 1. However, the general analytical trends along this eastern and southeastern border area indicate a relatively stable to decreasing trend for these two compounds over time, which is indicative of effective plume capture. Additionally, due to the conservative nature of the capture zones drawn for the WATS extraction wells, it is likely that more of the TCE and cis-1,2-DCE plumes are being captured than what is illustrated in the associated capture zone figures.

In the lower portion of the A aquifer, the capture zone appears to encompass the VOC plumes except for potentially minor portions of the TCE and cis-1,2-DCE plumes' furthest downgradient reach and potentially minor sections of the eastern portion east and southeast of Hangar 1. However, TCE and 1,2-DCE concentrations within this eastern and southeastern border area are near cleanup goals and the general analytical trends along this eastern and southeastern border area indicate a relatively stable to decreasing trend for these two compounds over time. This data indicates that effective plume capture within this area is likely occurring. Additionally, due to the conservative nature of the capture zones drawn for the WATS extraction wells, it is likely that more of the TCE and cis-1,2-DCE plumes within the lower portion of the A aquifer are being captured than what is illustrated in the associated capture zone figures.

Optimization efforts for regional plume capture were evaluated in the preliminary draft Supplemental Sitewide Groundwater Feasibility Study developed by the EPA for the MEW Study Area (Supplemental FS). In March 2013, the EPA announced that it will not be finalizing the Supplemental FS at this time. The Navy will be working with the EPA to develop a plan to optimize groundwater treatment and remove contaminant mass in the WATS area.

The reduction in operation of EA1-1 and EA1-2 in 2010, 2011, and the first quarter of 2012 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 2012 indicate that TCE continues to be the most prevalent VOC captured by WATS, followed in mass by cis-1,2-DCE, PCE, and VC.

Analytical data collected from wells in September 2012 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 2011. VOC concentration-time plots generally indicate stable and decreasing concentrations in wells on the plume periphery, demonstrating adequate plume control. In 2012, 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, NASA recently resumed the sampling of NASA wells NASA-2A, 11M17A, 11M21A, 11N21A, and 11N22A, which have provided 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 2012.

In 2012, eight wells within IR Site 28 were optimized out of the groundwater sampling network: 14D26A1, 14D28A, 80B1, W9-26, W9SC-7, WU4-8, WWR-1, and WWR-2 (SES-TECH 2012a). The removal of these eight wells had no impact on the program reporting and is therefore appropriate. Additionally, in 2012 the annual groundwater sampling program at IR Site 28 was modified to include the full implementation of PDBs when sampling for VOC analysis. 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 2012 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).

In 2012, two wells within IR Site 26 were optimized out of the groundwater sampling network: W4-3 and W19-4 (SES-TECH 2012a). Additionally, in 2012 the sampling frequency for six wells (W6-2, WU5-8, WU5-9, WU5-11, WU5-12, and WU5-13) at IR Site 26 was reduced from annually to biannually (SES-TECH 2012a). These six wells were not sampled in 2012 and will next be sampled in 2013. The removal of these two wells and the reduction in sampling frequency of these six wells had no impact on the program reporting and is therefore appropriate. As with IR Site 28, the annual groundwater sampling program at IR Site 26 has been modified to include the full implementation of PDBs when sampling for VOC analysis.

Well WFH-06, located at IR Site 26, contained groundwater elevation data that is an outlier to the potentiometric maps in both March and September 2012. Thus, groundwater elevation data collected from this well was not used in the 2012 potentiometric maps for IR Site 26. Well WFH-06 has exhibited outlier groundwater elevation data since the 2007 gauging events. Additionally, the entire WFH well group (WFH-01 through WFH-06) has contained groundwater elevation data of marginal quality since the 2007 sampling events. Due to the fact that the WFH well group adds little value to the rendering of the potentiometric surface maps at IR Site 26, optimization of the IR Site 26 well gauging network to remove and decommission wells WFH-01 through WFH-06 should be considered. Wells WFH-01 through WFH-06 are not part of the IR Site 26 groundwater sampling network.

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 2013 AND PLANNED FUTURE ACTIVITIES

Monitoring and reporting activities planned for IR Sites 26 and 28 in 2013 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 2013, and annual groundwater sampling to be conducted in September 2013. EATS has remained off-line in standby mode since 2003 and is not projected to be operated in 2013. The Navy finalized a FFS to evaluate remedial alternatives that may be more efficient than pump and treat to address the low VOC concentrations (Shaw 2012) currently present at IR Site 26. A recommended alternative for Site 26 will be presented in the Proposed Plan and, if needed, the ROD will be amended.

Operation and maintenance of WATS at IR Site 28 will continue in 2013. A base-wide water level gauging event is scheduled to be conducted in March 2013, and a second gauging event will be conducted in September 2013. These groundwater gauging events will be conducted in coordination with the MEW companies and NASA as part of continued regional plume monitoring efforts. The 2013 annual groundwater sampling event will be conducted in September 2013.

In February 2012 the Navy completed targeted investigations 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, which were offline to support these activities, were restarted on April 3, 2012. The results of the Navy pilot tests, along with other results of the individual optimization evaluations by the MEW Companies, were incorporated into a Sitewide Groundwater Feasibility Study for the regional plume. 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 participated in the All Parties meetings and technical workgroup meetings held by the EPA. Additionally, the Navy provided comments on the preliminary draft Supplemental Sitewide Groundwater Feasibility Study develop by the EPA for the MEW Study Area (Supplemental FS). In March 2013, the EPA announced that it will not be finalizing the Supplemental FS at this time. The Navy will be working with the EPA to develop a plan to optimize groundwater treatment and remove contaminant mass in the WATS area.

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10.0 REFERENCES

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TABLES

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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 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	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

TABLE 2-1

WATS AVERAGE MONTHLY FLOW RATES 2012

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 2012 (1/1/12 to 1/27/12)	TIME OPERATING	99.8%	0.0%	0.0%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	100.0%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	38.43	0.00	0.00	1.35	0.92	1.43	0.85	15.37	15.48	2.37	2.21	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	38.52	0.00	0.00	1.35	0.92	1.43	0.85	15.41	15.52	2.37	2.21	0.00
February 2012 (1/28/12 to 2/24/12)	TIME OPERATING	99.6%	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)	37.85	0.00	0.00	1.28	0.91	1.39	0.88	14.94	15.10	2.38	1.97	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	38.02	0.00	0.00	1.29	0.91	1.39	0.89	15.00	15.17	2.39	1.98	0.00
March 2012 (2/25/12 to 3/30/12)	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)	36.24	0.00	0.00	1.22	0.85	1.33	0.79	14.39	14.44	2.24	2.37	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	37.35	0.00	0.00	1.26	0.87	1.37	0.81	14.84	14.88	2.31	2.44	0.00
April 2012 (3/31/12 to 4/27/12)	TIME OPERATING	99.9%	89.1%	89.1%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	100%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	46.28	0.33	4.98	1.17	0.95	1.27	0.88	14.88	14.78	2.41	3.62	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	46.35	0.33	4.99	1.18	0.95	1.27	0.88	14.91	14.80	2.42	3.62	0.00
May 2012 (4/28/12 to 5/25/12)	TIME OPERATING	93.9%	93.9%	93.9%	93.9%	93.9%	93.9%	93.9%	93.9%	93.9%	93.9%	100.0%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	43.80	0.49	6.21	1.22	0.80	1.30	0.83	12.88	12.88	2.28	4.36	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	46.64	0.52	6.61	1.30	0.85	1.38	0.88	13.72	13.72	2.43	4.65	0.00
June 2012 (5/26/12 to 6/29/12)	TIME OPERATING	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	99.6%	100%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	42.32	0.92	6.57	1.45	1.12	1.63	0.95	11.68	12.39	2.85	3.00	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	42.50	0.93	6.60	1.45	1.12	1.64	0.96	11.73	12.44	2.86	3.01	0.00
July 2012 (6/30/1 to 7/27/12)	TIME OPERATING	99.6%	99.6%	99.6%	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)	49.89	0.34	9.49	1.30	1.08	1.40	0.90	12.36	10.62	2.63	6.43	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	50.11	0.34	9.53	1.30	1.08	1.41	0.91	12.42	10.66	2.64	6.46	0.00
August 2012 (7/28/12 to 8/31/12)	TIME OPERATING	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	100%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	51.24	0.50	9.25	1.32	1.01	1.36	0.98	12.34	10.61	2.59	5.96	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	51.36	0.50	9.27	1.33	1.01	1.37	0.98	12.37	10.64	2.59	5.98	0.00
September 2012 (9/1/12 to 9/28/12)	TIME OPERATING	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	100%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	49.83	0.39	9.29	1.32	0.96	1.40	0.82	12.74	10.40	2.60	4.94	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	49.98	0.39	9.32	1.33	0.96	1.40	0.82	12.78	10.43	2.61	4.95	0.00
October 2012 (9/29/12 to 10/26/12)	TIME OPERATING	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	100.0%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	41.78	0.43	5.87	1.27	0.95	1.35	0.76	11.17	9.38	2.81	4.12	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	41.90	0.43	5.89	1.27	0.95	1.36	0.77	11.21	9.40	2.82	4.14	0.00
November 2012 (10/27/12 to 11/30/12)	TIME OPERATING	98.3%	98.3%	98.3%	98.3%	98.3%	98.3%	98.3%	98.3%	98.3%	98.3%	100.0%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	53.04	0.61	7.95	1.76	1.07	1.82	1.05	14.41	12.17	3.41	5.44	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	53.20	0.61	7.97	1.77	1.07	1.83	1.05	14.46	12.21	3.42	5.46	0.00
December 2012 (12/1/12 to 12/28/2012)	TIME OPERATING	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%	100%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	45.88	0.53	7.26	1.37	0.97	1.47	0.89	11.61	10.20	2.78	6.28	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	46.02	0.53	7.28	1.37	0.97	1.47	0.89	11.65	10.23	2.79	6.30	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 until 3 April 2012

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 2012

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 2012 (1/1/12 to 1/27/12)	1,494,265	0	0	52,425	35,645	55,599	32,919	597,666	601,833	92,024	85,754	0
February 2012 (1/28/12 to 2/24/12)	1,526,085	0	0	51,772	36,602	55,965	35,533	602,200	608,938	96,000	79,364	0
March 2012 (2/25/12 to 3/30/12)	1,826,475	0	0	61,668	42,665	66,822	39,682	725,445	727,587	113,088	119,425	0
April 2012 (3/31/12 to 4/27/12)	1,865,938	13,105	200,907	47,324	38,293	51,111	35,422	600,116	595,946	97,325	145,867	0
May 2012 (4/28/12 to 5/25/12)	1,765,884	19,762	250,399	49,244	32,184	52,277	33,476	519,366	519,385	91,914	175,900	0
June 2012 (5/26/12 to 6/29/12)	2,133,009	46,560	331,141	72,971	56,325	82,315	48,003	588,540	624,368	143,554	151,000	0
July 2012 (6/30/1 to 7/27/12)	2,011,464	13,677	382,471	52,367	43,478	56,518	36,411	498,422	428,022	105,877	259,189	0
August 2012 (7/28/12 to 8/31/12)	2,582,561	25,356	465,994	66,629	50,864	68,774	49,435	621,732	534,966	130,444	300,510	0
September 2012 (9/1/12 to 9/28/12)	2,009,189	15,667	374,506	53,364	38,526	56,309	32,882	513,568	419,139	105,010	199,034	0
October 2012 (9/29/12 to 10/26/12)	1,684,489	17,290	236,603	51,122	38,369	54,472	30,814	450,511	378,009	113,381	166,295	0
November 2012 (10/27/12 to 11/30/12)	2,138,493	24,421	320,494	71,152	43,201	73,579	42,236	581,181	490,807	137,608	219,394	0
December 2012 (12/1/12 to 12/28/2012)	1,850,067	21,333	292,644	55,147	39,115	59,077	35,961	468,140	411,329	112,100	253,223	0
2012 Total	22,887,919	197,171	2,855,159	685,185	495,267	732,818	452,774	6,766,887	6,340,329	1,338,325	2,154,955	0
Since Startup [b]	451,253,151	1,290,744	63,712,941	22,265,193	10,130,555	19,752,128	8,925,954	99,594,398	99,309,662	30,245,908	53,718,245	5,188,555

Notes:

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

Wells EA1-1 and EA1-2 were offline until 3 April 2012

[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

2012 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 15, 2012 (ft msl)	September 21, 2012 (ft msl)
EA1-1	Upper A	13.28	13.00
EA1-2	Upper A	13.96	9.76
EA1-3	Upper A	9.15	9.41
EA1-4	Upper A	4.63	4.19
EA1-5	Upper A	5.67	3.96
EA1-6	Upper A	8.31	8.68
ERM-1	Upper A	23.41	23.81
ERM-2	Upper A	22.86	22.28
ERM-3	Upper A	23.37	22.82
MCH-10LA	Upper A	13.60	13.07
MCH-1UA	Upper A	21.13	20.93
MCH-3UA	Upper A	21.88	21.45
MCH-5UA	Upper A	17.21	16.77
MCH-7UA	Upper A	13.89	13.17
MCH-9UA	Upper A	9.23	8.98
PIC-1	Upper A	11.36	11.38
PIC-10	Upper A	12.76	12.41
PIC-11	Upper A	12.31	12.14
PIC-12	Upper A	12.42	12.30
PIC-13	Upper A	12.45	12.29
PIC-14	Upper A	12.55	12.36
PIC-15	Upper A	12.74	12.63
PIC-2	Upper A	10.92	10.88
PIC-20	Upper A	10.90	10.68
PIC-21	Upper A	11.09	10.87
PIC-22	Upper A	11.11	10.88
PIC-27	Upper A	12.14	12.01
PIC-28	Upper A	12.26	12.16
PIC-29	Upper A	12.21	12.11
PIC-3	Upper A	11.04	10.90
PIC-30	Upper A	12.26	12.11
PIC-31	Upper A	11.18	11.00
PIC-32	Upper A	11.33	11.29
PIC-4	Upper A	11.21	11.08
PIC-5	Upper A	10.95	10.89
PIC-6	Upper A	12.12	11.97
PIC-7	Upper A	12.27	12.19
PIC-8	Upper A	12.25	12.13
PIC-9	Upper A	12.28	12.16
PZA1-1A	Upper A	13.29	12.90
PZA1-1B	Upper A	13.35	13.01
PZA1-1C	Upper A	13.34	12.94
PZA1-1D	Upper A	13.54	13.15
PZA1-1E	Upper A	13.40	12.99
PZA1-2A	Upper A	14.11	12.44

TABLE 2-3

2012 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 15, 2012 (ft msl)	September 21, 2012 (ft msl)
PZA1-2B	Upper A	14.09	12.64
PZA1-2C	Upper A	14.11	13.03
PZA1-2D	Upper A	14.05	12.34
PZA1-3A	Upper A	8.99	9.24
PZA1-3B	Upper A	9.21	9.38
PZA1-3C	Upper A	9.19	9.39
PZA1-3D	Upper A	9.20	9.32
PZA1-4B	Upper A	4.66	4.37
PZA1-4C	Upper A	4.92	4.64
PZA1-4D	Upper A	4.48	4.07
PZA1-5A	Upper A	5.69	5.05
PZA1-5B	Upper A	5.53	4.95
PZA1-5C	Upper A	5.72	5.17
PZA1-5D	Upper A	5.43	4.88
PZA1-6A	Upper A	8.55	8.69
PZA1-6B	Upper A	8.45	8.66
PZA1-6C	Upper A	8.39	8.55
PZNX-2	Upper A	14.77	14.05
UST29-MW01	Upper A	3.77	3.46
UST29-MW02	Upper A	3.55	3.07
UST3-MW-01	Upper A	4.18	3.66
UST3-MW-02	Upper A	3.40	3.12
UST85-MW02	Upper A	13.01	13.47
UST85-MW03	Upper A	13.29	12.92
W12-20	Upper A	-0.02	-0.64
W14-11	Upper A	22.82	22.25
W14-12	Upper A	23.49	22.89
W14-13	Upper A	22.50	21.94
W14-2	Upper A	21.01	21.88
W14-3	Upper A	23.93	23.50
W20-01	Upper A	3.19	2.61
W29-3	Upper A	8.28	8.62
W56-2	Upper A	11.02	11.29
W60-1	Upper A	21.15	20.71
W60-2	Upper A	21.79	21.42
W8-4	Upper A	0.08	-0.76
W8-8	Upper A	-0.59	-1.67
W89-1	Upper A	22.55	22.27
W89-10	Upper A	11.01	11.09
W89-14	Upper A	19.47	19.88
W89-5	Upper A	18.56	18.98
W89-9	Upper A	11.88	12.21
W9-1	Upper A	9.01	9.21
W9-10	Upper A	5.64	5.35
W9-16	Upper A	16.24	16.34

TABLE 2-3

2012 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 15, 2012 (ft msl)	September 21, 2012 (ft msl)
W9-2	Upper A	11.02	11.22
W9-23	Upper A	9.49	9.67
W9-24	Upper A	5.17	4.78
W9-26	Upper A	5.90	5.81
W9-31	Upper A	8.34	8.49
W9-33	Upper A	12.52	12.53
W9-45	Upper A	12.30	12.84
W9-47	Upper A	9.48	9.65
W9-7	Upper A	11.05	11.25
W9-8	Upper A	12.72	12.89
W9-9	Upper A	10.45	10.60
W9SC-1	Upper A	8.61	8.63
W9SC-11	Upper A	9.51	9.61
W9SC-13	Upper A	9.76	9.96
W9SC-14	Upper A	14.43	14.11
W9SC-16	Upper A	14.59	14.27
W9SC-17	Upper A	14.64	14.43
W9SC-18	Upper A	8.17	8.55
W9SC-2	Upper A	8.44	8.35
W9SC-21	Upper A	16.08	15.92
W9SC-4	Upper A	8.54	8.60
W9SC-5	Upper A	8.29	8.27
W9SC-7	Upper A	7.47	6.67
WIC-1	Upper A	12.19	12.04
WIC-11	Upper A	11.13	10.94
WIC-2	Upper A	11.50	11.34
WIC-3	Upper A	11.34	11.15
WIC-4	Upper A	11.43	10.76
WIC-5	Upper A	12.23	12.06
WIC-6	Upper A	12.70	12.12
WIC-7	Upper A	12.25	12.10
WIC-8	Upper A	12.15	12.03
WIC-9	Upper A	10.98	10.92
WNB-1	Upper A	-1.33	-3.83
WNB-8	Upper A	-1.76	-2.05
WNX-1	Upper A	13.85	13.63
WNX-2	Upper A	13.88	13.56
WNX-3	Upper A	15.03	14.32
WNX-4	Upper A	14.64	14.02
WSI-1	Upper A	25.37	25.08
WSI-2	Upper A	23.65	23.16
WSI-3	Upper A	20.26	19.81
WSI-4	Upper A	-0.23	-1.41
WT14-1	Upper A	16.13	18.73
WT41A-1	Upper A	16.57	16.23

TABLE 2-3

2012 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 15, 2012 (ft msl)	September 21, 2012 (ft msl)
WT87-1	Upper A	13.94	14.09
WU4-1	Upper A	21.98	21.82
WU4-17	Upper A	8.54	8.66
WU4-21	Upper A	5.24	4.58
WU4-25	Upper A	11.10	10.49
WU4-3	Upper A	17.30	17.02
WU4-8	Upper A	5.67	5.00
WWR-1	Upper A	14.17	12.40
WWR-2	Upper A	16.08	15.31
WWR-3	Upper A	16.06	16.68
W29-4	Upper A	10.55	10.59
W29-5	Upper A	5.94	5.88
W56-1	Upper A	10.38	10.39
W89-6	Upper A	19.58	19.81
W89-7	Upper A	18.06	18.43
W9-36	Upper A	12.98	13.03
W9-39	Upper A	8.85	9.14
W9-13	Lower A	N/A	N/A
W9-17	Lower A	14.61	14.48
W9-20	Lower A	11.56	11.35
W9-21	Lower A	12.51	12.00
W9-22	Lower A	6.79	7.21
W9-25	Lower A	8.83	8.96
W9-27	Lower A	6.59	6.59
W9-28	Lower A	8.96	7.42
W9-34	Lower A	11.93	12.07
W9-35	Lower A	11.15	10.98
WNB-10	Lower A	-1.23	-3.97
WNB-11	Lower A	-1.77	-4.04
WU4-11	Lower A	11.56	11.11
WU4-15	Lower A	5.20	5.15
WU4-4	Lower A	16.00	16.04
WU4-7	Lower A	16.20	15.85
WU4-9	Lower A	5.52	4.99
PIC-16	Lower A	11.58	11.25
PIC-17	Lower A	11.44	11.34
PIC-18	Lower A	11.35	11.21
PIC-19	Lower A	11.48	11.41
EA2-1	Lower A	10.11	-10.64
EA2-2	Lower A	5.83	-4.94
EA2-3	Lower A	5.86	5.74
MCH-11UA	Lower A	16.25	15.77
MCH-2LA	Lower A	21.24	21.02
MCH-4LA	Lower A	22.41	22.03
MCH-6LA	Lower A	14.99	14.64

TABLE 2-3

2012 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 15, 2012 (ft msl)	September 21, 2012 (ft msl)
MCH-8LA	Lower A	13.35	12.90
PIC-23	Lower A	11.11	11.01
PIC-24	Lower A	12.35	12.05
PIC-25	Lower A	12.26	12.12
PIC-26	Lower A	12.30	12.11
PZA2-1A	Lower A	9.14	2.29
PZA2-1B	Lower A	9.20	3.63
PZA2-1C	Lower A	9.62	7.86
PZA2-1D	Lower A	9.51	8.77
PZA2-2A	Lower A	5.69	2.47
PZA2-2B	Lower A	5.89	5.51
PZA2-2C	Lower A	6.56	6.42
PZA2-2D	Lower A	5.27	4.13
PZA2-4E	Lower A	3.18	2.39
W12-6	Lower A	0.50	-0.11
W14-1	Lower A	23.71	23.34
W29-1	Lower A	5.13	5.02
W29-2	Lower A	7.01	6.85
W29-7	Lower A	5.12	5.00
W29-8	Lower A	6.97	7.42
W58-1	Lower A	24.38	23.93
W8-1	Lower A	0.03	-0.85
W8-11	Lower A	-0.02	-0.84
W8-2	Lower A	-0.21	-1.08
W8-6	Lower A	0.01	-1.07
W89-11	Lower A	23.24	23.07
W89-12	Lower A	23.61	23.52
W89-2	Lower A	22.31	22.18
W89-8	Lower A	13.62	14.98
W9-14	Lower A	13.62	13.37
W9-18	Lower A	13.47	12.19
W9-19	Lower A	15.27	15.25
W9-29	Lower A	14.01	13.17
W9-42	Lower A	14.33	13.36
W9-43	Lower A	6.26	5.64
W9-44	Lower A	14.07	14.18
W9SC-12	Lower A	10.19	10.35
W9SC-15	Lower A	14.35	14.04
W9SC-20	Lower A	15.57	15.32
W9SC-3	Lower A	8.69	8.39
W9SC-8	Lower A	7.46	6.75
WIC-10	Lower A	11.13	10.94
WIC-12	Lower A	11.15	10.96
WNB-12	Lower A	-1.22	-2.95
WNB-13	Lower A	-2.35	-3.04

TABLE 2-3

2012 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 15, 2012 (ft msl)	September 21, 2012 (ft msl)
WNB-14	Lower A	6.23	6.08
WNB-26	Lower A	-0.01	-5.19
WNB-7	Lower A	-0.98	-2.63
WU4-10	Lower A	11.56	10.71
WU4-12	Lower A	14.55	14.95
WU4-13	Lower A	11.78	12.04
WU4-14	Lower A	4.64	4.27
WU4-16	Lower A	7.97	8.05
WU4-18	Lower A	1.75	1.15
WU4-19	Lower A	3.27	2.89
WU4-2	Lower A	N/A	19.83
WU4-24	Lower A	8.32	7.63
WU4-5	Lower A	22.96	22.77
W14-5	Lower A	24.38	23.99
W14-6	Lower A	23.77	23.47
W9-37	Lower A	15.12	14.94
W14-10[a]	C	23.59	23.08
W14-4[a]	C	22.68	22.11
W8-3	B	24.51	24.51
W88-3	B	8.16	7.86
W9-11	B	5.28	4.88
W9-12	B	14.77	14.65
W9-15	B	12.58	12.39
W9-30	B	15.18	14.73
W9-4	B	6.11	5.96
W9-40	B	14.25	14.19
W9-5	B	7.59	7.38
W88-1	B	14.18	13.97
W88-2	B	6.10	6.03
W9-3	B	21.70	21.47

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 2012 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:		**ROD**	**12-2012IR280214C33A**	**12-2012IR280214D05A**	**12-2012IR280214D12A**	**12-2012IR280214D24A**
Location:	**Units**	**Cleanup**	**14C33A**	**14D05A**	**14D12A**	**14D24A**
Sample Date:		**Standard**	**9/24/2012**	**9/25/2012**	**9/24/2012**	**9/24/2012**
1,1,1-Trichloroethane	µg/L	200	0.25 U	1.3 U	0.25 U	0.25 U
1,1-Dichloroethane	µg/L	5.0	0.25 U	**10**	**7.0**	1.2
1,1-Dichloroethene	µg/L	6.0	0.25 U	**14**	3.1	0.41 J
1,2-Dichloroethane	µg/L	0.5*	0.25 U	1.3 U	0.25 U	0.25 U
2-Butanone	µg/L	NE	1.0 U	5.0 U	1.0 U	1.0 U
2-Hexanone	µg/L	NE	0.50 U	2.5 U	0.50 U	0.50 U
Acetone	µg/L	NE	1.0 J	10 U	3.8	2.0 U
Benzene	µg/L	1.0*	0.25 U	0.73 J	0.35 J	0.25 U
Chloroethane	µg/L	NE	0.25 U	1.3 U	0.25 U	0.25 U
Chloroform	µg/L	100	0.25 U	1.3 U	0.25 U	0.25 U
Chloromethane	µg/L	NE	0.25 U	1.3 U	0.25 U	0.25 U
cis-1,2-Dichloroethene	µg/L	6.0	0.26 J	**870**	**340**	**31**
Ethylbenzene	µg/L	300*	0.25 U	1.3 U	0.25 U	0.25 U
Freon 113	µg/L	1,200*	0.25 U	4.0 J	1.0	0.25 U
Tetrachloroethene	µg/L	5.0	0.50 U	2.5 U	2.0	0.50 U
Toluene	µg/L	150*	0.25 U	1.3 U	0.25 U	0.30 J
trans-1,2-Dichloroethene	µg/L	10	0.25 U	4.2 J	2.6	1.7
Trichloroethene	µg/L	5.0	0.50 U	**10**	**15**	**19**
Vinyl acetate	µg/L	NE	0.25 U	1.3 U	0.25 U	0.25 U
Vinyl chloride	µg/L	0.5	0.25 U	0.50 U	**6.7**	0.25 U
Xylenes (total)	µg/L	1,750*	0.50 U	0.50 U	0.50 U	0.50 U

Sample Number:		**ROD**	**12-2012IR2802W9-22**	**12-2012IR2802W9-24**	**12-2012IR2802-W9-31**	**12-2012IR2802-W9-33**
Location:	**Units**	**Cleanup**	**W9-22**	**W9-24**	**W9-31**	**W9-33**
Sample Date:		**Standard**	**9/24/2012**	**9/25/2012**	**9/24/2012**	**9/24/2012**
1,1,1-Trichloroethane	µg/L	200	1.3 U	0.25 U	0.63 U	0.63 U
1,1-Dichloroethane	µg/L	5.0	**12**	3.5	4.9	3.0
1,1-Dichloroethene	µg/L	6.0	**23**	0.25 U	0.73 J	5.3
1,2-Dichloroethane	µg/L	0.5*	1.3 U	0.25 U	0.63 U	0.63 U
2-Butanone	µg/L	NE	5.0 U	1.0 U	2.5 U	2.5 U
2-Hexanone	µg/L	NE	2.5 U	0.50 U	1.3 U	1.3 U
Acetone	µg/L	NE	2.6 J	4.3 U	5.0 U	5.0 U
Benzene	µg/L	1.0*	1.3 U	0.10 J	0.38 J	0.63 U
Chloroethane	µg/L	NE	1.3 U	0.25 U	0.63 U	0.63 U
Chloroform	µg/L	100	1.3 U	0.25 U	0.63 U	21
Chloromethane	µg/L	NE	1.3 U	0.25 U	0.63 U	0.63 U
cis-1,2-Dichloroethene	µg/L	6.0	**450**	0.69 J	**680**	**190**
Ethylbenzene	µg/L	300*	1.3 U	0.15 J	0.63 U	0.63 U
Freon 113	µg/L	1,200*	17	0.25 U	0.63 U	12
Tetrachloroethene	µg/L	5.0	1.2 J	0.50 U	1.3 U	1.3 U
Toluene	µg/L	150*	0.84 J	0.81 J	0.66 J	0.63 U
trans-1,2-Dichloroethene	µg/L	10	2.4 J	0.86 J	4.1	0.72 J
Trichloroethene	µg/L	5.0	**1200**	0.50 U	1.3 U	**370**
Vinyl acetate	µg/L	NE	1.3 U	0.25 U	0.63 U	0.63 U
Vinyl chloride	µg/L	0.5	**11**	**31**	**260**	**1.9 J**
Xylenes (total)	µg/L	1,750*	2.5 U	0.51 J	0.61 J	1.3 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:	**Units**	**ROD**	**12-2012IR280214D31A2**	**12-2012IR280214D36A**	**12-2012IR280214D39A**	**12-2012IR2802165A**
Location:		**Cleanup**	**14D31A2**	**14D36A**	**14D39A**	**165A**
Sample Date:		**Standard**	**9/24/2012**	**9/24/2012**	**9/24/2012**	**9/24/2012**
1,1,1-Trichloroethane	µg/L	200	0.25 U	0.25 U	0.25 U	0.93 J
1,1-Dichloroethane	µg/L	5.0	0.46 J	2.4	0.25 U	2.5
1,1-Dichloroethene	µg/L	6.0	0.25 U	1.4	0.25 U	2.9
1,2-Dichloroethane	µg/L	0.5*	0.25 U	0.25 U	0.25 U	0.63 U
2-Butanone	µg/L	NE	1.0 U	1.0 U	1.6 J	2.5 U
2-Hexanone	µg/L	NE	0.50 U	0.50 U	0.50 U	1.3 U
Acetone	µg/L	NE	7.1	1.4 J	2.0 U	1.2 J
Benzene	µg/L	1.0*	0.25 U	0.25 U	0.25 U	0.63 U
Chloroethane	µg/L	NE	0.25 U	0.25 U	0.25 U	0.63 U
Chloroform	µg/L	100	0.25 U	0.25 U	0.25 U	0.26 J
Chloromethane	µg/L	NE	0.25 U	0.25 U	0.25 U	0.63 U
cis-1,2-Dichloroethene	µg/L	6.0	0.38 J	**35**	0.25 U	**110**
Ethylbenzene	µg/L	300*	0.15 J	0.25 U	0.24 J	0.63 U
Freon 113	µg/L	1,200*	0.25 U	0.25 U	0.25 U	0.63 U
Tetrachloroethene	µg/L	5.0	0.50 U	0.64 J	0.50 U	1.3 U
Toluene	µg/L	150*	0.78 J	0.47 J	0.50 J	0.63 U
trans-1,2-Dichloroethene	µg/L	10	0.25 U	0.52 J	0.25 U	1.1 J
Trichloroethene	µg/L	5.0	0.50 U	**9.7**	0.50 U	**220**
Vinyl acetate	µg/L	NE	0.25 U	0.25 U	0.25 U	0.63 U
Vinyl chloride	µg/L	0.5	0.25 U	0.25 U	0.25 U	0.63 U
Xylenes (total)	µg/L	1,750*	0.59 J	0.50 U	0.43 J	1.3 U

Sample Number:	**Units**	**ROD**	**12-2012IR2802-W9-34**	**12-2012IR2802W9-37**	**12-2012IR2802W9-40**	**12-2012IR2802W9-44**
Location:		**Cleanup**	**W9-34**	**W9-37**	**W9-40**	**W9-44**
Sample Date:		**Standard**	**9/24/2012**	**9/24/2012**	**9/24/2012**	**9/24/2012**
1,1,1-Trichloroethane	µg/L	200	0.53 J	1.3 U	0.25 U	2.5 U
1,1-Dichloroethane	µg/L	5.0	**20**	**9.8 J**	0.25 U	**9.9 J**
1,1-Dichloroethene	µg/L	6.0	**11**	2.4 J	0.25 U	**11 J**
1,2-Dichloroethane	µg/L	0.5*	1.3 U	1.3 U	0.25 U	2.5 U
2-Butanone	µg/L	NE	5.0 U	5.0 U	1.0 U	40 J
2-Hexanone	µg/L	NE	2.5 U	2.5 U	0.50 U	5.0 U
Acetone	µg/L	NE	10 U	11 UJ	2.3 UJ	23 UJ
Benzene	µg/L	1.0*	1.3 U	1.3 U	0.25 U	2.5 U
Chloroethane	µg/L	NE	1.3 U	1.3 U	0.25 U	2.5 U
Chloroform	µg/L	100	1.3 U	1.3 U	0.17 J	2.5 U
Chloromethane	µg/L	NE	1.3 U	1.3 U	0.25 U	2.5 U
cis-1,2-Dichloroethene	µg/L	6.0	**1200**	**800 J**	0.25 U	**420 J**
Ethylbenzene	µg/L	300*	1.3 U	1.3 U	0.13 J	2.5 U
Freon 113	µg/L	1,200*	7.1	3.4 J	0.25 U	5.9 J
Tetrachloroethene	µg/L	5.0	2.5 U	2.5 U	0.50 U	2.7 J
Toluene	µg/L	150*	1.3 U	1.5 J	0.61 J	2.5 U
trans-1,2-Dichloroethene	µg/L	10	1.3 U	5.1 J	0.25 U	3.2 J
Trichloroethene	µg/L	5.0	**8.0**	2.5 U	0.50 U	**760 J**
Vinyl acetate	µg/L	NE	1.3 U	1.3 U	0.25 U	2.5 U
Vinyl chloride	µg/L	0.5	**170**	**510 J**	0.25 U	2.5 U
Xylenes (total)	µg/L	1,750*	2.5 U	1.9 J	3.0 UJ	5.0 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:		**ROD**	**12-2012IR2802165AD**	**12-2012IR280245B2**	**12-2012IR2802EA1-1**	**12-2012IR2802EA1-2**
Location:	**Units**	**Cleanup**	**165A (Dup)**	**45B2**	**EA1-1**	**EA1-2**
Sample Date:		**Standard**	**9/24/2012**	**9/26/2012**	**9/25/2012**	**9/25/2012**
1,1,1-Trichloroethane	µg/L	200	0.95 J	0.25 U	1.3 U	1.5
1,1-Dichloroethane	µg/L	5.0	2.7	0.25 U	**5.2**	4.0
1,1-Dichloroethene	µg/L	6.0	2.9	0.25 U	**7.8**	5.1
1,2-Dichloroethane	µg/L	0.5*	0.63 U	0.25 U	1.3 U	0.25 U
2-Butanone	µg/L	NE	2.5 U	1.0 U	5.0 U	1.0 U
2-Hexanone	µg/L	NE	1.3 U	0.50 U	2.5 U	0.50 U
Acetone	µg/L	NE	2.5 U	2.1 U	10 U	1.0 U
Benzene	µg/L	1.0*	0.63 U	0.25 U	1.3 U	0.25 U
Chloroethane	µg/L	NE	0.63 U	0.25 U	11	0.54 J
Chloroform	µg/L	100	0.26 J	0.25 U	0.92 J	0.19 J
Chloromethane	µg/L	NE	0.63 U	0.25 U	1.3 U	0.25 U
cis-1,2-Dichloroethene	µg/L	6.0	**110**	0.25 U	**1200**	**100**
Ethylbenzene	µg/L	300*	0.63 U	0.25 U	1.3 U	0.25 U
Freon 113	µg/L	1,200*	0.63 U	0.25 U	5.6	2.1
Tetrachloroethene	µg/L	5.0	1.3 U	0.50 U	**33**	0.83 J
Toluene	µg/L	150*	0.63 U	0.13 J	1.3 U	0.25 U
trans-1,2-Dichloroethene	µg/L	10	1.3 J	0.25 U	4.9 J	1.1
Trichloroethene	µg/L	5.0	**220**	0.50 U	**31**	**190**
Vinyl acetate	µg/L	NE	0.63 U	0.25 U	1.3 U	0.25 U
Vinyl chloride	µg/L	0.5	0.63 U	0.25 U	**84**	**0.95 J**
Xylenes (total)	µg/L	1,750*	1.3 U	0.29 J	2.5 U	0.50 U

Sample Number:		**ROD**	**12-2012IR2802W9-45**	**12-2012IR2802W9-7**	**12-2012IR2802W9-8**	**12-2012IR2802W9-9**
Location:	**Units**	**Cleanup**	**W9-45**	**W9-7**	**W9-8**	**W9-9**
Sample Date:		**Standard**	**9/25/2012**	**9/24/2012**	**9/24/2012**	**9/24/2012**
1,1,1-Trichloroethane	µg/L	200	0.79 J	1.3 U	2.5 U	0.37 J
1,1-Dichloroethane	µg/L	5.0	**5.3**	**7.1 J**	**17 J**	**5.4**
1,1-Dichloroethene	µg/L	6.0	**10**	**10 J**	**37 J**	0.91 J
1,2-Dichloroethane	µg/L	0.5*	0.63 U	1.3 U	2.5 U	0.63 U
2-Butanone	µg/L	NE	2.5 U	8.3 J	10 U	2.5 U
2-Hexanone	µg/L	NE	1.3 U	2.5 U	5.0 U	1.3 U
Acetone	µg/L	NE	5.0 U	10 UJ	22 UJ	5.5
Benzene	µg/L	1.0*	0.63 U	1.3 U	2.5 U	0.63 U
Chloroethane	µg/L	NE	0.63 U	1.3 U	2.5 U	0.63 U
Chloroform	µg/L	100	0.63 U	1.3 U	2.5 U	0.63 U
Chloromethane	µg/L	NE	0.63 U	1.3 U	2.5 U	0.63 U
cis-1,2-Dichloroethene	µg/L	6.0	**170**	**1100**	**2300 J**	**46**
Ethylbenzene	µg/L	300*	0.63 U	1.3 U	2.5 U	0.63 U
Freon 113	µg/L	1,200*	3.0	5.4 J	8.4 J	2.3 J
Tetrachloroethene	µg/L	5.0	4.0	2.5 U	5.0 U	1.3 U
Toluene	µg/L	150*	0.50 J	1.3 U	2.5 U	0.29 J
trans-1,2-Dichloroethene	µg/L	10	0.87 J	5.1 J	**15 J**	2.1 J
Trichloroethene	µg/L	5.0	**290**	**17 J**	5.0 U	2.1 J
Vinyl acetate	µg/L	NE	0.63 U	1.3 U	2.5 U	0.63 U
Vinyl chloride	µg/L	0.5	0.45 J	**43 J**	**130 J**	**350**
Xylenes (total)	µg/L	1,750*	1.3 U	1.8 J	5.0 U	1.3 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:		**ROD**	**12-2012IR2802EA1-3**	**12-2012IR2802EA1-4**	**12-2012IR2802EA1-5**	**12-2012IR2802EA1-6**
Location:	**Units**	**Cleanup**	**EA1-3**	**EA1-4**	**EA1-5**	**EA1-6**
Sample Date:		**Standard**	**9/25/2012**	**9/25/2012**	**9/25/2012**	**9/25/2012**
1,1,1-Trichloroethane	μg/L	200	0.25 U	0.63 U	0.25 U	0.25 U
1,1-Dichloroethane	μg/L	5.0	**5.3**	**8.9 J**	3.0	3.7 J
1,1-Dichloroethene	μg/L	6.0	1.3	4.9 J	1.2	0.25 U
1,2-Dichloroethane	μg/L	0.5*	0.25 U	0.63 U	0.25 U	0.25 U
2-Butanone	μg/L	NE	1.0 U	2.5 U	1.0 U	20 J
2-Hexanone	μg/L	NE	0.50 U	1.3 U	0.50 U	0.50 U
Acetone	μg/L	NE	1.0 U	5.2 UJ	2.0 U	1.0 U
Benzene	μg/L	1.0*	0.49 J	0.63 U	0.13 J	0.14 J
Chloroethane	μg/L	NE	0.25 U	0.63 U	0.25 U	0.25 U
Chloroform	μg/L	100	0.25 U	0.63 U	0.25 U	0.25 U
Chloromethane	μg/L	NE	0.25 U	0.63 U	0.25 U	0.25 U
cis-1,2-Dichloroethene	μg/L	6.0	**170**	**230 J**	**86**	**120 J**
Ethylbenzene	μg/L	300*	0.25 U	0.63 U	0.25 U	0.25 U
Freon 113	μg/L	1,200*	0.12 J	2.7 J	0.25 U	1.8 J
Tetrachloroethene	μg/L	5.0	0.24 J	1.2 J	0.50 U	0.50 U
Toluene	μg/L	150*	0.25 U	0.63 U	0.25 U	0.25 U
trans-1,2-Dichloroethene	μg/L	10	1.6	2.0 J	4.1	0.85 J
Trichloroethene	μg/L	5.0	**7.9**	4.8 J	**8.1**	**19 J**
Vinyl acetate	μg/L	NE	0.25 U	0.63 U	0.25 U	0.25 U
Vinyl chloride	μg/L	0.5	**33**	**1.1 J**	**12**	0.45 J
Xylenes (total)	μg/L	1,750*	0.50 U	1.3 U	0.50 U	0.50 U

Sample Number:		**ROD**	**12-2012IR2802W9SC-1**	**12-2012IR2802W9SC-13**	**12-2012IR2802W9SC-14**	**12-2012IR2802W9SC-15**
Location:	**Units**	**Cleanup**	**W9SC-1**	**W9SC-13**	**W9SC-14**	**W9SC-15**
Sample Date:		**Standard**	**9/24/2012**	**9/25/2012**	**9/24/2012**	**9/24/2012**
1,1,1-Trichloroethane	μg/L	200	1.4 J	0.25 U	1.3 U	2.5 U
1,1-Dichloroethane	μg/L	5.0	**8.5**	0.25 U	**7.9**	**14 J**
1,1-Dichloroethene	μg/L	6.0	**7.2**	0.25 U	**7.0**	**32 J**
1,2-Dichloroethane	μg/L	0.5*	0.63 U	0.25 U	1.3 U	2.5 U
2-Butanone	μg/L	NE	2.5 U	1.0 U	5.0 U	10 U
2-Hexanone	μg/L	NE	1.3 U	0.50 U	2.5 U	5.0 U
Acetone	μg/L	NE	2.5 U	24 J	9.6 J	20 UJ
Benzene	μg/L	1.0*	0.63 U	**40 J**	1.3 U	2.5 U
Chloroethane	μg/L	NE	0.63 U	1.1 J	1.3 U	2.5 U
Chloroform	μg/L	100	1.0 J	0.47 J	1.3 U	2.5 U
Chloromethane	μg/L	NE	0.63 U	1.7 J	1.3 U	2.5 U
cis-1,2-Dichloroethene	μg/L	6.0	**88**	0.65 J	**1100**	**380 J**
Ethylbenzene	μg/L	300*	0.63 U	0.25 U	1.3 U	2.5 U
Freon 113	μg/L	1,200*	3.5	0.25 U	1.3 U	31 J
Tetrachloroethene	μg/L	5.0	1.8 J	0.50 U	2.5 U	**86 J**
Toluene	μg/L	150*	0.63 U	6.0 J	1.1 J	2.5 U
trans-1,2-Dichloroethene	μg/L	10	1.7 J	0.25 U	6.1	1.9 J
Trichloroethene	μg/L	5.0	**700**	0.50 U	**7.1**	**2000 J**
Vinyl acetate	μg/L	NE	0.63 U	0.25 U	1.3 U	2.5 U
Vinyl chloride	μg/L	0.5	0.63 U	**0.62 J**	**160**	**8.4 J**
Xylenes (total)	μg/L	1,750*	1.3 U	2.2 J	2.5 U	3.5 J

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:		**ROD**	**12-2012IR2802EA2-1**	**12-2012IR2802EA2-2**	**12-2012IR2802EA2-3**	**12-2012IR2802UST29-MW01**
Location:	**Units**	**Cleanup**	**EA2-1**	**EA2-2**	**EA2-3**	**UST29-MW01**
Sample Date:		**Standard**	**9/25/2012**	**9/25/2012**	**9/25/2012**	**9/24/2012**
1,1,1-Trichloroethane	µg/L	200	1.3 U	0.63 U	0.25 U	0.25 U
1,1-Dichloroethane	µg/L	5.0	**7.5**	**7.9**	**5.5**	0.17 J
1,1-Dichloroethene	µg/L	6.0	**20**	**13**	3.6	0.25 U
1,2-Dichloroethane	µg/L	0.5*	1.3 U	0.63 U	0.25 U	0.25 U
2-Butanone	µg/L	NE	5.0 U	2.5 U	1.0 U	1.0 U
2-Hexanone	µg/L	NE	2.5 U	1.3 U	0.50 U	0.50 U
Acetone	µg/L	NE	3.5 U	2.5 U	2.0 U	1.0 U
Benzene	µg/L	1.0*	1.3 U	0.31 J	0.18 J	0.25 U
Chloroethane	µg/L	NE	3.5 J	0.63 U	1.7 J	0.25 U
Chloroform	µg/L	100	1.3 U	0.63 U	0.25 U	0.25 U
Chloromethane	µg/L	NE	1.3 U	0.63 U	0.25 U	0.25 U
cis-1,2-Dichloroethene	µg/L	6.0	**530**	**430**	**170**	0.21 J
Ethylbenzene	µg/L	300*	1.3 U	0.63 U	0.25 U	0.25 U
Freon 113	µg/L	1,200*	27	10	0.84 J	0.25 U
Tetrachloroethene	µg/L	5.0	**41**	4.2	1.1	0.50 U
Toluene	µg/L	150*	1.3 U	0.63 U	0.25 U	0.36 J
trans-1,2-Dichloroethene	µg/L	10	1.8 J	1.7 J	4.0	0.25 U
Trichloroethene	µg/L	5.0	**1400**	**690**	**37**	0.50 U
Vinyl acetate	µg/L	NE	1.3 U	0.63 U	0.25 U	0.25 U
Vinyl chloride	µg/L	0.5	**5.8 J**	**21**	**2.7**	0.25 U
Xylenes (total)	µg/L	1,750*	2.5 U	1.3 U	0.50 U	0.44 J

Sample Number:		**ROD**	**12-2012IR2802W9SC-3**	**12-2012IR2802WIC-1**	**12-2012IR2802WNB-14**	**12-2012IR2802WNX-2**
Location:	**Units**	**Cleanup**	**W9SC-3**	**WIC-1**	**WNB-14**	**WNX-2**
Sample Date:		**Standard**	**9/24/2012**	**9/25/2012**	**9/24/2012**	**9/24/2012**
1,1,1-Trichloroethane	µg/L	200	2.5 U	1.3 U	0.25 U	1.3 U
1,1-Dichloroethane	µg/L	5.0	**14 J**	**6.8 J**	0.51 J	**32**
1,1-Dichloroethene	µg/L	6.0	**37 J**	**8.7 J**	0.25 U	**32**
1,2-Dichloroethane	µg/L	0.5*	2.5 U	1.3 U	0.25 U	**2.7**
2-Butanone	µg/L	NE	10 U	14 J	1.0 U	5.0 U
2-Hexanone	µg/L	NE	5.0 U	2.5 U	0.50 U	2.5 U
Acetone	µg/L	NE	20 UJ	12 UJ	2.0 U	4.0 J
Benzene	µg/L	1.0*	2.5 U	1.3 U	0.25 U	1.3 U
Chloroethane	µg/L	NE	2.5 U	1.3 U	0.25 U	65
Chloroform	µg/L	100	2.5 U	1.3 U	0.25 U	1.3 U
Chloromethane	µg/L	NE	2.5 U	1.3 U	0.25 U	1.3 U
cis-1,2-Dichloroethene	µg/L	6.0	**1200 J**	**340 J**	1.2	**1600**
Ethylbenzene	µg/L	300*	2.5 U	1.3 U	0.17 J	1.3 U
Freon 113	µg/L	1,200*	11 J	6.3 J	0.25 U	1.3 U
Tetrachloroethene	µg/L	5.0	**29 J**	**6.6 J**	0.50 U	2.5 U
Toluene	µg/L	150*	2.5 U	1.3 U	1.2	0.44 J
trans-1,2-Dichloroethene	µg/L	10	6.4 J	2.5 J	0.13 J	1.1 J
Trichloroethene	µg/L	5.0	**1900 J**	**650 J**	0.50 U	2.5 U
Vinyl acetate	µg/L	NE	2.5 U	1.3 U	0.25 U	1.3 U
Vinyl chloride	µg/L	0.5	**24 J**	**5.8 J**	**2.6**	**100**
Xylenes (total)	µg/L	1,750*	30 UJ	2.5 U	0.57 J	2.5 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:		**ROD**	**12-2012IR2802UST85-MW02**	**12-2012IR2802W20-01**	**12-2012IR2802W29-1**	**12-2012IR2802-W29-2**
Location:	**Units**	**Cleanup**	**UST85-MW02**	**W20-01**	**W29-1**	**W29-2**
Sample Date:		**Standard**	**9/25/2012**	**9/24/2012**	**9/25/2012**	**9/24/2012**
1,1,1-Trichloroethane	µg/L	200	1.3 U	0.25 U	0.25 U	0.25 U
1,1-Dichloroethane	µg/L	5.0	2.5 J	0.11 J	0.23 J	2.9
1,1-Dichloroethene	µg/L	6.0	4.9 J	0.25 U	0.25 U	0.25 U
1,2-Dichloroethane	µg/L	0.5*	1.3 U	0.25 U	0.25 U	0.25 U
2-Butanone	µg/L	NE	11 J	1.0 U	1.0 U	1.0 U
2-Hexanone	µg/L	NE	2.5 U	0.50 U	0.50 U	0.50 U
Acetone	µg/L	NE	10 UJ	1.0 U	5.1 UJ	2.0 U
Benzene	µg/L	1.0*	1.3 U	0.25 U	0.25 U	0.90 J
Chloroethane	µg/L	NE	1.3 U	0.25 U	0.25 U	0.25 U
Chloroform	µg/L	100	1.3 U	0.25 U	0.17 J	0.25 U
Chloromethane	µg/L	NE	1.3 U	0.25 U	0.25 U	0.25 U
cis-1,2-Dichloroethene	µg/L	6.0	**540 J**	0.97 J	0.30 J	0.091 J
Ethylbenzene	µg/L	300*	1.3 U	0.25 U	0.25 U	0.25 U
Freon 113	µg/L	1,200*	1.3 U	0.25 U	0.25 U	0.25 U
Tetrachloroethene	µg/L	5.0	2.5 U	0.50 U	0.50 U	0.50 U
Toluene	µg/L	150*	1.3 U	0.25 U	0.46 J	0.073 J
trans-1,2-Dichloroethene	µg/L	10	1.5 J	0.25 U	0.25 U	0.25 U
Trichloroethene	µg/L	5.0	**20 J**	0.50 U	0.50 U	0.50 U
Vinyl acetate	µg/L	NE	1.3 U	0.25 U	0.25 U	0.25 U
Vinyl chloride	µg/L	0.5	0.50 J	0.25 U	0.25 U	0.25 U
Xylenes (total)	µg/L	1,750*	1.7 J	0.50 U	0.67 J	0.50 U

Sample Number:		**ROD**	**12-2012IR2802WNX-3**	**12-2012IR2802WU4-10**	**12-2012IR2802WU4-10D**	**12-2012IR2802WU4-11**
Location:	**Units**	**Cleanup**	**WNX-3**	**WU4-10**	**WU4-10 (Dup)**	**WU4-11**
Sample Date:		**Standard**	**9/24/2012**	**9/24/2012**	**9/24/2012**	**9/24/2012**
1,1,1-Trichloroethane	µg/L	200	0.65 J	1.0	1.1	0.25 U
1,1-Dichloroethane	µg/L	5.0	3.8	**5.3**	**5.3**	0.39 J
1,1-Dichloroethene	µg/L	6.0	5.1	**6.8**	**6.8**	0.33 J
1,2-Dichloroethane	µg/L	0.5*	0.63 U	0.25 U	0.25 U	0.25 U
2-Butanone	µg/L	NE	2.5 U	1.0 U	1.0 U	1.0 U
2-Hexanone	µg/L	NE	1.3 U	0.50 U	0.50 U	0.50 U
Acetone	µg/L	NE	2.0 J	0.61 J	0.70 J	0.65 J
Benzene	µg/L	1.0*	0.63 U	0.25 U	0.25 U	0.25 U
Chloroethane	µg/L	NE	0.63 U	0.25 U	0.25 U	0.25 U
Chloroform	µg/L	100	0.63 U	0.10 J	0.11 J	0.25 U
Chloromethane	µg/L	NE	0.63 U	0.25 U	0.25 U	0.25 U
cis-1,2-Dichloroethene	µg/L	6.0	**240**	**140**	**130**	2.7
Ethylbenzene	µg/L	300*	0.63 U	0.25 U	0.25 U	0.25 U
Freon 113	µg/L	1,200*	0.63 U	1.4	1.4	0.25 U
Tetrachloroethene	µg/L	5.0	1.3 U	0.20 J	0.23 J	0.50 U
Toluene	µg/L	150*	0.63 U	0.25 U	0.25 U	0.25 U
trans-1,2-Dichloroethene	µg/L	10	0.95 J	0.75 J	0.69 J	0.25 U
Trichloroethene	µg/L	5.0	**170**	**110**	**110**	**7.4**
Vinyl acetate	µg/L	NE	0.63 U	0.25 U	0.25 U	0.25 U
Vinyl chloride	µg/L	0.5	0.63 U	0.25 U	0.25 U	0.25 U
Xylenes (total)	µg/L	1,750*	1.3 U	0.50 U	0.50 U	0.50 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER,
NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number: **Location:** **Sample Date:**	**Units**	**ROD Cleanup Standard**	**12-2012IR2802W29-2D** **W29-2 (Dup)** **9/24/2012**	**12-2012IR2802W29-3** **W29-3** **9/24/2012**	**12-2012IR2802W29-3D** **W29-3 (Dup)** **9/24/2012**	**12-2012IR2802W29-4** **W29-4** **9/24/2012**
1,1,1-Trichloroethane	µg/L	200	0.25 U	1.3 U	1.3 U	1.3 U
1,1-Dichloroethane	µg/L	5.0	3.0	**9.6 J**	**9.9 J**	**6.4 J**
1,1-Dichloroethene	µg/L	6.0	0.25 U	**9.8 J**	**11 J**	**9.4 J**
1,2-Dichloroethane	µg/L	0.5*	0.25 U	1.3 U	1.3 U	1.3 U
2-Butanone	µg/L	NE	1.0 U	5.0 U	5.0 U	5.0 U
2-Hexanone	µg/L	NE	0.50 U	2.5 U	2.5 U	2.5 U
Acetone	µg/L	NE	2.3 U	10 UJ	10 UJ	10 UJ
Benzene	µg/L	1.0*	0.98 J	1.3 U	1.3 U	1.3 U
Chloroethane	µg/L	NE	0.25 U	1.3 U	1.3 U	1.3 U
Chloroform	µg/L	100	0.25 U	1.3 U	1.3 U	1.3 U
Chloromethane	µg/L	NE	0.25 U	1.3 U	1.3 U	1.3 U
cis-1,2-Dichloroethene	µg/L	6.0	0.18 J	**800 J**	**820 J**	**570 J**
Ethylbenzene	µg/L	300*	0.25 U	1.3 U	1.3 U	1.3 U
Freon 113	µg/L	1,200*	0.25 U	3.5 J	3.5 J	2.1 J
Tetrachloroethene	µg/L	5.0	0.50 U	0.97 J	0.90 J	2.5 U
Toluene	µg/L	150*	0.25 U	1.3 U	1.3 U	1.3 U
trans-1,2-Dichloroethene	µg/L	10	0.25 U	3.6 J	3.5 J	2.0 J
Trichloroethene	µg/L	5.0	0.50 U	**36 J**	**30 J**	**560 J**
Vinyl acetate	µg/L	NE	0.25 U	1.3 U	1.3 U	1.3 U
Vinyl chloride	µg/L	0.5	0.25 U	**22 J**	**22 J**	1.3 U
Xylenes (total)	µg/L	1,750*	0.50 U	15 UJ	15 UJ	2.5 U

Sample Number: **Location:** **Sample Date:**	**Units**	**ROD Cleanup Standard**	**12-2012IR2802WU4-14** **WU4-14** **9/25/2012**	**12-2012IR2802WU4-15** **WU4-15** **9/25/2012**	**12-2012IR2802WU4-15D** **WU4-15 (Dup)** **9/25/2012**	**12-2012IR2802WU4-17** **WU4-17** **9/24/2012**
1,1,1-Trichloroethane	µg/L	200	0.25 U	0.25 U	0.25 U	0.25 U
1,1-Dichloroethane	µg/L	5.0	**6.0 J**	2.3 J	2.4 J	1.0
1,1-Dichloroethene	µg/L	6.0	1.5 J	1.8 J	1.7 J	0.25 U
1,2-Dichloroethane	µg/L	0.5*	0.11 J	0.25 U	0.25 U	0.36 U
2-Butanone	µg/L	NE	0.88 J	1.0 U	1.0 U	1.0 U
2-Hexanone	µg/L	NE	0.50 U	0.50 U	0.50 U	0.50 U
Acetone	µg/L	NE	2.0 UJ	3.3 UJ	1.5 UJ	1.0 U
Benzene	µg/L	1.0*	0.25 U	0.25 U	0.25 U	**4.6**
Chloroethane	µg/L	NE	0.25 U	0.25 U	0.25 U	0.81 J
Chloroform	µg/L	100	0.18 J	0.18 J	0.14 J	0.25 U
Chloromethane	µg/L	NE	0.25 U	0.25 U	0.25 U	0.25 U
cis-1,2-Dichloroethene	µg/L	6.0	**100 J**	**45**	**46**	1.6
Ethylbenzene	µg/L	300*	0.25 U	0.25 U	0.25 U	0.17 J
Freon 113	µg/L	1,200*	0.58 J	0.24 J	0.22 J	0.25 U
Tetrachloroethene	µg/L	5.0	0.54 J	0.85 J	0.90 J	0.50 U
Toluene	µg/L	150*	0.13 J	0.28 J	0.27 J	0.60 J
trans-1,2-Dichloroethene	µg/L	10	0.70 J	0.39 J	0.38 J	0.25 U
Trichloroethene	µg/L	5.0	1.2 J	**11 J**	**10 J**	0.50 U
Vinyl acetate	µg/L	NE	0.25 U	1.4 J	0.25 U	0.25 U
Vinyl chloride	µg/L	0.5	**1.2 J**	**0.99 J**	**0.96 J**	**8.2**
Xylenes (total)	µg/L	1,750*	0.40 J	0.37 J	0.37 J	0.55 J

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number: **Location:** **Sample Date:**	**Units**	**ROD Cleanup Standard**	**12-2012IR2802W29-5** **W29-5** **9/25/2012**	**12-2012IR2802W29-7** **W29-7** **9/25/2012**	**12-2012IR2802W29-7D** **W29-7 (Dup)** **9/25/2012**	**12-2012IR2802W56-2** **W56-2** **9/24/2012**
1,1,1-Trichloroethane	µg/L	200	0.25 U	2.5 U	2.5 U	1.3 U
1,1-Dichloroethane	µg/L	5.0	**5.5**	**17 J**	**18 J**	**19 J**
1,1-Dichloroethene	µg/L	6.0	0.25 U	**9.8 J**	**11 J**	**9.2 J**
1,2-Dichloroethane	µg/L	0.5*	0.25 U	2.5 U	2.5 U	1.3 U
2-Butanone	µg/L	NE	0.67 J	8.6 J	17 J	5.0 U
2-Hexanone	µg/L	NE	0.44 J	5.0 U	5.0 U	2.5 U
Acetone	µg/L	NE	2.0 U	20 UJ	20 UJ	11 UJ
Benzene	µg/L	1.0*	0.61 J	2.5 U	2.5 U	1.3 U
Chloroethane	µg/L	NE	0.25 U	2.5 U	2.5 U	1.3 U
Chloroform	µg/L	100	0.25 U	2.5 U	2.5 U	1.3 U
Chloromethane	µg/L	NE	0.25 U	2.5 U	2.0 J	1.3 U
cis-1,2-Dichloroethene	µg/L	6.0	**6.3**	**1600 J**	**1600 J**	**500 J**
Ethylbenzene	µg/L	300*	0.25 U	2.5 U	2.5 U	1.3 U
Freon 113	µg/L	1,200*	0.25 U	8.6 J	9.9 J	1.4 J
Tetrachloroethene	µg/L	5.0	0.50 U	5.0 U	5.0 U	2.5 U
Toluene	µg/L	150*	0.25 J	2.5 U	2.5 U	1.3 U
trans-1,2-Dichloroethene	µg/L	10	0.29 J	4.1 J	4.4 J	1.1 J
Trichloroethene	µg/L	5.0	0.50 U	5.0 U	5.0 U	**63 J**
Vinyl acetate	µg/L	NE	0.25 U	2.5 U	2.5 U	1.3 U
Vinyl chloride	µg/L	0.5	**30**	**330 J**	**380 J**	**32 J**
Xylenes (total)	µg/L	1,750*	0.34 J	5.0 U	5.0 U	2.5 U

Sample Number: **Location:** **Sample Date:**	**Units**	**ROD Cleanup Standard**	**12-2012IR2802WU4-21** **WU4-21** **9/24/2012**	**12-2012IR2802WU4-24** **WU4-24** **9/24/2012**	**12-2012IR2802WU4-25** **WU4-25** **9/24/2012**	**12-2012IR2802WU4-3** **WU4-3** **9/24/2012**
1,1,1-Trichloroethane	µg/L	200	0.25 U	0.25 U	0.25 U	2.5 U
1,1-Dichloroethane	µg/L	5.0	1.3	1.8	**7.2**	**12 J**
1,1-Dichloroethene	µg/L	6.0	0.54 J	0.21 J	2.7	**24 J**
1,2-Dichloroethane	µg/L	0.5*	0.25 U	0.25 U	0.25 U	2.5 U
2-Butanone	µg/L	NE	1.0 U	1.0 U	1.0 U	10 U
2-Hexanone	µg/L	NE	0.50 U	0.50 U	0.50 U	5.0 U
Acetone	µg/L	NE	1.2 J	0.42 J	1.3 J	20 UJ
Benzene	µg/L	1.0*	0.25 U	0.25 U	0.25 U	2.5 U
Chloroethane	µg/L	NE	0.25 U	0.25 U	0.25 U	2.5 U
Chloroform	µg/L	100	0.25 U	0.25 U	0.25 U	2.5 U
Chloromethane	µg/L	NE	0.25 U	0.25 U	0.25 U	2.5 U
cis-1,2-Dichloroethene	µg/L	6.0	**19**	2.6	**33**	**800 J**
Ethylbenzene	µg/L	300*	0.13 J	0.25 U	0.14 J	2.5 U
Freon 113	µg/L	1,200*	0.25 U	0.25 U	0.25 U	21 J
Tetrachloroethene	µg/L	5.0	0.50 U	0.50 U	0.50 U	2.2 J
Toluene	µg/L	150*	0.74 J	0.23 J	0.58 J	2.5 U
trans-1,2-Dichloroethene	µg/L	10	0.33 J	0.25 U	0.25 U	4.1 J
Trichloroethene	µg/L	5.0	0.42 J	2.1	0.50 U	**1200 J**
Vinyl acetate	µg/L	NE	0.25 U	0.25 U	0.25 U	2.5 U
Vinyl chloride	µg/L	0.5	0.25 U	0.25 U	0.25 U	2.5 U
Xylenes (total)	µg/L	1,750*	0.46 J	0.32 J	0.48 J	5.0 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:	**Units**	**ROD**	**12-2012IR2802W9-10**	**12-2012IR2802W9-12**	**12-2012IR2802W9-14**	**12-2012IR2802W9-15**
Location:		**Cleanup**	**W9-10**	**W9-12**	**W9-14**	**W9-15**
Sample Date:		**Standard**	**9/24/2012**	**9/24/2012**	**10/9/2012**	**9/24/2012**
1,1,1-Trichloroethane	µg/L	200	1.3 U	0.25 U	40 U	0.25 U
1,1-Dichloroethane	µg/L	5.0	**9.5**	0.25 U	**11 J**	0.25 U
1,1-Dichloroethene	µg/L	6.0	**9.7**	0.25 U	**38 J**	0.25 U
1,2-Dichloroethane	µg/L	0.5*	1.3 U	0.25 U	40 U	0.25 U
2-Butanone	µg/L	NE	5.0 U	1.0 U	40 U	1.0 U
2-Hexanone	µg/L	NE	2.5 U	0.50 U	40 U	0.50 U
Acetone	µg/L	NE	5.4 J	6.1 UJ	400 U	2.0 U
Benzene	µg/L	1.0*	0.34 J	0.25 U	20 U	0.25 U
Chloroethane	µg/L	NE	1.3 U	0.25 U	40 U	0.25 U
Chloroform	µg/L	100	1.3 U	0.25 U	20 U	0.25 U
Chloromethane	µg/L	NE	1.3 U	0.25 U	40 U	0.25 U
cis-1,2-Dichloroethene	µg/L	6.0	**970**	0.25 U	**640**	0.25 U
Ethylbenzene	µg/L	300*	1.3 U	0.25 U	20 U	0.25 U
Freon 113	µg/L	1,200*	1.7 J	0.25 U	33 J	0.25 U
Tetrachloroethene	µg/L	5.0	2.5 U	0.50 U	20 U	0.50 U
Toluene	µg/L	150*	1.3 U	0.25 U	40 U	0.25 U
trans-1,2-Dichloroethene	µg/L	10	4.4 J	0.25 U	40 U	0.25 U
Trichloroethene	µg/L	5.0	1.6 J	0.50 U	**2900**	0.50 U
Vinyl acetate	µg/L	NE	1.3 U	0.25 U	40 U	0.25 U
Vinyl chloride	µg/L	0.5	**73**	0.25 U	**25 J**	0.25 U
Xylenes (total)	µg/L	1,750*	2.5 U	3.0 UJ	120 U	0.50 U

Sample Number:	**Units**	**ROD**	**12-2012IR2802WU4-3D**	**12-2012IR2802WU4-4**	**12-2012IR2802WU4-4D**	**12-2012IR2802WU4-9**
Location:		**Cleanup**	**WU4-3 (Dup)**	**WU4-4**	**WU4-4 (Dup)**	**WU4-9**
Sample Date:		**Standard**	**9/24/2012**	**9/24/2012**	**9/24/2012**	**9/24/2012**
1,1,1-Trichloroethane	µg/L	200	1.3 U	6.3 U	6.3 U	0.25 U
1,1-Dichloroethane	µg/L	5.0	**11 J**	**8.9 J**	**6.9 J**	1.2 J
1,1-Dichloroethene	µg/L	6.0	**20 J**	**31 J**	**24 J**	0.17 J
1,2-Dichloroethane	µg/L	0.5*	1.3 U	6.3 U	6.3 U	0.25 U
2-Butanone	µg/L	NE	20 J	25 U	25 U	1.0 U
2-Hexanone	µg/L	NE	2.5 U	13 U	13 U	0.50 U
Acetone	µg/L	NE	11 UJ	50 UJ	50 UJ	2.0 UJ
Benzene	µg/L	1.0*	1.3 U	6.3 U	6.3 U	0.25 U
Chloroethane	µg/L	NE	1.3 U	6.3 U	6.3 U	0.10 J
Chloroform	µg/L	100	1.3 U	6.3 U	6.3 U	0.13 J
Chloromethane	µg/L	NE	1.3 U	6.3 U	6.3 U	0.25 U
cis-1,2-Dichloroethene	µg/L	6.0	**780 J**	**170 J**	**130 J**	**20 J**
Ethylbenzene	µg/L	300*	1.3 U	6.3 U	6.3 U	0.25 U
Freon 113	µg/L	1,200*	17 J	47 J	25 J	0.25 U
Tetrachloroethene	µg/L	5.0	1.3 J	13 U	13 U	0.18 J
Toluene	µg/L	150*	1.3 U	6.3 U	6.3 U	0.22 J
trans-1,2-Dichloroethene	µg/L	10	3.8 J	6.3 U	6.3 U	1.2 J
Trichloroethene	µg/L	5.0	**1100 J**	**4900 J**	**3000 J**	1.4 J
Vinyl acetate	µg/L	NE	1.3 U	6.3 U	6.3 U	0.25 U
Vinyl chloride	µg/L	0.5	**0.76 J**	6.3 U	6.3 U	0.25 U
Xylenes (total)	µg/L	1,750*	2.5 U	13 U	13 U	3.0 UJ

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 28

Sample Number:		ROD	12-2012IR2802W9-19	12-2012IR2802W9-2	12-2012IR2802W9-20	12-2012IR2802W9-21
Location:	Units	Cleanup	W9-19	W9-2	W9-20	W9-21
Sample Date:		Standard	9/24/2012	9/24/2012	9/24/2012	9/25/2012
1,1,1-Trichloroethane	µg/L	200	0.25 U	2.5 U	0.39 J	1.3 U
1,1-Dichloroethane	µg/L	5.0	**9.3 J**	**22**	**7.9**	4.8 J
1,1-Dichloroethene	µg/L	6.0	0.99 J	**36**	**22**	**16 J**
1,2-Dichloroethane	µg/L	0.5*	0.25 U	2.5 U	1.3 U	1.3 U
2-Butanone	µg/L	NE	1.0 U	10 U	5.0 U	14 J
2-Hexanone	µg/L	NE	0.50 U	5.0 U	2.5 U	2.5 U
Acetone	µg/L	NE	2.4 UJ	13 J	7.0 J	11 UJ
Benzene	µg/L	1.0*	0.25 U	2.5 U	1.3 U	1.3 U
Chloroethane	µg/L	NE	0.25 U	2.5 U	9.9 J	1.3 U
Chloroform	µg/L	100	0.25 U	2.5 U	0.60 J	1.3 U
Chloromethane	µg/L	NE	0.25 U	2.5 U	1.3 U	1.3 U
cis-1,2-Dichloroethene	µg/L	6.0	**44 J**	**780**	**1500**	**1100 J**
Ethylbenzene	µg/L	300*	0.25 U	2.5 U	1.3 U	1.3 U
Freon 113	µg/L	1,200*	0.25 U	26	21	8.2 J
Tetrachloroethene	µg/L	5.0	0.50 U	2.7 J	**130**	0.89 J
Toluene	µg/L	150*	1.1 J	2.5 U	1.3 U	1.4 J
trans-1,2-Dichloroethene	µg/L	10	1.1 J	5.7 J	9.4	6.6 J
Trichloroethene	µg/L	5.0	0.38 J	**1800**	**1200**	3.0 J
Vinyl acetate	µg/L	NE	0.25 U	2.5 U	1.3 U	1.3 U
Vinyl chloride	µg/L	0.5	**40 J**	2.5 U	**91**	**220 J**
Xylenes (total)	µg/L	1,750*	3.0 UJ	5.0 U	2.5 U	1.9 J

Sample Number:		ROD	12-2012IR2802WWR-3	12-2012IR2802WWR-3D
Location:	Units	Cleanup	WWR-3	WWR-3 (Dup)
Sample Date:		Standard	9/24/2012	9/24/2012
1,1,1-Trichloroethane	µg/L	200	2.6	2.0
1,1-Dichloroethane	µg/L	5.0	**5.3**	4.3
1,1-Dichloroethene	µg/L	6.0	**7.0**	5.4
1,2-Dichloroethane	µg/L	0.5*	0.25 U	0.25 U
2-Butanone	µg/L	NE	1.0 U	3.3 J
2-Hexanone	µg/L	NE	0.50 U	0.50 U
Acetone	µg/L	NE	0.51 J	1.1 J
Benzene	µg/L	1.0*	0.25 U	0.25 U
Chloroethane	µg/L	NE	0.25 U	0.25 U
Chloroform	µg/L	100	0.17 J	0.15 J
Chloromethane	µg/L	NE	0.25 U	0.25 U
cis-1,2-Dichloroethene	µg/L	6.0	**89**	**95**
Ethylbenzene	µg/L	300*	0.25 U	0.25 U
Freon 113	µg/L	1,200*	2.2	1.5
Tetrachloroethene	µg/L	5.0	0.50 U	0.50 U
Toluene	µg/L	150*	0.25 U	0.25 U
trans-1,2-Dichloroethene	µg/L	10	0.46 J	0.32 J
Trichloroethene	µg/L	5.0	**37**	**36**
Vinyl acetate	µg/L	NE	0.25 U	0.25 U
Vinyl chloride	µg/L	0.5	0.25 U	0.25 U
Xylenes (total)	µg/L	1,750*	0.50 U	0.50 U

TABLE 2-5

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 28

Notes:

Analytes not listed were not detected in any of the 2012 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 September 2012 IR Site 26 and 28 event, including data validation, are provided on CD in Appendix C.
* - California maximum contaminant level. No ROD value established.

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
NE - not established
ROD - Record of Decision
U - analyte not detected at or above laboratory reporting limit (value indicates the reporting limit)
UJ - analyte not 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
14C33A	Upper A	9/24/2012	0.50 U	0.26 J	0.50 U	0.25 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)
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
14D05A	Upper A	9/25/2012	10	870	2.5 U	110

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
14D12A	Upper A	9/24/2012	15	340	2.0	6.7
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
14D24A	Upper A	9/24/2012	19	31	0.50 U	0.25 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)
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
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
14D31A2	Lower A	9/24/2012	0.50 U	0.38 J	0.50 U	0.25 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)
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
14D36A	Upper A	9/24/2012	9.7	35	0.64 J	0.25 U
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
14D39A	Upper A	9/24/2012	0.50 U	0.25 U	0.50 U	0.25 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
165A	Upper A	9/24/2012	220	110	1.3 U	0.63 U
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
45B2	B2	9/26/2012	0.50 U	0.25 U	0.50 U	0.25 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)
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
46B1	Lower A	12/23/2012	960	260	0.5 U	0.5 U
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
47B1	Lower A	10/16/2012	3.8	12	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)
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
65A	Upper A	10/3/2012	520	130	0.52	1.2
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
79B1	Lower A	10/1/2012	8.8	3.2	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)
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
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
81A	Upper A	10/1/2012	28	1700	0.5 u	1.5

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)
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
87B1	Lower A	10/3/2012	53	0.66	0.50 U	0.50 U
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
EA1-1	Upper A	9/25/2012	31	1200	33	84

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
EA1-2	Upper A	9/25/2012	190	100	0.83 J	0.95 J
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
EA1-3	Upper A	9/25/2012	7.9	170	0.24 J	33

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
EA1-4	Upper A	9/25/2012	4.8 J	230 J	1.2 J	1.1 J
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
EA1-5	Upper A	9/25/2012	8.1	86	0.50 U	12

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
EA1-6	Upper A	9/25/2012	19 J	120 J	0.50 U	0.45 J
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
EA2-1	Lower A	9/25/2012	1400	530	41	5.8 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)
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
EA2-2	Lower A	9/25/2012	690	430	4.2	21
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
EA2-3	Lower A	9/25/2012	7.9	170	0.24 J	33
UST29-MW01	Upper A	9/24/2012	0.50 U	0.21 J	0.50 U	0.25 U
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
UST85-MW02	Upper A	9/25/2012	20 J	540 J	2.5 U	0.50 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)
W20-01	Upper A	9/24/2012	0.50 U	0.97 J	0.50 U	0.25 U
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
W29-1	Upper A	9/25/2012	0.50 U	0.30 J	0.50 U	0.25 U
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
W29-2	Upper A	9/24/2012	0.50 U	0.091 J	0.50 U	0.25 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)
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
W29-3	Upper A	9/24/2012	36 J	800 J	0.97 J	22 J
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
W29-4	Upper A	9/24/2012	560 J	570 J	2.5 U	1.3 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
W29-5	Upper A	9/25/2012	0.50 U	6.3	0.50 U	30

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
W29-7	Lower A	9/25/2012	5.0 U	1600 J	5.0 U	330 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)
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
W56-2	Upper A	9/24/2012	63 J	500 J	2.5 U	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)
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
W60-2	Upper A	10/3/2012	84	8.9	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
W88-1	B2	10/1/2012	36 J	3300	36 J	3700
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
W89-1	Upper A	10/15/2012	110	13	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
W89-7	Upper A	9/28/2012	0.5 U	7.4	0.5 U	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)
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
W9-10	Upper A	9/24/2012	1.6 J	970	2.5 U	73

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
W9-12	B2	9/24/2012	0.50 U	0.25 U	0.50 U	0.25 U
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
W9-14	Lower A	10/9/2012	2900	640	20 U	25 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)
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
W9-15	B2	9/24/2012	0.50 U	0.25 U	0.50 U	0.25 U
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
W9-18	Upper A	9/27/2012	0.5 U	26	0.5 U	530

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
W9-19	Upper A	9/24/2012	0.38 J	44 J	0.50 U	40 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)
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
W9-2	Upper A	9/24/2012	1800	780	2.7 J	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)
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
W9-20	Lower A	9/24/2012	1200	1500	130	91

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
W9-21	Lower A	9/25/2012	3.0 J	1100 J	0.89 J	220 J
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
W9-22	Lower A	9/24/2012	1200	450	1.2 J	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)
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
W9-24	Upper A	9/25/2012	0.50 U	0.69 J	0.50 U	31
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
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
W9-31	Upper A	9/24/2012	1.3 U	680	1.3 U	260

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)
W9-33	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
W9-33	Lower A	9/24/2012	370	190	1.3 U	1.9 J
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
W9-34	Lower A	9/24/2012	8.0	1200	2.5 U	170

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
W9-37	Upper A	9/24/2012	2.5 U	800 J	2.5 U	510 J
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
W9-40	B2	9/24/2012	0.50 U	0.25 U	0.50 U	0.25 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)
W9-42	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
W9-42	Lower A	9/26/2012	9.5	130	0.4	90
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
W9-44	Upper A	9/24/2012	760 J	420 J	2.7 J	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)
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
W9-45	Upper A	9/25/2012	290	170	4.0	0.45 J
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

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)
W9-7	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
W9-7	Upper A	9/24/2012	17 J	1100	2.5 U	43 J
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
W9-8	Lower A	9/24/2012	5.0 U	2300 J	5.0 U	130 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)
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
W9-9	Lower A	9/24/2012	2.1 J	46	1.3 U	350
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-1	Upper A	9/24/2012	700	88	1.8 J	0.63 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-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
W9SC-13	Upper A	9/25/2012	0.50 U	0.65 J	0.50 U	0.62 J
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-14	Upper A	9/24/2012	7.1	1100	2.5 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)
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
W9SC-15	Lower A	9/24/2012	2000 J	380 J	86 J	8.4 J
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-3	Lower A	9/24/2012	1900 J	1200 J	29 J	24 J
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
WIC-1	Upper A	9/25/2012	650 J	340 J	6.6 J	5.8 J
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
WNB-14	Lower A	9/24/2012	0.50 U	1.2	0.50 U	2.6
WNX-1	Upper A	11/19/2007	360	720	0.2 J	0.5

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-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
WNX-2	Upper A	9/24/2012	2.5 U	1600	2.5 U	100
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
WNX-3	Upper A	9/24/2012	170	240	1.3 U	0.63 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)
WU4-1	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
WU4-1	Upper A	10/3/2012	680	1000	0.63	2.6
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
WU4-10	Upper A	9/24/2012	110	140	0.20 J	0.25 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)
WU4-11	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
WU4-11	Lower A	9/24/2012	7.4	2.7	0.50 U	0.25 U
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
WU4-14	Upper A	9/25/2012	1.2 J	100 J	0.54 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)
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
WU4-15	Lower A	9/25/2012	11 J	45	0.85 J	0.99 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)
WU4-17	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
WU4-17	Upper A	9/24/2012	0.50 U	1.6	0.50 U	8.2

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)
WU4-19	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
WU4-19	Lower A	9/28/2012	100	24	0.5 U	1.3
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
WU4-2	Lower A	10/3/2012	2500	950	1.1	4.4

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)
WU4-21	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
WU4-21	Upper A	9/24/2012	0.42 J	19	0.50 U	0.25 U
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
WU4-24	Upper A	9/24/2012	2.1	2.6	0.50 U	0.25 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)
WU4-25	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
WU4-25	Upper A	9/24/2012	0.50 U	33	0.50 U	0.25 U
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
WU4-3	Upper A	9/24/2012	1200 J	800 J	2.2 J	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)
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
WU4-4	Lower A	9/24/2012	4900 J	170 J	13 U	6.3 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
WU4-5	Lower A	10/3/2012	2000	90	2.6	0.5 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
WU4-6	Lower A	10/3/2012	4200	140	1.4	1.1

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
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
WU4-9	Lower A	9/24/2012	1.4 J	20 J	0.18 J	0.25 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)
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
WWR-3	Upper A	9/24/2012	37	89	0.50 U	0.25 U

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

2012 ANNUAL GROUNDWATER REPORT FOR WATS AND EATS
TABLE 2-7
ANALYTICAL RESULTS FOR TOTAL PETROLEUM HYDROCARBONS DETECTED IN GROUNDWATER
NAVY 2012 SAMPLING EVENT FOR IR SITE 28

Sample Number:		ROD	12-2012IR280214D05A	12-2012IR280214D12A
Location:		**Cleanup**	**14D05A**	**14D12A**
Sample Date:	**Units**	**Standard[a]**	**9/25/2012**	**9/24/2012**
TPH-Purgable (Gasoline)	mg/L	50	0.42	0.17

Sample Number:		ROD	12-2012IR2802EA1-4	12-2012IR2802EA1-6
Location:		**Cleanup**	**EA1-4**	**EA1-6**
Sample Date:	**Units**	**Standard[a]**	**9/25/2012**	**9/25/2012**
TPH-Purgable (Gasoline)	mg/L	50	0.12	0.26J

Sample Number:		ROD	12-2012IR2802W9-24	12-2012IR2802W9SC-1
Location:		**Cleanup**	**W9-24**	**W9SC-1**
Sample Date:	**Units**	**Standard[a]**	**9/25/2012**	**9/24/2012**
TPH-Purgable (Gasoline)	mg/L	50	0.010J	0.052J

Sample Number:		ROD	12-2012IR2802WNX-3	12-2012IR2802WU4-14
Location:		**Cleanup**	**WNX-3**	**WU4-14**
Sample Date:	**Units**	**Standard[a]**	**9/24/2012**	**9/25/2012**
TPH-Purgable (Gasoline)	mg/L	50	0.16	0.073

Sample Number:		ROD	12-2012IR2802W9-5	12-2012IR2802W9-10
Location:		**Cleanup**	**W9-5**	**W9-10**
Sample Date:	**Units**	**Standard[a]**	**9/24/2012**	**9/24/2012**
TPH-Purgable (Gasoline)	mg/L	50	0.030U	0.47

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TABLE 2-7
ANALYTICAL RESULTS FOR TOTAL PETROLEUM HYDROCARBONS DETECTED IN GROUNDWATER
NAVY 2012 SAMPLING EVENT FOR IR SITE 28

Sample Number:		ROD	12-2012IR2802EA1-2	12-2012IR2802EA1-3
Location:		Cleanup	EA1-2	EA1-3
Sample Date:	Units	Standard[a]	9/25/2012	9/25/2012
TPH-Purgable (Gasoline)	mg/L	50	0.15	0.30

Sample Number:		ROD	12-2012IR2802W29-1	12-2012IR2802W29-5
Location:		Cleanup	W29-1	W29-5
Sample Date:	Units	Standard[a]	9/25/2012	9/25/2012
TPH-Purgable (Gasoline)	mg/L	50	0.018J	1.1

Sample Number:		ROD	12-2012IR2802W9SC-13	12-2012IR2802WNX-1
Location:		Cleanup	W9SC-13	WNX-1
Sample Date:	Units	Standard[a]	9/25/2012	9/25/2012
TPH-Purgable (Gasoline)	mg/L	50	0.023J	0.28

Sample Number:		ROD	2-2012IR28024ST85-MW0	12-2012IR2802W9-3
Location:		Cleanup	UST85-MW02	W9-3
Sample Date:	Units	Standard[a]	9/25/2012	9/25/2012
TPH-Purgable (Gasoline)	mg/L	50	0.23	0.030U

Sample Number:		ROD	12-2012IR2802W9-39	12-2012IR2802WU4-17
Location:		Cleanup	W9-39	WU4-17
Sample Date:	Units	Standard[a]	9/24/2012	9/24/2012
TPH-Purgable (Gasoline)	mg/L	50	0.030U	1.0J

Notes:

Complete laboratory analytical data, including data validation, are provided on CD-ROM in Appendix C.

NASA and MEW analytical results not included.

a. Cleanup Standards are the California maximum contaminant level.

Abbreviations and Acronyms:

EATS - East-Side Aquifer Treatment System
J - estimated result
MEW - Middlefield-Ellis-Whisman
NASA - National Aeronautics and Space Administration
ROD - Record of Decision
TPH - Total petroleum hydrocarbons
U - analyte not detected above laboratory reporting limit
WATS - West-Side Aquifers Treatment System

2012 ANNUAL GROUNDWATER REPORT FOR WATS AND EATS
TABLE 2-8
ANALYTICAL RESULTS FOR DISSOLVED METALS DETECTED IN GROUNDWATER
NAVY 2012 SAMPLING EVENT FOR IR SITE 28

Sample Number:		ROD	12-2012IR280214D05A	12-2012IR280214D12A
Location:		Cleanup	14D05A	14D12A
Sample Date:	Units	Standard [b]	9/25/2012	9/24/2012
Aluminum	µg/L	200	26J	45J
Antimony [a]	µg/L	6	4U	4U
Arsenic [a]	µg/L	50	2U	2U
Barium	µg/L	1000	65	50
Beryllium	µg/L	4	0.10U	0.10U
Cadmium [a]	µg/L	10	0.50U	0.50U
Total Chromium	µg/L	50	4U	1.7J
Cobalt	µg/L	NE	2U	2U
Copper	µg/L	1300	2U	1.6J
Lead [a]	µg/L	50	1U	1U
Mercury	µg/L	NE	0.1U	0.1U
Nickle	µg/L	100	2U	2U
Selenium	µg/L	50	2.5U	2.5U
Silver	µg/L	NE	0.50U	0.50U
Thallium	µg/L	2	1U	1U
Vanadium	µg/L	NE	4U	4U
Zinc	µg/L	NE	10U	10U

Sample Number:		ROD	12-2012IR2802EA1-2	12-2012IR2802EA1-3
Location:		Cleanup	EA1-2	EA1-3
Sample Date:	Units	Standard [b]	9/25/2012	9/25/2012
Aluminum	µg/L	200	50U	50U
Antimony [a]	µg/L	6	4U	4U
Arsenic [a]	µg/L	50	2U	7.4
Barium	µg/L	1000	28	140
Beryllium	µg/L	4	0.10U	0.10U
Cadmium [a]	µg/L	10	0.50U	0.50U
Total Chromium	µg/L	50	1.8J	1.6J
Cobalt	µg/L	NE	2U	2U
Copper	µg/L	1300	3.6	1.4J
Lead [a]	µg/L	50	0.87J	1U
Mercury	µg/L	NE	0.1U	0.1U
Nickle	µg/L	100	2U	2U
Selenium	µg/L	50	14	1.4J
Silver	µg/L	NE	0.50U	0.50U
Thallium	µg/L	2	1U	1U
Vanadium	µg/L	NE	4U	4U
Zinc	µg/L	NE	60	12

2012 ANNUAL GROUNDWATER REPORT FOR WATS AND EATS
TABLE 2-8
ANALYTICAL RESULTS FOR DISSOLVED METALS DETECTED IN GROUNDWATER
NAVY 2012 SAMPLING EVENT FOR IR SITE 28

Sample Number:		ROD	12-2012IR2802EA1-4	12-2012IR2802EA1-6
Location:		Cleanup	EA1-4	EA1-6
Sample Date:	Units	Standard [b]	9/25/2012	9/25/2012
Aluminum	µg/L	200	50U	50U
Antimony [a]	µg/L	6	4U	4U
Arsenic [a]	µg/L	50	2U	2U
Barium	µg/L	1000	72	120
Beryllium	µg/L	4	0.10U	0.10U
Cadmium [a]	µg/L	10	0.50U	0.50U
Total Chromium	µg/L	50	1.6J	4U
Cobalt	µg/L	NE	2U	2U
Copper	µg/L	1300	15	2.6J
Lead [a]	µg/L	50	1.3J	1U
Mercury	µg/L	NE	0.1U	0.1U
Nickle	µg/L	100	2U	2U
Selenium	µg/L	50	2.5U	2.5U
Silver	µg/L	NE	0.50U	0.50U
Thallium	µg/L	2	1U	1U
Vanadium	µg/L	NE	4U	4U
Zinc	µg/L	NE	68	6.8J

Sample Number:		ROD	12-2012IR2802W9-24	12-2012IR2802W9SC-1
Location:		Cleanup	W9-24	W9SC-1
Sample Date:	Units	Standard [b]	9/25/2012	9/24/2012
Aluminum	µg/L	200	50U	120
Antimony [a]	µg/L	6	4U	4U
Arsenic [a]	µg/L	50	2U	2U
Barium	µg/L	1000	29	76
Beryllium	µg/L	4	0.10U	0.10U
Cadmium [a]	µg/L	10	0.50U	0.50U
Total Chromium	µg/L	50	2.4J	2J
Cobalt	µg/L	NE	2U	2U
Copper	µg/L	1300	2U	1.5J
Lead [a]	µg/L	50	1U	1U
Mercury	µg/L	NE	0.1U	0.1U
Nickle	µg/L	100	1.6J	2U
Selenium	µg/L	50	2.5U	9.9
Silver	µg/L	NE	0.50U	0.50U
Thallium	µg/L	2	1U	1U
Vanadium	µg/L	NE	4U	2.5J
Zinc	µg/L	NE	10U	10U

2012 ANNUAL GROUNDWATER REPORT FOR WATS AND EATS
TABLE 2-8
ANALYTICAL RESULTS FOR DISSOLVED METALS DETECTED IN GROUNDWATER
NAVY 2012 SAMPLING EVENT FOR IR SITE 28

Sample Number:		ROD	12-2012IR2802WNX-3	12-2012IR2802WU4-14
Location:		**Cleanup**	**WNX-3**	**WU4-14**
Sample Date:	**Units**	**Standard [b]**	**9/24/2012**	**9/25/2012**
Aluminum	µg/L	200	50U	50U
Antimony [a]	µg/L	6	4U	4U
Arsenic [a]	µg/L	50	2U	2U
Barium	µg/L	1000	23	110
Beryllium	µg/L	4	0.10U	0.10U
Cadmium [a]	µg/L	10	0.50U	0.50U
Total Chromium	µg/L	50	1.5J	1.6J
Cobalt	µg/L	NE	2U	2U
Copper	µg/L	1300	2J	1.3J
Lead [a]	µg/L	50	1U	1U
Mercury	µg/L	NE	0.1U	0.1U
Nickle	µg/L	100	2U	2U
Selenium	µg/L	50	6	2.5U
Silver	µg/L	NE	0.50U	0.50U
Thallium	µg/L	2	1U	1U
Vanadium	µg/L	NE	4U	4U
Zinc	µg/L	NE	6J	10U

Sample Number:		ROD	12-2012IR2802W29-1	12-2012IR2802W29-5
Location:		**Cleanup**	**W29-1**	**W29-5**
Sample Date:	**Units**	**Standard [b]**	**9/25/2012**	**9/25/2012**
Aluminum	µg/L	200	50U	50U
Antimony [a]	µg/L	6	4U	4U
Arsenic [a]	µg/L	50	2U	2U
Barium	µg/L	1000	92	100
Beryllium	µg/L	4	0.10U	0.10U
Cadmium [a]	µg/L	10	0.50U	0.50U
Total Chromium	µg/L	50	1.5J	4U
Cobalt	µg/L	NE	2U	2U
Copper	µg/L	1300	2.5J	2U
Lead [a]	µg/L	50	0.75J	1U
Mercury	µg/L	NE	0.1U	0.1U
Nickle	µg/L	100	2U	2U
Selenium	µg/L	50	2.5U	2.5U
Silver	µg/L	NE	0.50U	0.50U
Thallium	µg/L	2	1U	1U
Vanadium	µg/L	NE	4U	4U
Zinc	µg/L	NE	10U	10U

2012 ANNUAL GROUNDWATER REPORT FOR WATS AND EATS
TABLE 2-8
ANALYTICAL RESULTS FOR DISSOLVED METALS DETECTED IN GROUNDWATER
NAVY 2012 SAMPLING EVENT FOR IR SITE 28

Sample Number:		**ROD**	**12-2012IR2802W9SC-13**	**12-2012IR2802WNX-1**
Location:		**Cleanup**	**W9SC-13**	**WNX-1**
Sample Date:	**Units**	**Standard [b]**	**9/25/2012**	**9/25/2012**
Aluminum	µg/L	200	50U	50U
Antimony [a]	µg/L	6	**12**	4U
Arsenic [a]	µg/L	50	1.4J	2U
Barium	µg/L	1000	150J	20
Beryllium	µg/L	4	0.10U	0.10U
Cadmium [a]	µg/L	10	0.50U	0.50U
Total Chromium	µg/L	50	1.5J	4U
Cobalt	µg/L	NE	2U	2U
Copper	µg/L	1300	210J	2.4J
Lead [a]	µg/L	50	1U	1U
Mercury	µg/L	NE	0.1U	0.1U
Nickle	µg/L	100	2U	2U
Selenium	µg/L	50	2.5U	2.5U
Silver	µg/L	NE	0.50U	0.50U
Thallium	µg/L	2	1U	1U
Vanadium	µg/L	NE	4U	4U
Zinc	µg/L	NE	20	5.8J

a. Metal is listed in the MEW ROD (EPA 1989) as an COC. However, cleanup criteria was not proposed.

b. Cleanup Standards are the California maximum contaminant level.

BOLD indicates an exceedance of the screening criteria

TABLE 2-9

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, 2012 TREATABILITY STUDY SAMPLING EVENT FOR IR SITE 28

Sample Number:	**Units**	**ROD**	**14D30A(9/27/12)**	**W99-03(9/27/12)**	**28OW-01(9/25/12)**	**28OW-02(9/25/12)**
Location:		**Cleanup**	**14D30A**	**14D30A (Dup)**	**28OW-01**	**28OW-02**
Sample Date:		**Standard**	**9/27/2012**	**9/27/2012**	**9/25/2012**	**9/25/2012**
1,1,1-Trichloroethane	µg/L	200	10 U	8.3 U	0.4	0.5 U
1,1-Dichloroethane	µg/L	5.0	**13**	**11**	3.8	**6.1**
1,1-Dichloroethylene	µg/L	6.0	**21**	**21**	5.5	0.2
1,2-Dichloroethane	µg/L	0.5*	10 U	8.3 U	1.3 U	0.5 U
Acetone	µg/L	NE	200 U	170 U	25 U	10 U
Benzene	µg/L	1.0*	10 U	8.3 U	1.3 U	0.5 U
Carbon Tetrachloride	µg/L	0.5*	10 U	8.3 U	1.3 U	0.5 U
Chloroethane	µg/L	NE	20 U	17 U	2.5 U	0.3
Chloroform	µg/L	100	10 U	8.3 U	1.3 U	0.5 U
Chloromethane	µg/L	NE	20 U	17 U	2.5 U	1 U
cis-1,2-Dichloroethylene	µg/L	6.0	**570**	**490**	**170**	**11**
Ethylbenzene	µg/L	300*	10 U	8.3 U	1.3 U	0.5 U
Methyl ethyl ketone	µg/L	NE	200 U	170 U	25 U	10 U
Methyl isobutyl ketone	µg/L	NE	200 U	170 U	25 U	10 U
Tetrachloroethylene	µg/L	5.0	10 U	8.3 U	**14**	2.3
Toluene	µg/L	150*	10 U	8.3 U	1.3 U	0.5 U
trans-1,2-Dichloroethylene	µg/L	10	**13**	7	2.9	0.5 U
Trichloroetylene	µg/L	5.0	**1100**	**1000**	**170**	0.6
Trichlorofluoromethane	µg/L	1,200*	20 U	17 U	2.5 U	1 U
Vinyl Chloride	µg/L	0.5	**10**	**6.2**	**14**	**160**
Xylenes, total	µg/L	1,750*	10 U	8.3 U	1.3 U	0.5 U

Sample Number:	**Units**	**ROD**	**51B-2(9/28/12)**	**57B-3(9/27/12)**	**W88-2(9/26/12)**	**W88-3(9/25/12)**
Location:		**Cleanup**	**51B2**	**57B3**	**W88-2**	**W88-3**
Sample Date:		**Standard**	**9/28/2012**	**9/27/2012**	**9/26/2012**	**9/25/2012**
1,1,1-Trichloroethane	µg/L	200	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	µg/L	5.0	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethylene	µg/L	6.0	0.2	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	µg/L	0.5*	0.5 U	0.5 U	0.5 U	0.5 U
Acetone	µg/L	NE	10 U	10 U	10 U	10 U
Benzene	µg/L	1.0*	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	µg/L	0.5*	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	µg/L	NE	1 U	1 U	1 U	1 U
Chloroform	µg/L	100	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	µg/L	NE	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethylene	µg/L	6.0	0.5 U	0.5 U	0.5 U	0.2
Ethylbenzene	µg/L	300*	0.5 U	0.5 U	0.5 U	0.5 U
Methyl ethyl ketone	µg/L	NE	10 U	10 U	10 U	10 U
Methyl isobutyl ketone	µg/L	NE	10 U	10 U	10 U	10 U
Tetrachloroethylene	µg/L	5.0	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	µg/L	150*	0.5 U	0.1	0.1	0.5 U
trans-1,2-Dichloroethylene	µg/L	10	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroetylene	µg/L	5.0	**8.7**	0.5 U	0.5 U	0.3
Trichlorofluoromethane	µg/L	1,200*	1 U	1 U	1 U	1 U
Vinyl Chloride	µg/L	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Xylenes, total	µg/L	1,750*	0.5 U	0.2	0.2	0.5 U

TABLE 2-9

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, 2012 TREATABILITY STUDY SAMPLING EVENT FOR IR SITE 28

Sample Number:	**Units**	**ROD**	**28OW-03(10/1/12)**	**28OW-04(10/1/12)**	**28OW-05(9/25/12)**	**28OW-06(9/25/12)**
Location:		**Cleanup**	**28OW-03**	**28OW-04**	**28OW-05**	**28OW-06**
Sample Date:		**Standard**	**10/1/2012**	**10/1/2012**	**9/25/2012**	**9/25/2012**
1,1,1-Trichloroethane	µg/L	200	170 U	130 U	0.5 U	1 U
1,1-Dichloroethane	µg/L	5.0	170 U	130 U	**6.4**	**5.5**
1,1-Dichloroethylene	µg/L	6.0	**150**	**190**	0.5 U	1 U
1,2-Dichloroethane	µg/L	0.5*	170 U	130 U	0.5 U	1 U
Acetone	µg/L	NE	3300 U	2500 U	10 U	20 U
Benzene	µg/L	1.0*	170 U	130 U	0.2	1 U
Carbon Tetrachloride	µg/L	0.5*	170 U	130 U	0.5 U	1 U
Chloroethane	µg/L	NE	330 U	250 U	2.3	0.6
Chloroform	µg/L	100	170 U	130 U	0.5 U	1 U
Chloromethane	µg/L	NE	330 U	250 U	1 U	2 U
cis-1,2-Dichloroethylene	µg/L	6.0	**17000**	**11000**	1.9	**20**
Ethylbenzene	µg/L	300*	170 U	130 U	0.5 U	1 U
Methyl ethyl ketone	µg/L	NE	3300 U	2500 U	10 U	20 U
Methyl isobutyl ketone	µg/L	NE	3300 U	2500 U	10 U	20 U
Tetrachloroethylene	µg/L	5.0	9800 U	**15000**	0.5 U	1 U
Toluene	µg/L	150*	170 U	130 U	0.5 U	1 U
trans-1,2-Dichloroethylene	µg/L	10	**190**	**200**	0.5 U	1 U
Trichloroetylene	µg/L	5.0	**6200**	**11000**	0.5 U	0.4
Trichlorofluoromethane	µg/L	1,200*	330 U	250 U	1 U	2 U
Vinyl Chloride	µg/L	0.5	**1700**	**1900**	**2.5**	**130**
Xylenes, total	µg/L	1,750*	170 U	130 U	0.5 U	1 U

Sample Number:	**Units**	**ROD**	**W9-1(9/24/12)**	**W9-23(9/24/12)**	**W99-01(9/24/12)**	**W9-28(10/1/12)**
Location:		**Cleanup**	**W9-1**	**W9-23**	**W9-23 (Dup)**	**W9-28**
Sample Date:		**Standard**	**9/24/2012**	**9/24/2012**	**9/24/2012**	**10/1/2012**
1,1,1-Trichloroethane	µg/L	200	4.2 U	2 U	2.5 U	3.6 U
1,1-Dichloroethane	µg/L	5.0	**16**	1.7	1.6	**10**
1,1-Dichloroethylene	µg/L	6.0	**21**	2.1	1.9	**19**
1,2-Dichloroethane	µg/L	0.5*	**2**	2 U	2.5 U	3.6 U
Acetone	µg/L	NE	83 U	40 U	50 U	71 U
Benzene	µg/L	1.0*	4.2 U	2 U	2.5 U	3.6 U
Carbon Tetrachloride	µg/L	0.5*	4.2 U	2 U	2.5 U	3.6 U
Chloroethane	µg/L	NE	8.3 U	4 U	5 U	7.1 U
Chloroform	µg/L	100	4.2 U	3.8	3.5	3.6 U
Chloromethane	µg/L	NE	8.3 U	4 U	5 U	7.1 U
cis-1,2-Dichloroethylene	µg/L	6.0	**740**	**37**	**37**	**520**
Ethylbenzene	µg/L	300*	4.2 U	2 U	2.5 U	3.6 U
Methyl ethyl ketone	µg/L	NE	83 U	40 U	50 U	71 U
Methyl isobutyl ketone	µg/L	NE	83 U	40 U	50 U	71 U
Tetrachloroethylene	µg/L	5.0	1.1	1	1	**77**
Toluene	µg/L	150*	4.2 U	2 U	2.5 U	3.6 U
trans-1,2-Dichloroethylene	µg/L	10	8.9	0.8	0.8	1.6
Trichloroetylene	µg/L	5.0	**710**	**270**	**270**	**400**
Trichlorofluoromethane	µg/L	1,200*	8.3 U	4 U	5 U	7.1 U
Vinyl Chloride	µg/L	0.5	**1.2**	2 U	2.5 U	**24**
Xylenes, total	µg/L	1,750*	4.2 U	2 U	2.5 U	3.6 U

TABLE 2-9

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, 2012 TREATABILITY STUDY SAMPLING EVENT FOR IR SITE 28

Sample Number:	**Units**	**ROD**	**28OW-07(9/25/12)**	**28OW-08(9/25/12)**	**W99-02(9/25/12)**	**28OW-12(9/26/12)**
Location:		**Cleanup**	**28OW-07**	**28OW-08**	**28OW-08 (Dup)**	**28OW-12**
Sample Date:		**Standard**	**9/25/2012**	**9/25/2012**	**9/25/2012**	**9/26/2012**
1,1,1-Trichloroethane	µg/L	200	0.5 U	2.5 U	20 U	13 U
1,1-Dichloroethane	µg/L	5.0	0.5 U	**8.9**	20 U	13 U
1,1-Dichloroethylene	µg/L	6.0	0.5 U	2.5 U	**13**	4.3
1,2-Dichloroethane	µg/L	0.5*	0.5 U	50 U	20 U	13 U
Acetone	µg/L	NE	10 U	2.5 U	400 U	250 U
Benzene	µg/L	1.0*	0.1	2.5 U	20 U	13 U
Carbon Tetrachloride	µg/L	0.5*	0.5 U	**3.2**	20 U	13 U
Chloroethane	µg/L	NE	1.4	2.5 U	40 U	25 U
Chloroform	µg/L	100	0.5 U	5 U	20 U	13 U
Chloromethane	µg/L	NE	1 U	2900	40 U	25 U
cis-1,2-Dichloroethylene	µg/L	6.0	1.9	2.5 U	**3200**	**2300**
Ethylbenzene	µg/L	300*	0.5 U	50 U	20 U	13 U
Methyl ethyl ketone	µg/L	NE	10 U	50 U	400 U	250 U
Methyl isobutyl ketone	µg/L	NE	0.5	6.5	400 U	250 U
Tetrachloroethylene	µg/L	5.0	0.1	2.5 U	4.9	**19**
Toluene	µg/L	150*	0.2	12	20 U	13 U
trans-1,2-Dichloroethylene	µg/L	10	0.2	2.2	**25**	6
Trichloroetylene	µg/L	5.0	0.1	5 U	20 U	**37**
Trichlorofluoromethane	µg/L	1,200*	1 U	1000	40 U	25 U
Vinyl Chloride	µg/L	0.5	0.3	2.5 U	**1200**	**1200**
Xylenes, total	µg/L	1,750*	0.5 U	1000	20 U	13 U

Sample Number:	**Units**	**ROD**	**W9-29(9/26/12)**	**W9-30(10/1/12)**	**W9-46(9/26/12)**	**W9-SC16(9/26/12)**
Location:		**Cleanup**	**W9-29**	**W9-30**	**W9-46**	**W9SC-16**
Sample Date:		**Standard**	**9/26/2012**	**10/1/2012**	**9/26/2012**	**9/26/2012**
1,1,1-Trichloroethane	µg/L	200	1.7 U	8.3 U	0.8	1.3
1,1-Dichloroethane	µg/L	5.0	**7**	**14**	2.8	4
1,1-Dichloroethylene	µg/L	6.0	**9.2**	**7.7**	2.7	**6.7**
1,2-Dichloroethane	µg/L	0.5*	1.7 U	8.3 U	1.7 U	0.5 U
Acetone	µg/L	NE	33 U	170 U	2.5	10 U
Benzene	µg/L	1.0*	1.7 U	8.3 U	**2**	0.5 U
Carbon Tetrachloride	µg/L	0.5*	1.7 U	8.3 U	1.7 U	0.5 U
Chloroethane	µg/L	NE	3.3 U	17 U	3.3 U	1 U
Chloroform	µg/L	100	1.7 U	1.9	1.7 U	0.2
Chloromethane	µg/L	NE	3.3 U	17 U	3.3 U	1 U
cis-1,2-Dichloroethylene	µg/L	6.0	**900**	**1100**	**160**	**200**
Ethylbenzene	µg/L	300*	1.7 U	8.3 U	2.7	0.5 U
Methyl ethyl ketone	µg/L	NE	33 U	170 U	33 U	10 U
Methyl isobutyl ketone	µg/L	NE	33 U	170 U	33 U	10 U
Tetrachloroethylene	µg/L	5.0	**900**	11 U	**17**	0.9
Toluene	µg/L	150*	1.7 U	8.3 U	1.7 U	0.5 U
trans-1,2-Dichloroethylene	µg/L	10	6	24	6.2	1.6
Trichloroetylene	µg/L	5.0	**160**	8.3 U	**190**	**360**
Trichlorofluoromethane	µg/L	1,200*	3.3 U	17 U	3.3 U	1 U
Vinyl Chloride	µg/L	0.5	**160**	**370**	**0.6**	**0.8**
Xylenes, total	µg/L	1,750*	1.7 U	8.3 U	1.7 U	0.5 U

TABLE 2-9

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, 2012 TREATABILITY STUDY SAMPLING EVENT FOR IR SITE 28

Sample Number:	**Units**	**ROD**	**28OW-13(9/27/12)**	**28OW14(9/28/12)**	**28OW-15(10/1/12)**	**28OW16(9/28/12)**
Location:		**Cleanup**	**28OW-13**	**28OW-14**	**28OW-15**	**28OW-16**
Sample Date:		**Standard**	**9/27/2012**	**9/28/2012**	**10/1/2012**	**9/28/2012**
1,1,1-Trichloroethane	µg/L	200	1 U	2.5 U	50 U	3.1 U
1,1-Dichloroethane	µg/L	5.0	4.3	**9.2**	50 U	**6.1**
1,1-Dichloroethylene	µg/L	6.0	1 U	**13**	**62**	2.9
1,2-Dichloroethane	µg/L	0.5*	1 U	2.5 U	50 U	3.1 U
Acetone	µg/L	NE	20 U	50 U	1000 U	63 U
Benzene	µg/L	1.0*	1 U	2.5 U	50 U	3.1 U
Carbon Tetrachloride	µg/L	0.5*	1 U	2.5 U	50 U	3.1 U
Chloroethane	µg/L	NE	1	5 U	100 U	6.3 U
Chloroform	µg/L	100	1 U	2.5 U	50 U	3.1 U
Chloromethane	µg/L	NE	2 U	5 U	100 U	6.3 U
cis-1,2-Dichloroethylene	µg/L	6.0	**110**	**810**	**6500**	**440**
Ethylbenzene	µg/L	300*	1 U	2.5 U	50 U	3.1 U
Methyl ethyl ketone	µg/L	NE	20 U	50 U	1000 U	63 U
Methyl isobutyl ketone	µg/L	NE	0.4	50 U	1000 U	63 U
Tetrachloroethylene	µg/L	5.0	1 U	**16**	50 U	4.4
Toluene	µg/L	150*	0.3	1.6	50 U	3.1 U
trans-1,2-Dichloroethylene	µg/L	10	2.9	6.4	**40**	3.6
Trichloroetylene	µg/L	5.0	1.7	**390**	50 U	**99**
Trichlorofluoromethane	µg/L	1,200*	2 U	5 U	100 U	6.3 U
Vinyl Chloride	µg/L	0.5	**350**	**240**	50 U	**860**
Xylenes, total	µg/L	1,750*	1 U	2.5 U	50 U	3.1 U

Sample Number:	**Units**	**ROD**	**W9SC-17(10/1/12)**	**W9SC-21(9/28/12)**
Location:		**Cleanup**	**W9SC-17**	**W9SC-21**
Sample Date:		**Standard**	**10/1/2012**	**9/28/2012**
1,1,1-Trichloroethane	µg/L	200	25 U	0.7
1,1-Dichloroethane	µg/L	5.0	**9.7**	**6.3**
1,1-Dichloroethylene	µg/L	6.0	**30**	**10**
1,2-Dichloroethane	µg/L	0.5*	25 U	2.5 U
Acetone	µg/L	NE	500 U	50 U
Benzene	µg/L	1.0*	25 U	2.5 U
Carbon Tetrachloride	µg/L	0.5*	25 U	2.5 U
Chloroethane	µg/L	NE	61	5 U
Chloroform	µg/L	100	25 U	2.5 U
Chloromethane	µg/L	NE	50 U	5 U
cis-1,2-Dichloroethylene	µg/L	6.0	**3700**	**580**
Ethylbenzene	µg/L	300*	25 U	2.5 U
Methyl ethyl ketone	µg/L	NE	500 U	50 U
Methyl isobutyl ketone	µg/L	NE	500 U	50 U
Tetrachloroethylene	µg/L	5.0	25 U	1 J
Toluene	µg/L	150*	25 U	2.5 U
trans-1,2-Dichloroethylene	µg/L	10	**13**	6.8
Trichloroetylene	µg/L	5.0	25 U	**370**
Trichlorofluoromethane	µg/L	1,200*	50 U	5 U
Vinyl Chloride	µg/L	0.5	**590**	**20**
Xylenes, total	µg/L	1,750*	25 U	2.5 U

TABLE 2-9

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 28

Notes:
Analytes not listed were not detected in any of the 2012 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).
All samples collected by Shaw Environmental and Infrastructure, Inc.

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

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

TABLE 3-1

2012 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 26

Well Number	Aquifer/ Aquifer Zone	March 15, 2012 (ft msl)	September 21, 2012 (ft msl)
EXW-1	Upper A	0.82	0.57
EXW-2	Upper A	-1.28	-1.45
EXW-3	Upper A	-1.86	-1.80
EXW-4	Upper A	-1.61	-1.69
EXW-5	Upper A	-2.71	-2.91
FP5-1	Upper A	1.07	0.42
FP5-2	Upper A	4.82	4.21
FP5-3	Upper A	3.15	3.64
FP5-5	Upper A	1.06	0.53
FP5-7	Upper A	2.96	2.25
FP5-8	Upper A	1.92	1.42
FP5-9	Upper A	0.54	0.02
UST115-MW01	Upper A	0.19	-0.50
UST115-MW02	Upper A	0.04	-0.64
W19-1	Upper A	0.46	0.42
W19-2	Lower A	0.84	0.57
W19-3	Lower A	0.18	0.19
W19-4	Upper A	0.07	-0.21
W2-12	Upper A	-5.01	-5.32
W2-13	Upper A	-5.71	-5.70
W2-16	Upper A	-5.71	-5.95
W2-3	Upper A	-4.60	-4.88
W26-1	Upper A	-3.81	-3.99
W3-1	Upper A	-2.90	-3.16
W3-11	Upper A	-2.79	-3.15
W3-13	Lower A	-3.59	-3.81
W3-14	B	-2.02	-2.44
W3-15	B	-2.36	-2.62
W3-16[a]	C	51.56	49.34
W3-19	Upper A	-3.48	-3.71
W3-20	Upper A	-3.58	-3.84
W3-21	Upper A	-3.37	-3.54
W3-22	Lower A	-1.71	-1.57
W3-24	Upper A	-3.90	-4.11
W3-3	Upper A	-4.68	-4.63
W3-6	Upper A	-4.04	-4.11
W3-7	B	-2.19	-2.39
W3-8	Upper A	-4.02	-4.25
W3-9	B	-2.13	-2.49
W4-1	Upper A	-1.97	-2.31
W4-11	Upper A	-0.92	-1.08
W4-12	Upper A	-2.04	-2.46
W4-13	B	-0.69	-1.04
W4-14	Upper A	-0.95	-1.26
W4-15	Upper A	-2.21	-2.35

TABLE 3-1

2012 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 26

Well Number	Aquifer/ Aquifer Zone	March 15, 2012 (ft msl)	September 21, 2012 (ft msl)
W4-16	Upper A	-1.37	-1.65
W4-17	Upper A	-1.99	-2.32
W4-2	Upper A	-2.23	-2.46
W4-3	Upper A	-1.49	-1.83
W43-1	Upper A	0.46	0.21
W43-2	Upper A	0.49	0.25
W43-3	Upper A	0.35	0.09
W4-4	Upper A	-1.09	-1.39
W4-5	Upper A	-1.36	-1.70
W4-6	Lower A	-1.37	-1.62
W4-7[a]	C	55.84	53.52
W4-9	B	-0.12	-0.25
W5-1	Upper A	1.89	1.42
W5-10	Upper A	3.55	2.73
W5-11	Upper A	2.58	2.28
W5-12	Upper A	1.94	1.74
W5-13	Upper A	4.25	5.44
W5-14	Upper A	0.40	0.00
W5-15	Upper A	1.22	-0.10
W5-16	Upper A	5.44	4.69
W5-17	Upper A	5.47	4.84
W5-18	Upper A	5.85	5.21
W5-19	Upper A	5.63	5.10
W5-20	Upper A	0.86	0.52
W5-23	Upper A	-1.07	-1.54
W5-25	Lower A	-0.64	-1.33
W5-26	B	2.72	2.31
W5-3	Upper A	0.58	0.00
W5-34	Upper A	-0.07	-0.69
W5-35	Upper A	0.77	0.53
W5-4	Lower A	-0.08	-0.57
W5-6	Upper A	1.97	1.45
W5-7	Lower A	4.18	3.62
W5-8	Lower A	3.33	2.73
W6-1	Upper A	3.57	2.25
W6-10	Upper A	1.98	1.55
W6-2	Lower A	0.00	-0.33
W6-3	Upper A	-1.00	-0.38
W6-4	Upper A	-0.54	-0.86
W6-5	Upper A	-0.29	-0.60
W6-6	Upper A	0.08	-0.69
W6-8	Lower A	-0.03	0.67
W6-9	Upper A	0.86	0.40
W7-10	Upper A	0.71	0.49
W7-11	Upper A	2.38	2.23

TABLE 3-1

2012 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 26

Well Number	Aquifer/ Aquifer Zone	March 15, 2012 (ft msl)	September 21, 2012 (ft msl)
W7-12	Upper A	2.48	2.25
W7-13	Upper A	4.19	3.78
W7-17	Lower A	-0.11	-0.41
W7-19	Upper A	1.25	0.91
W7-3	Upper A	1.43	1.12
W7-4	B	2.10	1.72
W7-6	Upper A	0.46	0.20
W7-7	Upper A	0.63	0.41
W7-8	Lower A	0.67	0.44
W7-9	Lower A	0.47	0.26
WFH-01	Upper A	-3.45	-3.57
WFH-02	Upper A	-3.48	-3.67
WFH-03	Upper A	-3.19	-3.45
WFH-04	Upper A	-2.60	-2.96
WFH-05	Upper A	-2.54	-2.98
WFH-06	Upper A	0.75	0.60
WGC2-1	Upper A	-2.80	-3.14
WGC2-10	Upper A	-3.32	-3.61
WGC2-11	Upper A	-3.26	-3.58
WGC2-12	Upper A	-2.84	-2.97
WGC2-13	Upper A	-2.43	-2.77
WGC2-4	Upper A	-2.50	-3.08
WGC2-5	Upper A	-2.82	-2.90
WGC2-6	Upper A	-2.60	-2.76
WGC2-8	Upper A	-3.73	-3.83
WGC2-9	Upper A	-3.55	-3.71
WNB-17	Upper A	-4.45	-4.66
WNB-18	Upper A	-3.83	-3.91
WNB-19	Upper A	-3.42	-3.61
WNB-4	Upper A	-2.92	-3.72
WSW-1	Upper A	-5.03	NA
WSW-2	Upper A	-4.14	-4.36
WSW-3	Upper A	-4.42	-4.65
WSW-4	Upper A	-1.44	-1.74
WSW-5	Upper A	-1.27	-1.57
WSW-6	Upper A	-1.63	-1.90
WT17-1	Upper A	-1.73	-2.09
WT17-2	Upper A	-1.92	-2.26
WT17-3	Upper A	-2.04	-2.38
WT2-1	Upper A	2.56	2.55
WU5-1	Upper A	-1.81	-2.07
WU5-10	Upper A	-0.55	-0.86
WU5-11	Lower A	-1.83	-4.87
WU5-12	Lower A	-1.38	-1.67
WU5-13	Lower A	-2.66	-2.94

TABLE 3-1

2012 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 26

Well Number	Aquifer/ Aquifer Zone	March 15, 2012 (ft msl)	September 21, 2012 (ft msl)
WU5-14	Upper A	-1.31	-1.72
WU5-15	Upper A	-1.27	-1.66
WU5-16	Upper A	-1.46	-1.73
WU5-17	Upper A	-1.15	-1.44
WU5-18	Upper A	-2.74	-3.07
WU5-19	Upper A	-2.79	-3.03
WU5-2	Upper A	-1.76	-2.11
WU5-20	Upper A	-2.66	-2.77
WU5-21	Upper A	-2.59	-3.08
WU5-22	Upper A	-1.73	-2.04
WU5-23	Upper A	-1.20	-2.31
WU5-24	Upper A	0.59	0.28
WU5-25	Upper A	-3.29	-3.29
WU5-3	Upper A	-3.79	DRY
WU5-4	Upper A	-3.82	-4.04
WU5-5	Upper A	-2.38	-3.00
WU5-6	Upper A	-3.98	-4.23
WU5-7	Upper A	-4.06	-4.24
WU5-8	Upper A	-4.56	-4.78
WU5-9	Upper A	-5.08	-5.18

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 2012 ANNUAL SAMPLING EVENT FOR IR SITE 26

Sample Number:	**Units**	**ROD**	**12-2012IR2602EXW-1**	**12-2012IR2602EXW-2**	**12-2012IR2602EXW-3**	**12-2012IR2602EXW-4**
Location:		**Cleanup**	**EXW-1**	**EXW-2**	**EXW-3**	**EXW-4**
Sample Date:		**Standard**	**9/25/2012**	**9/25/2012**	**9/26/2012**	**9/26/2012**
1,1-Dichloroethane	μg/L	5.0*	0.15 J	0.17 J	0.39 J	0.83 J
1,1-Dichloroethene	μg/L	6.0	0.25 U	1.3	0.19 J	2.5
1,2-Dichlorobenzene	μg/L	600*	0.25 U	0.25 U	0.26 J	0.25 U
1,2-Dichloroethane	μg/L	0.5	0.25 U	0.25 U	0.25 U	0.30 J
2-Butanone	μg/L	NE	1.0 U	1.0 U	4.5 J	1.0 U
Benzene	μg/L	1.0*	0.25 U	0.25 U	0.25 U	0.25 U
Carbon tetrachloride	μg/L	0.5*	0.25 U	0.25 U	0.25 U	0.43 J
Chlorobenzene	μg/L	70*	0.25 U	0.25 U	0.25 U	0.25 U
Chloroform	μg/L	NE	0.25 U	0.25 U	0.25 U	0.25 U
cis-1,2-Dichloroethene	μg/L	6.0	2.9	3.3	3.7	3.9
Ethylbenzene	μg/L	300*	0.25 U	0.25 U	0.25 U	0.25 U
Tetrachloroethene	μg/L	5.0	0.50 U	0.73 J	1.7	0.50 U
Toluene	μg/L	150*	0.082 J	0.25 U	0.25 U	0.25 U
trans-1,2-Dichloroethene	μg/L	6.0	0.63 J	0.44 J	0.25 U	0.16 J
Trichloroethene	μg/L	5.0	0.27 J	**6.5**	**7.4**	3.2
Vinyl chloride	μg/L	0.5	**0.87 J**	**0.89 J**	**1.2 J**	0.16 J
Xylenes (total)	μg/L	1,750*	0.50 U	0.50 U	0.50 U	0.50 U

Sample Number:	**Units**	**ROD**	**12-2012IR2602WSW-6**	**12-2012IR2602WSW-6D**	**12-2012IR2602WT2-1**	**12-2012IR2602WU5-1**
Location:		**Cleanup**	**WSW-6**	**WSW-6 (Dup)**	**WT2-1**	**WU5-1**
Sample Date:		**Standard**	**9/26/2012**	**9/26/2012**	**9/26/2012**	**9/25/2012**
1,1-Dichloroethane	μg/L	5*	0.37 J	0.38 J	0.25 U	0.18 J
1,1-Dichloroethene	μg/L	6.0	0.17 J	0.16 J	0.25 U	0.18 J
1,2-Dichlorobenzene	μg/L	600*	1.0	0.86 J	0.25 U	0.072 J
1,2-Dichloroethane	μg/L	0.5	0.25 U	0.25 U	0.25 U	0.25 J
2-Butanone	μg/L	NE	1.0 U	1.0 U	1.0 U	1.0 UJ
Benzene	μg/L	1.0*	0.25 U	0.25 U	0.25 U	0.25 U
Carbon tetrachloride	μg/L	0.5*	0.25 U	0.25 U	0.25 U	0.25 U
Chlorobenzene	μg/L	70*	0.25 U	0.25 U	0.25 U	0.25 U
Chloroform	μg/L	NE	0.25 U	0.25 U	0.25 U	0.25 U
cis-1,2-Dichloroethene	μg/L	6	1.9	2.0	0.19 J	**17 J**
Ethylbenzene	μg/L	300*	0.25 U	0.25 U	0.25 U	0.25 U
Tetrachloroethene	μg/L	5.0	1.3	1.2	0.68 J	1.6
Toluene	μg/L	150*	0.16 J	0.23 J	0.25 U	0.085 J
trans-1,2-Dichloroethene	μg/L	6.0	0.15 J	0.25 U	0.25 U	0.41 J
Trichloroethene	μg/L	5.0	4.7	4.5	2.5	**11 J**
Vinyl chloride	μg/L	0.5	0.25 J	0.26 J	0.25 U	0.46 J
Xylenes (total)	μg/L	1,750*	0.50 U	0.24 J	0.50 U	0.50 U

TABLE 3-2

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 26

Sample Number: Location: Sample Date:	Units	ROD Cleanup Standard	12-2012IR2602EXW-5 EXW-5 9/26/2012	12-2012IR2602W19-1 W19-1 9/25/2012	12-2012IR2602W3-21 W3-21 9/25/2012	12-2012IR2602W4-1 W4-1 9/25/2012
1,1-Dichloroethane	µg/L	5.0*	0.095 J	2.2	0.94 J	0.51 J
1,1-Dichloroethene	µg/L	6.0	0.25 U	0.54 J	0.16 J	0.71 J
1,2-Dichlorobenzene	µg/L	600*	0.25 U	0.25 U	0.25 U	0.16 J
1,2-Dichloroethane	µg/L	0.5	0.26 J	0.25 U	0.25 U	0.17 J
2-Butanone	µg/L	NE	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	1.0*	0.25 U	0.25 U	0.25 U	0.25 U
Carbon tetrachloride	µg/L	0.5*	0.25 U	0.25 U	0.25 U	0.25 U
Chlorobenzene	µg/L	70*	0.25 U	0.25 U	0.25 U	0.25 U
Chloroform	µg/L	NE	0.25 U	0.25 U	0.25 U	0.25 U
cis-1,2-Dichloroethene	µg/L	6.0	**6.2**	3.7	1.6	3.0
Ethylbenzene	µg/L	300*	0.25 U	0.25 U	0.25 U	0.25 U
Tetrachloroethene	µg/L	5.0	0.73 J	0.50 U	0.50 U	0.20 J
Toluene	µg/L	150*	0.25 U	0.27 J	0.091 J	0.10 J
trans-1,2-Dichloroethene	µg/L	6.0	0.25 J	0.35 J	0.14 J	0.14 J
Trichloroethene	µg/L	5.0	2.6	0.50 J	3.3	**5.5**
Vinyl chloride	µg/L	0.5	0.25 U	**4.0**	0.11 J	0.22 J
Xylenes (total)	µg/L	1,750*	0.50 U	0.33 J	0.50 U	0.50 U

Sample Number: Location: Sample Date:	Units	ROD Cleanup Standard	12-2012IR2602WU5-10 WU5-10 9/26/2012	12-2012IR2602WU5-14 WU5-14 9/26/2012	12-2012IR2602WU5-15 WU5-15 9/26/2012	12-2012IR2602WU5-15D WU5-15 (Dup) 9/26/2012
1,1-Dichloroethane	µg/L	5*	0.31 J	0.22 J	0.089 J	0.091 J
1,1-Dichloroethene	µg/L	6.0	0.44 J	0.24 J	0.088 J	0.25 U
1,2-Dichlorobenzene	µg/L	600*	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloroethane	µg/L	0.5	0.25 U	0.25 U	0.25 U	**0.61 J**
2-Butanone	µg/L	NE	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	1.0*	0.25 U	0.25 U	0.25 U	0.25 U
Carbon tetrachloride	µg/L	0.5*	0.25 U	0.25 U	0.25 U	0.25 U
Chlorobenzene	µg/L	70*	0.25 U	0.25 U	0.25 U	0.25 U
Chloroform	µg/L	NE	0.25 U	0.25 U	0.25 U	0.25 U
cis-1,2-Dichloroethene	µg/L	6	0.94 J	5.1	0.58 J	0.55 J
Ethylbenzene	µg/L	300*	0.25 U	0.11 J	0.25 U	0.25 U
Tetrachloroethene	µg/L	5.0	0.50 U	0.50 U	1.0	0.90 J
Toluene	µg/L	150*	0.091 J	0.55 J	0.25 U	0.25 U
trans-1,2-Dichloroethene	µg/L	6.0	0.087 J	0.99 J	0.32 J	0.33 J
Trichloroethene	µg/L	5.0	**14**	1.6	**15**	**14**
Vinyl chloride	µg/L	0.5	0.25 U	**6.3**	0.25 U	0.25 U
Xylenes (total)	µg/L	1,750*	0.50 U	0.45 J	0.50 U	0.50 U

TABLE 3-2

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 26

Sample Number: **Location:** **Sample Date:**	**Units**	**ROD Cleanup Standard**	**12-2012IR2602W4-11** **W4-11** **9/25/2012**	**12-2012IR2602W4-11D** **W4-11 (Dup)** **9/25/2012**	**12-2012IR2602W4-14** **W4-14** **9/26/2012**	**12-2012IR2602W4-15** **W4-15** **9/25/2012**
1,1-Dichloroethane	µg/L	5.0*	0.095 J	0.10 J	0.57 J	0.79 J
1,1-Dichloroethene	µg/L	6.0	0.10 J	0.091 J	0.25 U	0.26 J
1,2-Dichlorobenzene	µg/L	600*	0.25 U	0.25 U	4.7	0.15 J
1,2-Dichloroethane	µg/L	0.5	0.25 U	0.25 U	0.25 U	0.25 U
2-Butanone	µg/L	NE	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	1.0*	0.25 U	0.25 U	2.9	0.25 U
Carbon tetrachloride	µg/L	0.5*	0.25 U	0.25 U	0.25 U	0.25 U
Chlorobenzene	µg/L	70*	0.25 U	0.25 U	130	0.25 U
Chloroform	µg/L	NE	0.25 U	0.25 U	0.25 U	0.15 J
cis-1,2-Dichloroethene	µg/L	6.0	1.1	1.1	4.6	2.4 J
Ethylbenzene	µg/L	300*	0.25 U	0.25 U	0.35 J	0.25 U
Tetrachloroethene	µg/L	5.0	1.6	1.6	0.50 U	1.2 J
Toluene	µg/L	150*	0.25 U	0.25 U	1.1	0.34 J
trans-1,2-Dichloroethene	µg/L	6.0	1.3	1.4	0.30 J	0.36 J
Trichloroethene	µg/L	5.0	**18**	**18**	0.47 J	4.6 J
Vinyl chloride	µg/L	0.5	0.12 J	0.11 J	**8.6**	0.27 J
Xylenes (total)	µg/L	1,750*	0.50 U	0.50 U	0.47 J	0.58 J

Sample Number: **Location:** **Sample Date:**	**Units**	**ROD Cleanup Standard**	**12-2012IR2602WU5-16** **WU5-16** **9/26/2012**	**12-2012IR2602WU5-16D** **WU5-16 (Dup)** **9/26/2012**	**12-2012IR2602WU5-17** **WU5-17** **9/26/2012**	**12-2012IR2602WU5-2** **WU5-2** **9/25/2012**
1,1-Dichloroethane	µg/L	5*	0.13 J	0.14 J	0.13 J	0.18 J
1,1-Dichloroethene	µg/L	6.0	0.39 J	0.36 J	0.092 J	0.094 J
1,2-Dichlorobenzene	µg/L	600*	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloroethane	µg/L	0.5	0.25 U	0.25 U	0.25 U	0.25 J
2-Butanone	µg/L	NE	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	1.0*	0.25 U	0.25 U	0.25 U	0.25 U
Carbon tetrachloride	µg/L	0.5*	0.25 U	0.25 U	0.25 U	0.25 U
Chlorobenzene	µg/L	70*	0.25 U	0.25 U	0.25 U	0.25 U
Chloroform	µg/L	NE	0.25 U	0.25 U	0.25 U	0.25 U
cis-1,2-Dichloroethene	µg/L	6	2.5	2.4	0.52 J	**15**
Ethylbenzene	µg/L	300*	0.25 U	0.25 U	0.25 U	0.25 U
Tetrachloroethene	µg/L	5.0	1.4	1.4	1.1	0.78 J
Toluene	µg/L	150*	0.25 U	0.25 U	0.25 U	0.38 J
trans-1,2-Dichloroethene	µg/L	6.0	2.8	2.8	0.25 U	0.38 J
Trichloroethene	µg/L	5.0	**15**	**15**	**8.8**	2.6
Vinyl chloride	µg/L	0.5	**1.1 J**	**1.2 J**	0.25 U	0.48 J
Xylenes (total)	µg/L	1,750*	0.50 U	0.50 U	0.50 U	0.34 J

TABLE 3-2

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 26

Sample Number: Location: Sample Date:	Units	ROD Cleanup Standard	12-2012IR2602W4-2 W4-2 9/25/2012	12-2012IR2602W43-2 W43-2 9/25/2012	12-2012IR2602W43-3 W43-3 9/25/2012	12-2012IR2602W4-4 W4-4 9/26/2012
1,1-Dichloroethane	µg/L	5.0*	0.23 J	0.21 J	0.31 J	0.25 J
1,1-Dichloroethene	µg/L	6.0	0.11 J	0.26 J	0.39 J	0.25 U
1,2-Dichlorobenzene	µg/L	600*	0.25 U	0.25 U	0.25 U	0.76 J
1,2-Dichloroethane	µg/L	0.5	0.25 U	0.25 U	0.25 U	0.25 U
2-Butanone	µg/L	NE	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	1.0*	0.25 U	0.25 U	0.25 U	0.25 U
Carbon tetrachloride	µg/L	0.5*	0.25 U	0.25 U	0.25 U	0.25 U
Chlorobenzene	µg/L	70*	0.25 U	0.25 U	0.25 U	0.33 J
Chloroform	µg/L	NE	0.25 U	0.14 J	0.25 U	0.25 U
cis-1,2-Dichloroethene	µg/L	6.0	1.5 J	**8.4**	2.8	1.4
Ethylbenzene	µg/L	300*	0.25 U	0.25 U	0.25 U	0.25 U
Tetrachloroethene	µg/L	5.0	0.82 J	**31**	2.1	0.53 J
Toluene	µg/L	150*	0.25 U	0.10 J	0.31 J	0.076 J
trans-1,2-Dichloroethene	µg/L	6.0	1.0 J	1.1	0.31 J	0.25 U
Trichloroethene	µg/L	5.0	**17 J**	**19**	3.1	0.92 J
Vinyl chloride	µg/L	0.5	0.25 U	**0.82 J**	0.23 J	**0.59 J**
Xylenes (total)	µg/L	1,750*	0.50 U	0.50 U	0.28 J	0.50 U

Sample Number: Location: Sample Date:	Units	ROD Cleanup Standard	12-2012IR2602WU5-20 WU5-20 9/25/2012	12-2012IR2602WU5-21 WU5-21 9/25/2012	12-2012IR2602WU5-23 WU5-23 9/25/2012	12-2012IR2602WU5-24 WU5-24 9/25/2012
1,1-Dichloroethane	µg/L	5*	0.16 J	0.19 J	0.25 U	0.24 J
1,1-Dichloroethene	µg/L	6.0	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichlorobenzene	µg/L	600*	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichloroethane	µg/L	0.5	**0.78 J**	**0.71 J**	0.13 J	0.25 U
2-Butanone	µg/L	NE	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	µg/L	1.0*	0.25 U	0.25 U	0.25 U	0.18 J
Carbon tetrachloride	µg/L	0.5*	0.25 U	0.25 U	0.25 U	0.25 U
Chlorobenzene	µg/L	70*	0.25 U	0.25 U	0.25 U	0.25 U
Chloroform	µg/L	NE	0.25 U	0.25 U	0.20 J	0.25 U
cis-1,2-Dichloroethene	µg/L	6	**13 J**	3.5	1.1 J	0.82 J
Ethylbenzene	µg/L	300*	0.25 U	0.25 U	0.25 U	0.25 U
Tetrachloroethene	µg/L	5.0	0.37 J	0.50 U	0.77 J	0.50 U
Toluene	µg/L	150*	0.25 U	0.23 J	0.25 U	0.072 J
trans-1,2-Dichloroethene	µg/L	6.0	0.16 J	0.25 U	0.25 U	0.20 J
Trichloroethene	µg/L	5.0	0.82 J	0.50 U	1.0 J	0.27 J
Vinyl chloride	µg/L	0.5	0.10 J	0.22 J	0.25 U	**0.58 J**
Xylenes (total)	µg/L	1,750*	0.50 U	0.34 J	0.35 J	0.27 J

TABLE 3-2

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 26

Sample Number: Location: Sample Date:	Units	ROD Cleanup Standard	12-2012IR2602W5-23 W5-23 9/26/2012	12-2012IR2602W7-10 W7-10 9/25/2012	12-2012IR2602W7-10D W7-10 (Dup) 9/25/2012	12-2012IR2602W7-7 W7-7 9/25/2012
1,1-Dichloroethane	μg/L	5.0*	0.25 U	0.28 J	0.27 J	0.31 J
1,1-Dichloroethene	μg/L	6.0	0.25 U	0.21 J	0.20 J	0.096 J
1,2-Dichlorobenzene	μg/L	600*	0.25 U	0.25 U	0.25 U	2.8
1,2-Dichloroethane	μg/L	0.5	0.25 U	0.25 U	0.25 U	0.25 U
2-Butanone	μg/L	NE	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	μg/L	1.0*	0.25 U	0.25 U	0.25 U	0.25 U
Carbon tetrachloride	μg/L	0.5*	0.25 U	0.25 U	0.25 U	0.25 U
Chlorobenzene	μg/L	70*	0.25 U	0.25 U	0.25 U	0.25 U
Chloroform	μg/L	NE	0.25 U	0.25 U	0.25 U	0.25 U
cis-1,2-Dichloroethene	μg/L	6.0	0.25 U	**16**	**15**	3.3
Ethylbenzene	μg/L	300*	0.096 J	0.25 U	0.25 U	0.25 U
Tetrachloroethene	μg/L	5.0	0.50 U	**9.9**	**9.9**	0.50 U
Toluene	μg/L	150*	0.26 J	0.25 U	0.25 U	0.14 J
trans-1,2-Dichloroethene	μg/L	6.0	0.25 U	1.0	1.0	0.31 J
Trichloroethene	μg/L	5.0	0.50 U	**12**	**12**	0.54 J
Vinyl chloride	μg/L	0.5	0.25 U	**0.62 J**	**0.66 J**	**4.9**
Xylenes (total)	μg/L	1,750*	0.27 J	0.50 U	0.50 U	0.50 U

Sample Number: Location: Sample Date:	Units	ROD Cleanup Standard	12-2012IR2602WU5-25 WU5-25 9/25/2012	12-2012IR2602WU5-4 WU5-4 9/25/2012
1,1-Dichloroethane	μg/L	5*	0.11 J	0.12 J
1,1-Dichloroethene	μg/L	6.0	0.25 U	0.25 U
1,2-Dichlorobenzene	μg/L	600*	0.25 U	0.25 U
1,2-Dichloroethane	μg/L	0.5	0.34 J	0.25 U
2-Butanone	μg/L	NE	1.0 U	1.0 U
Benzene	μg/L	1.0*	0.25 U	0.25 U
Carbon tetrachloride	μg/L	0.5*	0.25 U	0.25 U
Chlorobenzene	μg/L	70*	0.25 U	0.25 U
Chloroform	μg/L	NE	0.25 U	0.25 U
cis-1,2-Dichloroethene	μg/L	6	4.3	0.089 J
Ethylbenzene	μg/L	300*	0.25 U	0.25 U
Tetrachloroethene	μg/L	5.0	0.61 J	0.50 U
Toluene	μg/L	150*	0.096 J	0.30 J
trans-1,2-Dichloroethene	μg/L	6.0	0.11 J	0.25 U
Trichloroethene	μg/L	5.0	1.6	3.2
Vinyl chloride	μg/L	0.5	0.25 U	0.25 U
Xylenes (total)	μg/L	1,750*	0.50 U	0.43 J

TABLE 3-2

ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2012 ANNUAL SAMPLING EVENT FOR IR SITE 26

Notes:

Analytes not listed were not detected in any of the 2012 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 2012 IR Site 26 and 28 event, including data validation, are provided on CD in Appendix C
*California maximum contaminant level. No ROD value established.

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
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 not 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
EXW-1	Upper A	9/25/2012	0.27 J	2.9	0.50 U	0.87 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
EXW-2	Upper A	9/25/2012	6.5	3.3	0.73 J	0.89 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-3	Upper A	9/26/2012	7.4	3.7	1.7	1.2 J
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
EXW-4	Upper A	9/26/2012	3.2	3.9	0.50 U	0.16 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
EXW-5	Upper A	9/26/2012	2.6	6.2	0.73 J	0.25 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)
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
W19-1	Upper A	9/25/2012	0.50 J	3.7	0.50 U	4.0
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
W3-21	Upper A	9/25/2012	3.3	1.6	0.50 U	0.11 J
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
W4-1	Upper A	9/25/2012	5.5	3.0	0.20 J	0.22 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)
W4-11	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
W4-11	Upper A	9/25/2012	18	1.1	1.6	0.12 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)
W4-14	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
W4-14	Upper A	9/26/2012	0.47 J	4.6	0.50 U	8.6

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)
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
W4-15	Upper A	9/25/2012	4.6 J	2.4 J	1.2 J	0.27 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
W4-2	Upper A	9/25/2012	17 J	1.5 J	0.82 J	0.25 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)
W4-3	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
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
W43-2	Upper A	9/25/2012	19	8.4	31	0.82 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)
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
W43-3	Upper A	9/25/2012	3.1	2.8	2.1	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)
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
W4-4	Upper A	9/26/2012	0.92 J	1.4	0.53 J	0.59 J
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
W5-23	Upper A	9/26/2012	0.50 U	0.25 U	0.50 U	0.25 U
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
W7-10	Upper A	9/25/2012	12	16	9.9	0.62 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)
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
W7-7	Upper A	9/25/2012	0.54 J	3.3	0.50 U	4.9

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
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
WSW-6	Upper A	9/26/2012	4.7	1.9	1.3	0.25 J
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
WT2-1	Upper A	9/26/2012	2.5	0.19 J	0.68 J	0.25 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
WU5-1	Upper A	9/25/2012	11 J	17 J	1.6	0.46 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
WU5-10	Upper A	9/26/2012	14	0.94 J	0.50 U	0.25 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)
WU5-11	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
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
WU5-14	Upper A	9/26/2012	1.6	5.1	0.50 U	6.3

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
WU5-15	Upper A	9/26/2012	15	0.58 J	1.0	0.25 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
WU5-16	Upper A	9/26/2012	15	2.5	1.4	1.1 J
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
WU5-17	Upper A	9/26/2012	8.8	0.52 J	1.1	0.25 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)
WU5-18	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
WU5-2	Upper A	9/25/2012	2.6	15	0.78 J	0.48 J
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
WU5-20	Upper A	9/25/2012	0.82 J	13 J	0.37 J	0.10 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)
WU5-21	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
WU5-21	Upper A	9/25/2012	0.50 U	3.5	0.50 U	0.22 J
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
WU5-23	Upper A	9/25/2012	1.0 J	1.1 J	0.77 J	0.25 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
WU5-24	Upper A	9/25/2012	0.27 J	0.82 J	0.50 U	0.58 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)
WU5-25	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
WU5-25	Upper A	9/25/2012	1.6	4.3	0.61 J	0.25 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
WU5-4	Upper A	9/25/2012	3.2	0.089 J	0.50 U	0.25 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 3-3

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

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
G - qualified due to background problems
H - qualified due to holding time violation
IR - installation restoration
J - estimated result
K - qualified due to negative blank value problems
NA - not analyzed
PCE - tetrachloroethene
S - estimated due to surrogate outliers
Shaw - Shaw Environmental & Infrastructure, Inc.
TCE - trichloroethene
U - analyte not detected at or above laboratory reporting limit (value indicates the reporting limit)
UJ- analyte detected with an estimated laboratory reporting limit
VC - vinyl chloride

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			
2012 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

FIGURES

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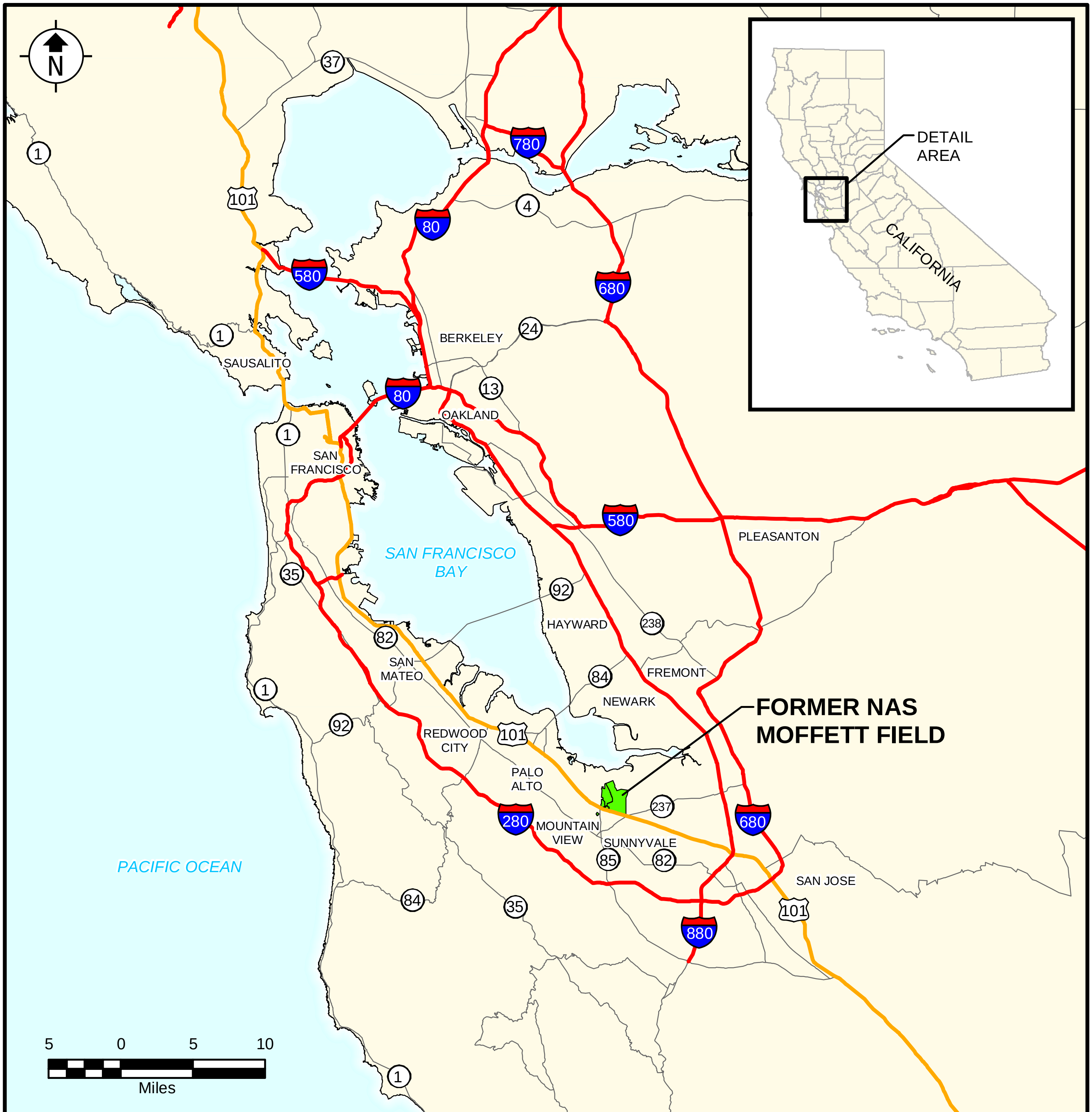

STATE HIGHWAY

US HIGHWAY

INTERSTATE HIGHWAY

FORMER NAS MOFFETT FIELD

WATER

Notes:

IR - Installation Restoration
NAS - Naval Air Station

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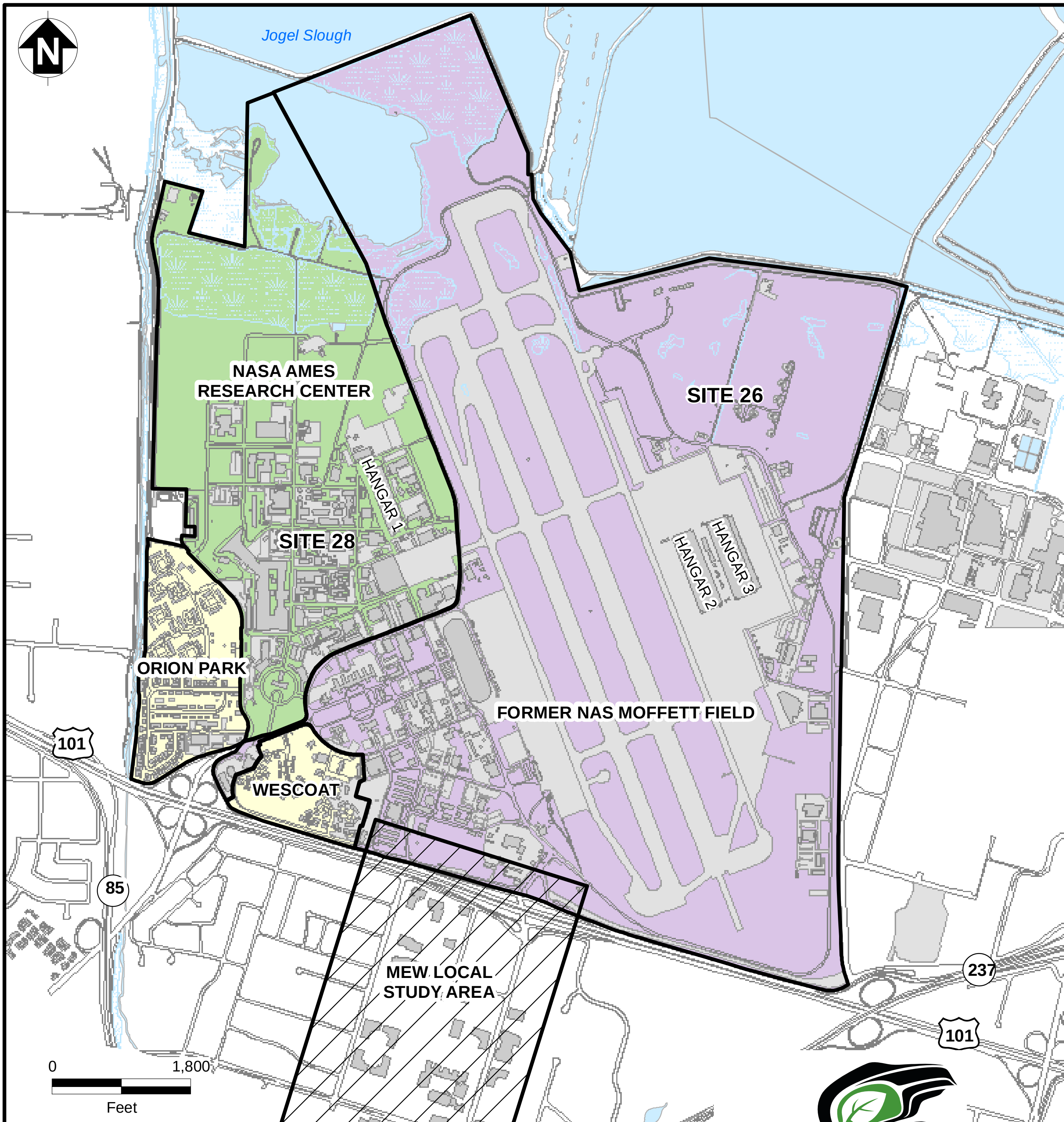
FIGURE 1-1

REGIONAL LOCATION MAP

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



SEALASKA ENVIRONMENTAL

Legend	
FORMER NAS MOFFETT FIELD	ROAD
NASA AMES RESEARCH CENTER	PAVED AREA
MOFFETT COMMUNITY HOUSING	BUILDING
MEW SUPERFUND SITE	WATER
	WETLAND

Notes:

IR - Installation Restoration
MEW - Middlefield Ellis Whisman
NAS - Naval Air Station

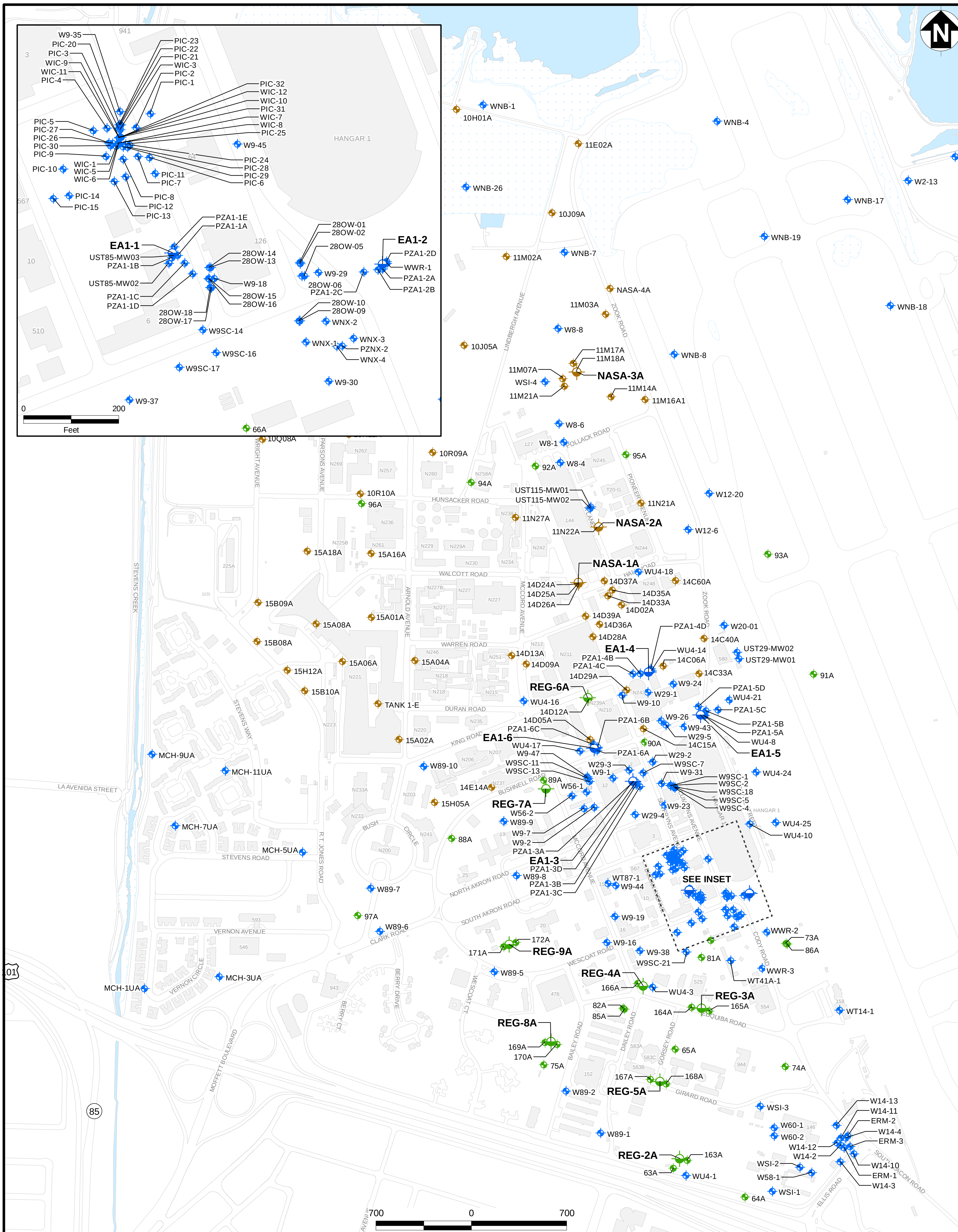
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

2012 ANNUAL GROUNDWATER REPORT
FOR IR SITES 26 & 28

FIGURE 1-2

SITE LOCATION MAP

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



- NAVY EXTRACTION WELL
- NAVY MONITORING WELL
- MEW EXTRACTION WELL
- MEW MONITORING WELL
- NASA EXTRACTION WELL
- NASA MONITORING WELL
- ROAD
- FACILITY INFRASTRUCTURE
- WATER
- WETLAND

Notes:

IR - Installation Restoration
MEW - Middlefield Ellis Whisman
NAS - Naval Air Station
NASA - National Aeronautics and Space Administration

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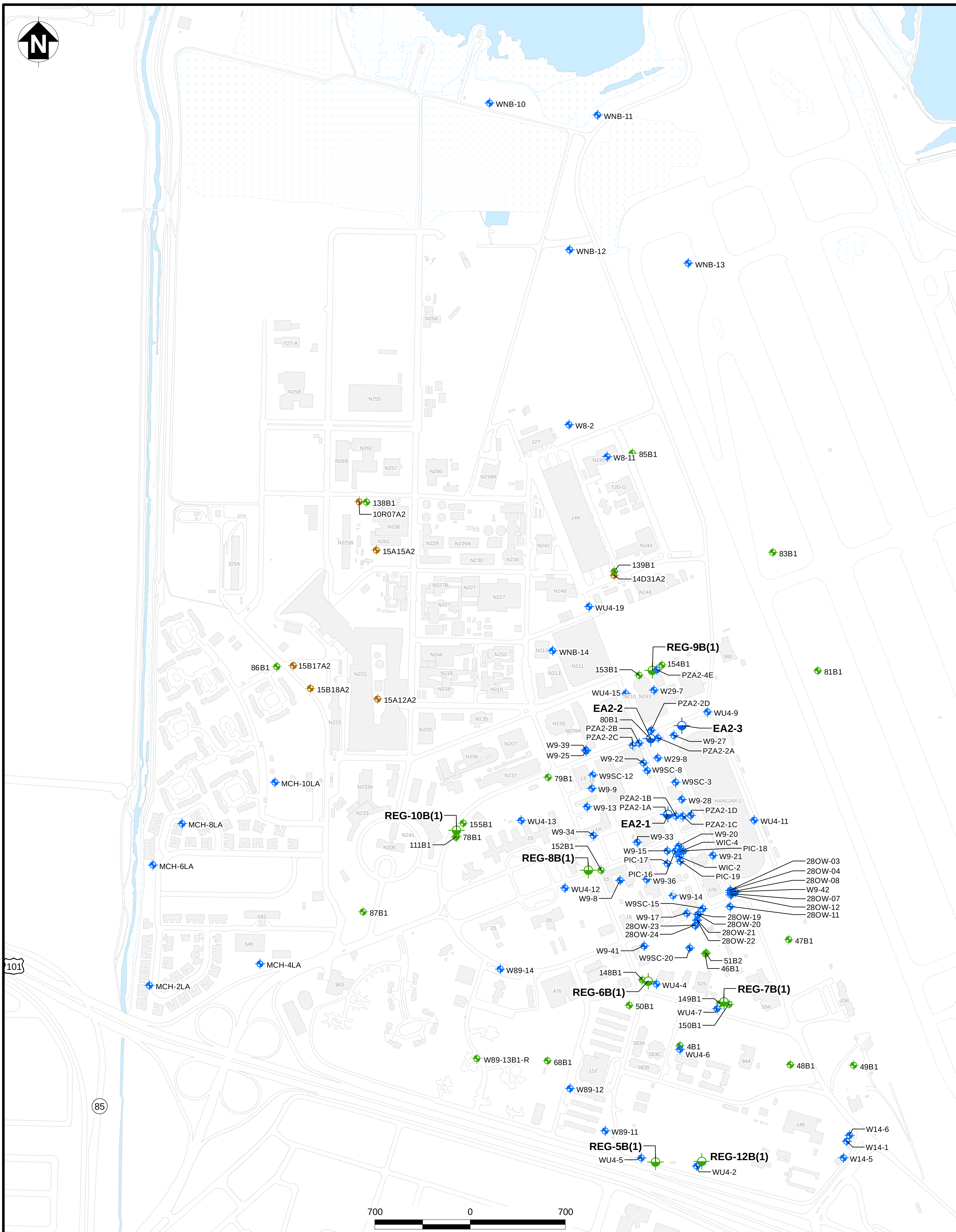
FIGURE 2-1
MONITORING AND EXTRACTION WELL LOCATION MAP, IR SITE 28, UPPER PORTION OF THE A AQUIFER

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



NAVY EXTRACTION WELL

NAVY MONITORING WELL

MEW EXTRACTION WELL

MEW MONITORING WELL

NASA EXTRACTION WELL

NASA MONITORING WELL

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

Notes:

IR - Installation Restoration
MEW - Middlefield Ellis Whisman
NAS - Naval Air Station
NASA - National Aeronautics and Space Administration

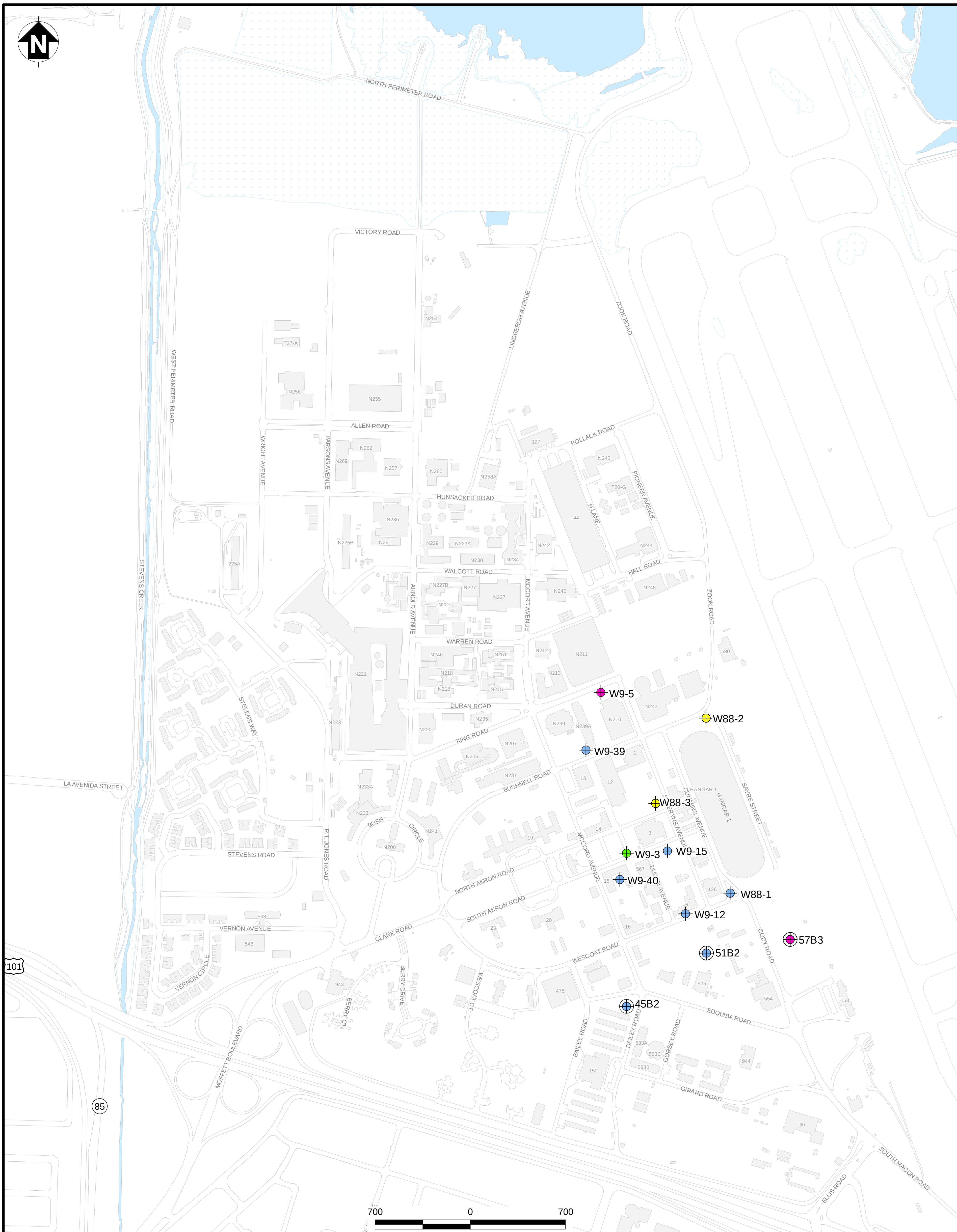
SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

2012 ANNUAL GROUNDWATER REPORT
FOR IR SITES 26 & 28

FIGURE 2-2
MONITORING AND EXTRACTION WELL LOCATION MAP, IR SITE 28, LOWER PORTION OF THE A AQUIFER

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



B AQUIFER, NAVY MONITORING WELL

B2 AQUIFER, NAVY MONITORING WELL

B3 AQUIFER, NAVY MONITORING WELL

C AQUIFER, NAVY MONITORING WELL

MEW MONITORING WELL

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

MEW LOCAL STUDY AREA

Notes:

IR - Installation Restoration
MEW - Middlefield Ellis Whisman
NAS - Naval Air Station
NASA - National Aeronautics and Space Administration

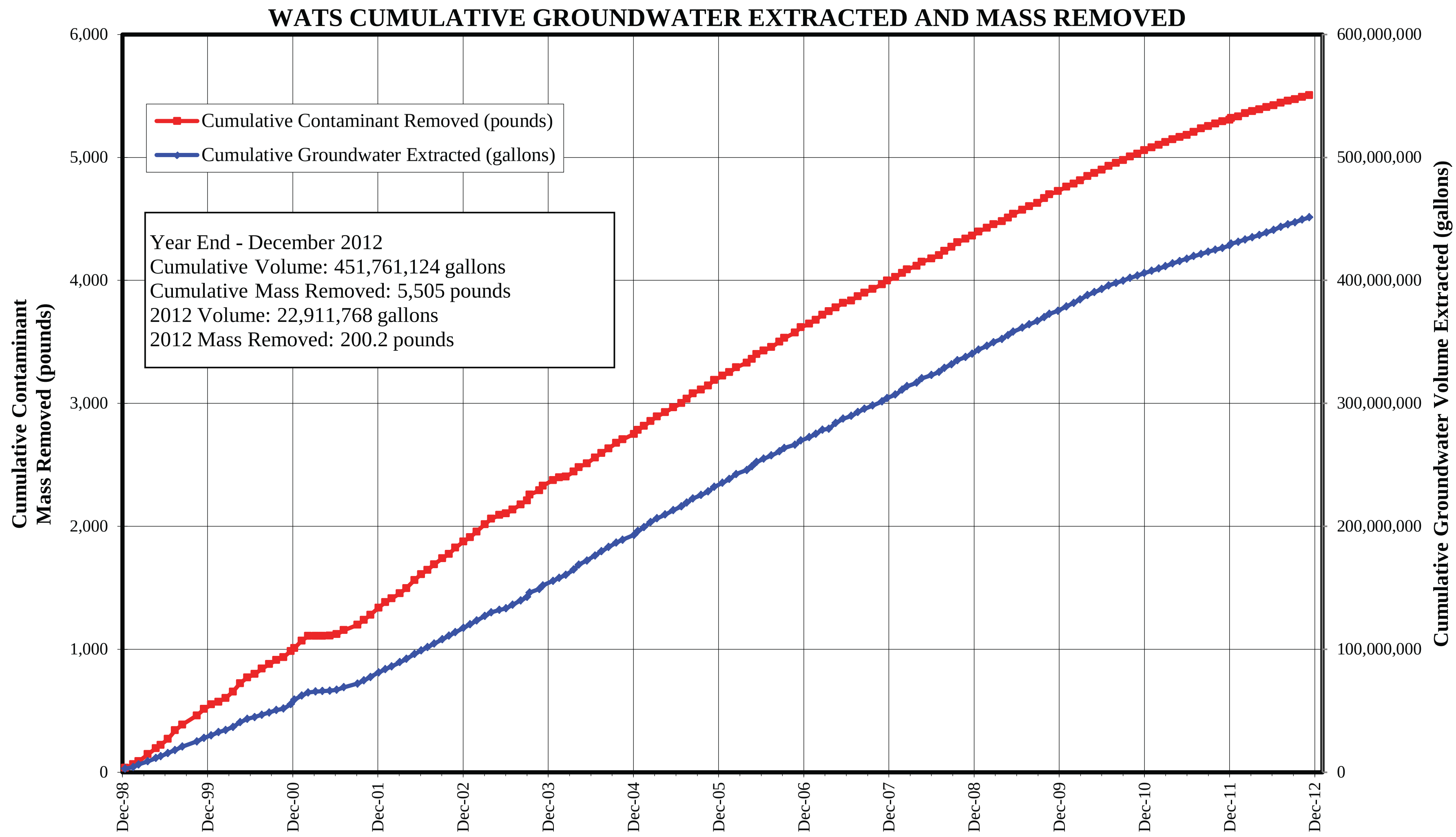
SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

2012 ANNUAL GROUNDWATER REPORT
FOR IR SITES 26 & 28

FIGURE 2-3
MONITORING WELL LOCATION MAP, IR SITE 28, B AND C AQUIFER

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



Note:
Total mass removed is based on concentrations of trichloroethene, tetrachloroethene, cis-1,2-dichloroethene, and vinyl chloride.

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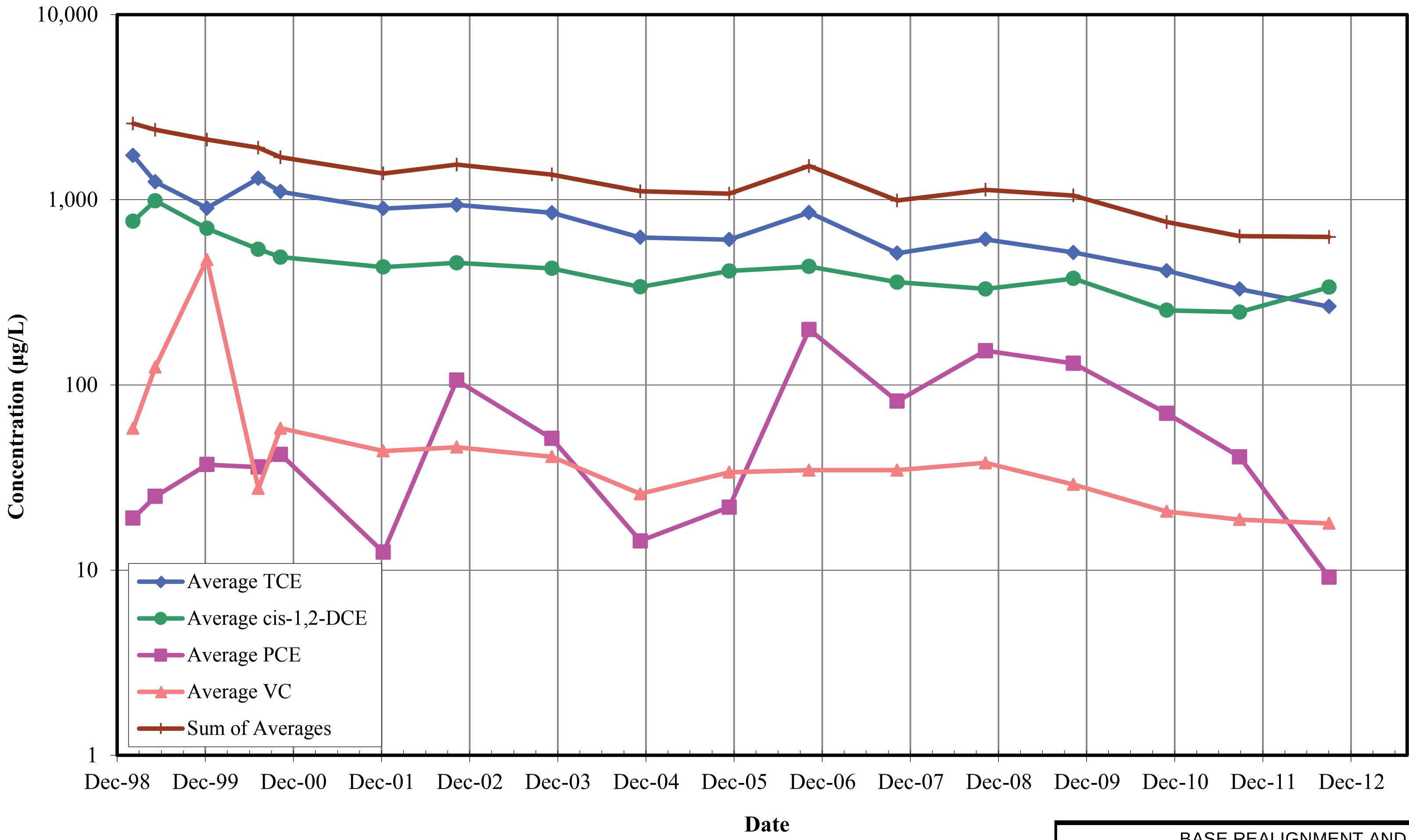
FOR IR SITES 26 & 28

FIGURE 2-4
WATS CUMULATIVE GROUNDWATER EXTRACTED AND MASS REMOVED

FORMER NAS MOFFETT FIELD
MOFFETT FIELD, CALIFORNIA

WATS AVERAGE AND SUM OF AVERAGE TCE, PCE, CIS-1,2-DCE, AND VC INFLUENT CONCENTRATIONS FOR EXTRACTION WELLS



Notes:
Averages are based on extraction well analytical samples
µg/L - micrograms per liter
TCE - trichloroethene, cis-1,2-DCE - cis-1,2-dichloroethene, PCE - tetrachloroethene, VC - vinyl chloride
VOC - volatile organic compound
The average for each target VOC is calculated by adding the reported concentrations from each of the extraction wells and dividing by the number of extraction wells. In the case of non-detect results, one half of the laboratory reporting limit is used to produce the sum. The sum of averages for the target VOCs is calculated by adding the averages for TCE, cis-1,2-DCE, PCE, and VC.

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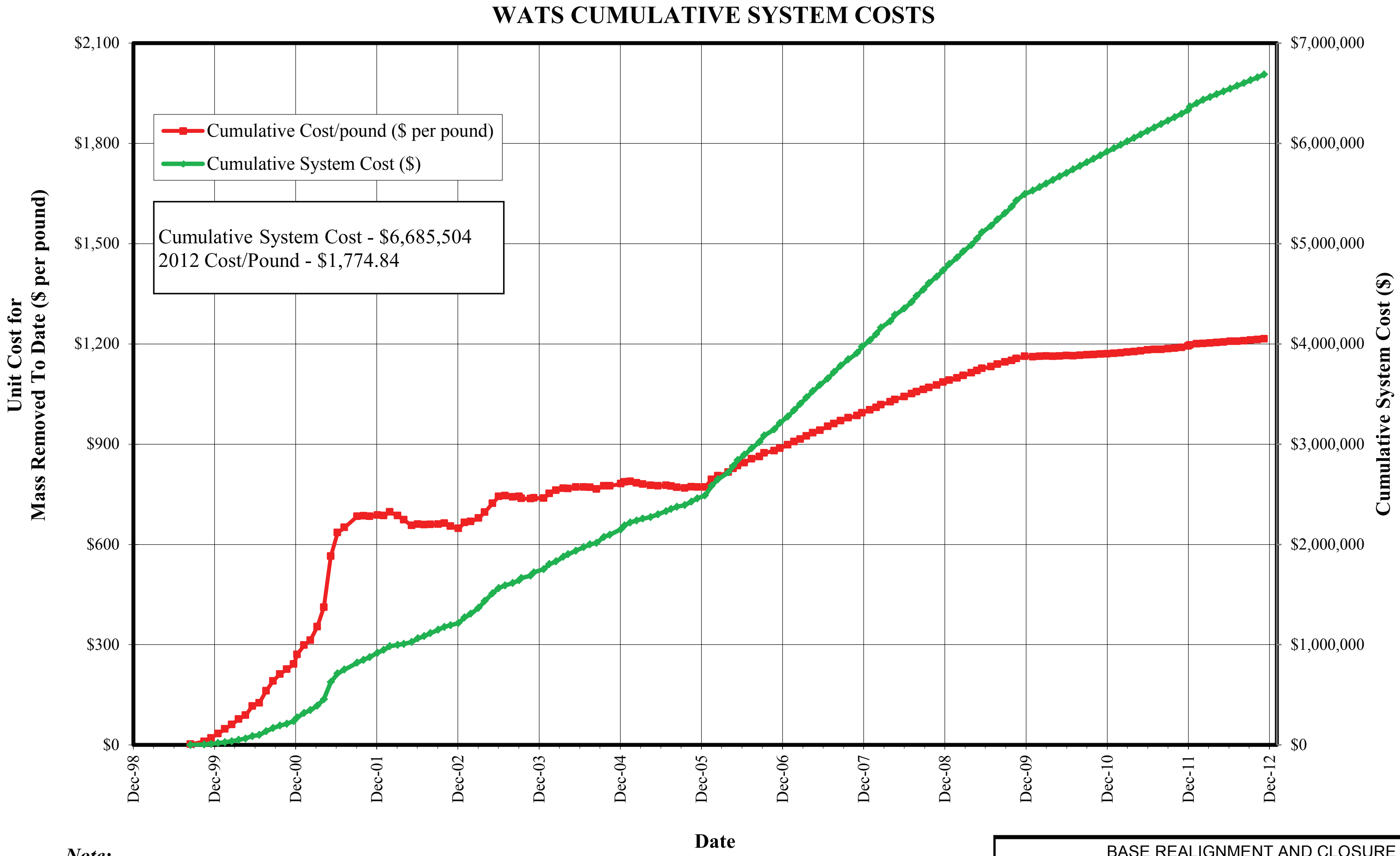
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

2012 ANNUAL GROUNDWATER REPORT
FOR IR SITES 26 & 28

FIGURE 2-5
WATS AVERAGE AND SUM OF AVERAGE TCE, PCE, CIS-1,2-DCE, AND VC INFLUENT CONCENTRATIONS FOR EXTRACTION WELLS

FORMER NAS MOFFETT FIELD
MOFFETT FIELD, CALIFORNIA



Note:
Total mass removed is based on concentrations of trichloroethene, tetrachloroethene, cis-1,2-dichloroethene, and vinyl chloride.

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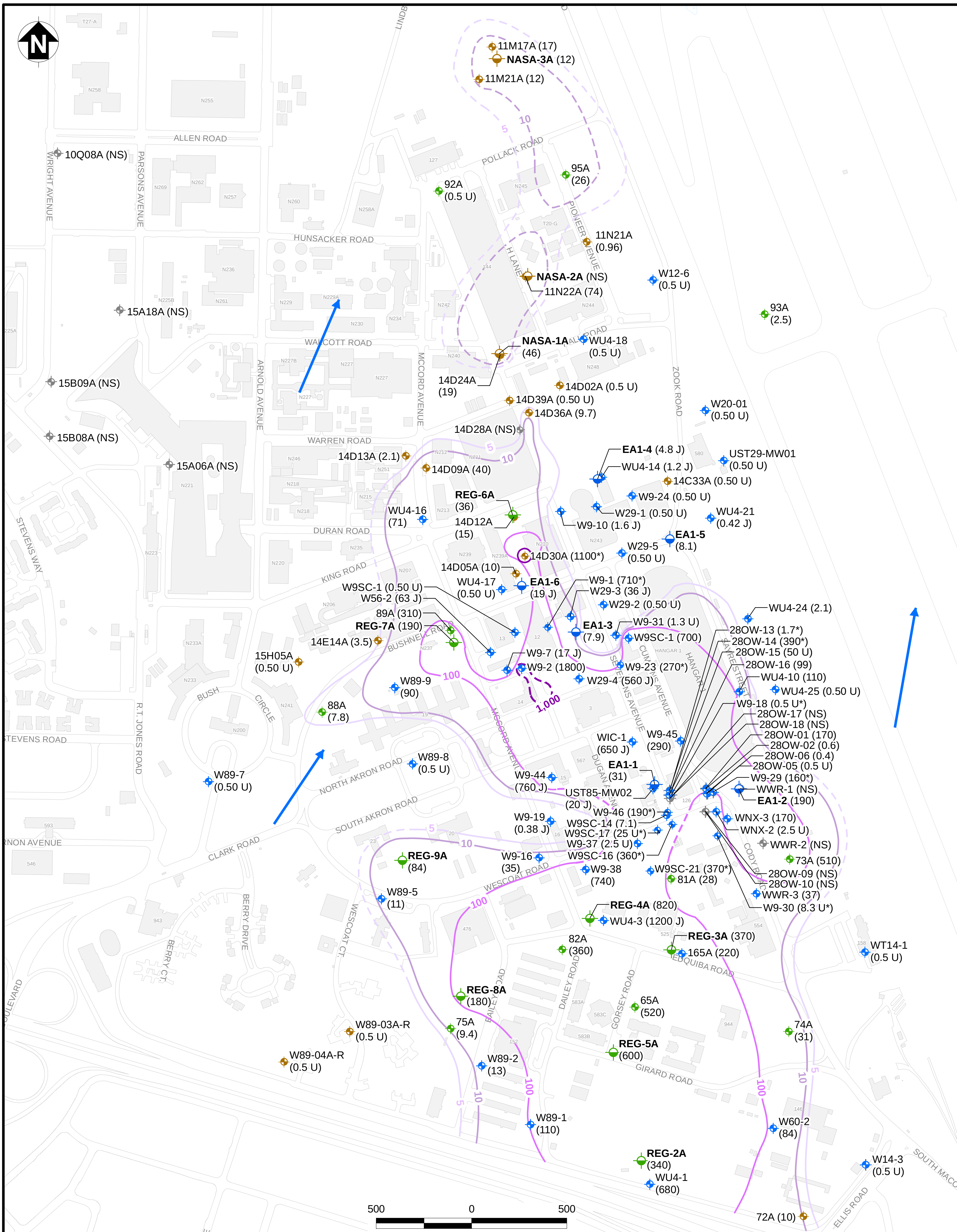
2012 ANNUAL GROUNDWATER REPORT
FOR IR SITES 26 & 28

FIGURE 2-6
WATS CUMULATIVE SYSTEM COSTS

FORMER NAS MOFFETT FIELD
MOFFETT FIELD, CALIFORNIA



NAVY EXTRACTION WELL

NAVY MONITORING WELL

MEW EXTRACTION WELL

MEW MONITORING WELL

NASA EXTRACTION WELL

NASA MONITORING WELL

MONITORING WELL, NOT SAMPLED

TCE ISOCONCENTRATION CONTOUR - 1,000 µg/L (DASHED WHERE INFERRED)

TCE ISOCONCENTRATION CONTOUR - 100 µg/L

TCE ISOCONCENTRATION CONTOUR - 10 µg/L (DASHED WHERE INFERRED)

TCE ISOCONCENTRATION CONTOUR - 5 µg/L (DASHED WHERE INFERRED)

GROUNDWATER FLOW DIRECTION

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

Notes:
1. Samples collected on Sept. 24-26, and Oct. 9, 2012
2. (*) Samples collected Sept. 25 - Oct. 1, 2012 (Shaw, 2012. Anaerobic Biotic/Abiotic Treatability Study, IR Site 28)
3. Due to possible dilution issues, groundwater analytical data collected from active extraction wells were not used as part of the plume contouring
4. TCE concentrations shown in µg/L

µg/L- Microgram per Liter
IR - Installation Restoration
J - Estimated Value
MEW - Middlefield Ellis Whisman
NAS - Naval Air Station
NASA - National Aeronautics and Space Administration
NS - Not Sampled
U - Not Detected

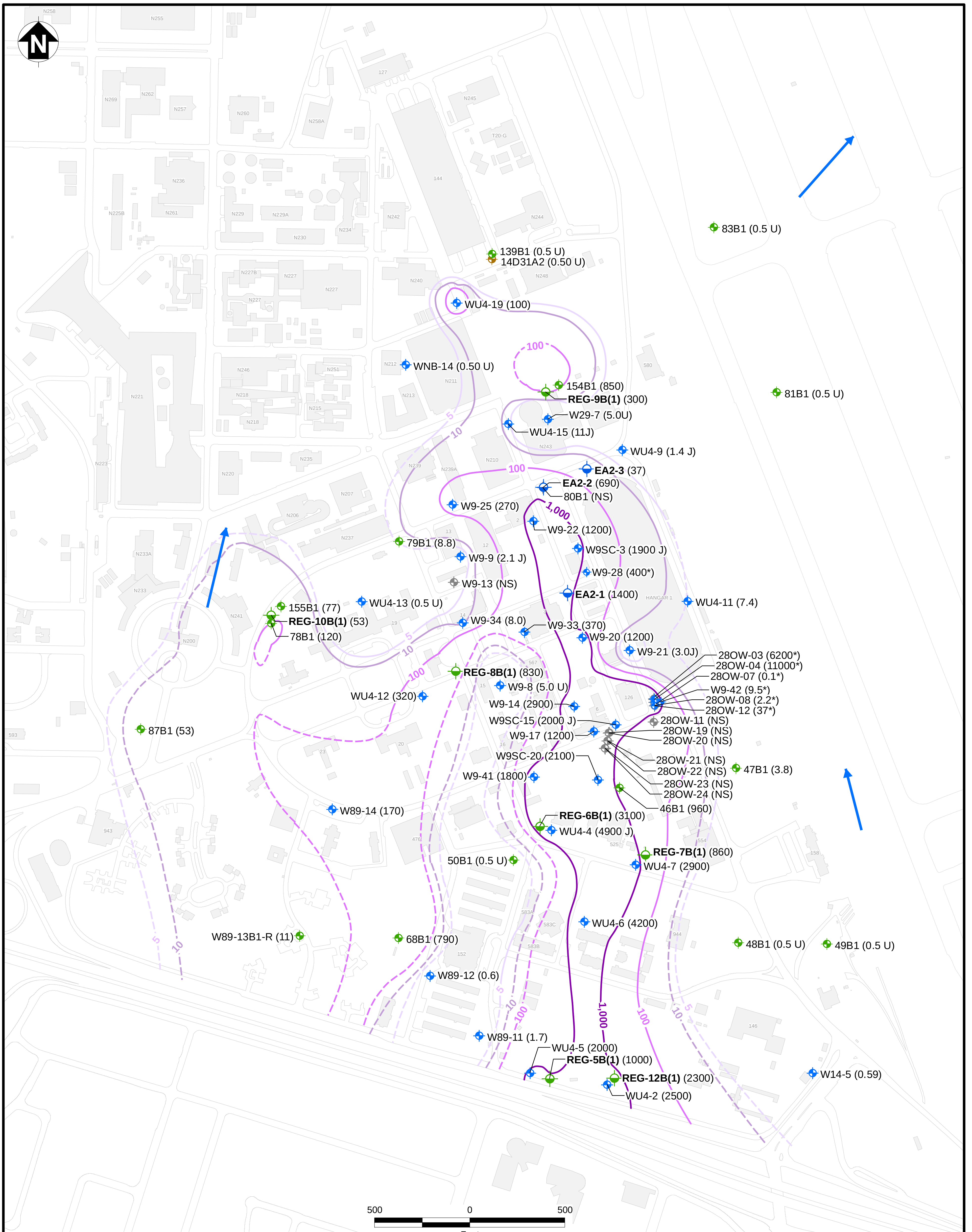
SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

2012 ANNUAL GROUNDWATER REPORT
FOR IR SITES 26 & 28

FIGURE 2-7
TRICHLOROETHENE (TCE) DISTRIBUTION, IR SITE 28, UPPER PORTION OF THE A AQUIFER - SEPTEMBER 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



NAVY EXTRACTION WELL

NAVY MONITORING WELL

MEW EXTRACTION WELL

MEW MONITORING WELL

NASA EXTRACTION WELL

NASA MONITORING WELL

MONITORING WELL, NOT SAMPLED

TCE ISOCONCENTRATION CONTOUR - 1,000 µg/L

TCE ISOCONCENTRATION CONTOUR - 100 µg/L (DASHED WHERE INFERRED)

TCE ISOCONCENTRATION CONTOUR - 10 µg/L (DASHED WHERE INFERRED)

TCE ISOCONCENTRATION CONTOUR - 5 µg/L (DASHED WHERE INFERRED)

GROUNDWATER FLOW DIRECTION

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

Notes:
1. Samples collected on Sept. 24-26, and Oct. 9, 2012
2. (*) Samples collected Sept. 25 - Oct. 1, 2012 (Shaw, 2012. Anaerobic Biotic/Abiotic Treatability Study, IR Site 28)
3. Due to possible dilution issues, groundwater analytical data collected from active extraction wells were not used as part of the plume contouring
4. TCE concentrations shown in µg/L

µg/L- Microgram per Liter
IR - Installation Restoration
J - Estimated Value
MEW - Middlefield Ellis Whisman
NAS - Naval Air Station
NASA - National Aeronautics and Space Administration
NS - Not Sampled
U - Not Detected

SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

2012 ANNUAL GROUNDWATER REPORT
FOR IR SITES 26 & 28

FIGURE 2-8
TRICHLOROETHENE (TCE) DISTRIBUTION, IR SITE 28, LOWER PORTION OF THE A AQUIFER - SEPTEMBER 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA

FIGURES 2-9 THROUGH 2-12
HYDROGRAPHS
IR SITE 28

Figure 2-9 14C33A (Upper Portion of the A Aquifer)

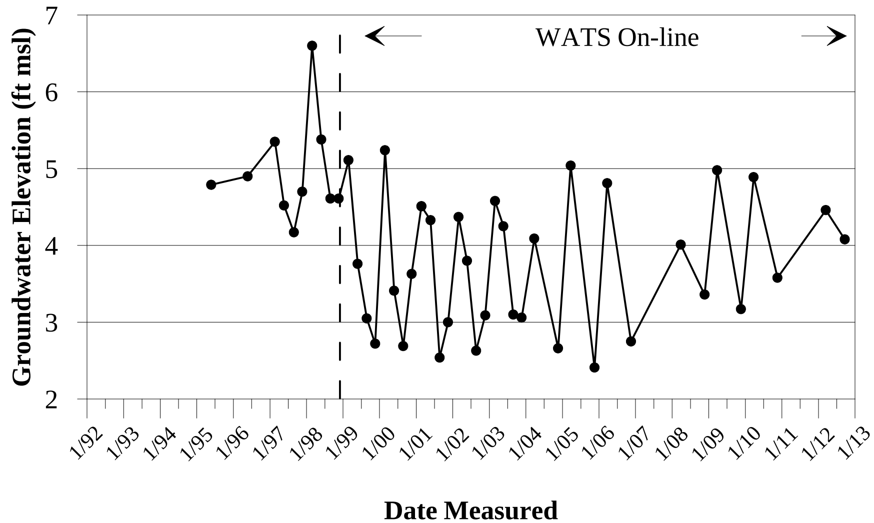


Figure 2-10 14D05A (Upper Portion of the A Aquifer)

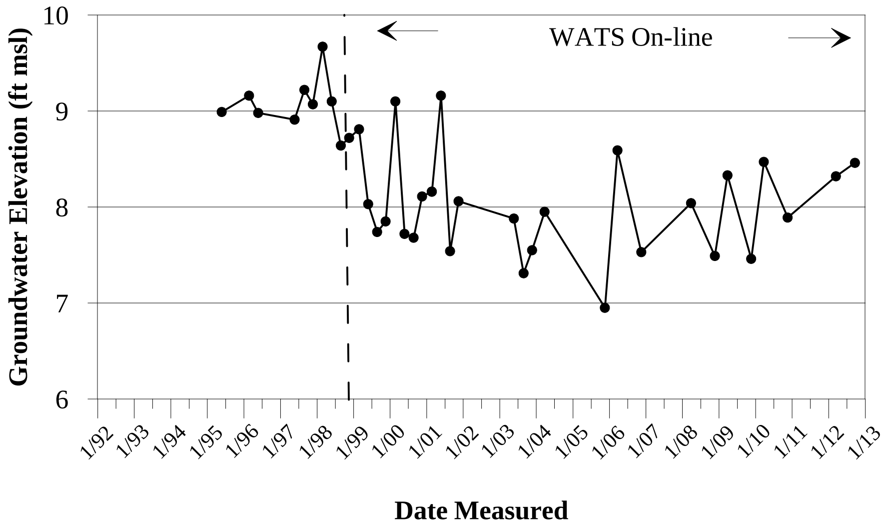


Figure 2-11 W9SC-7 (Upper Portion of the A Aquifer)

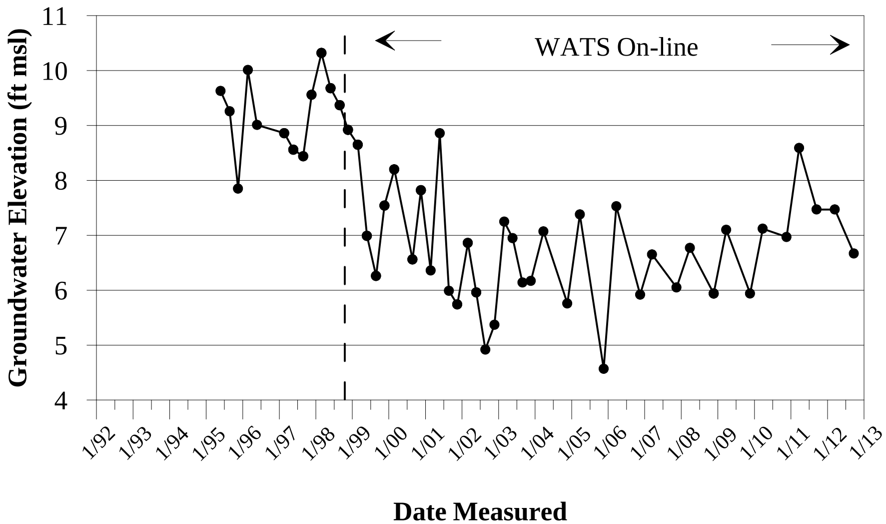
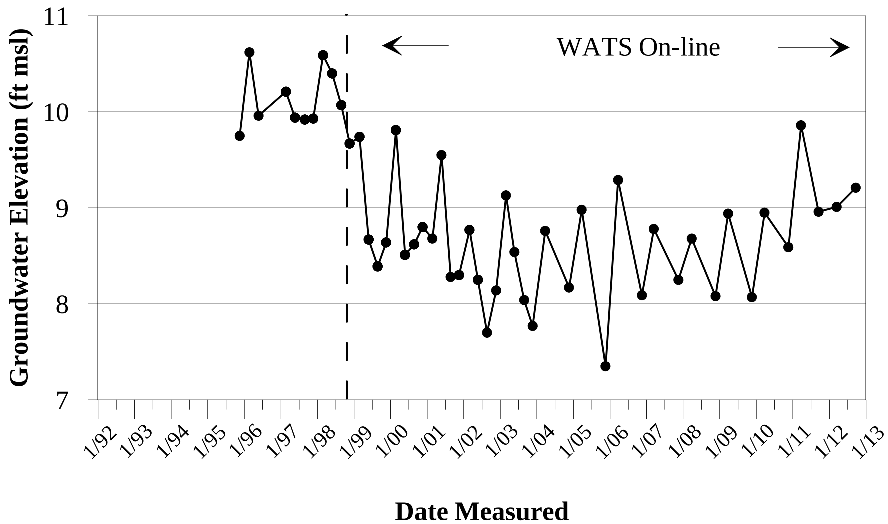


Figure 2-12 W9-1 (Upper Portion of the A Aquifer)



***Notes*:**
ft msl - feet mean sea level

FIGURES 2-13 THROUGH 2-16
HYDROGRAPHS
IR SITE 28

Figure 2-13 W9-18 (Upper Portion of the A Aquifer)

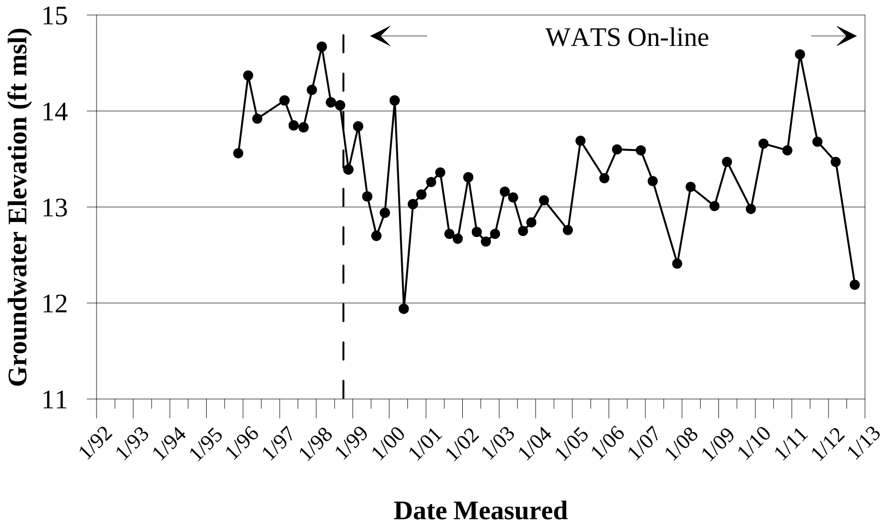


Figure 2-14 W9-29 (Upper Portion of the A Aquifer)

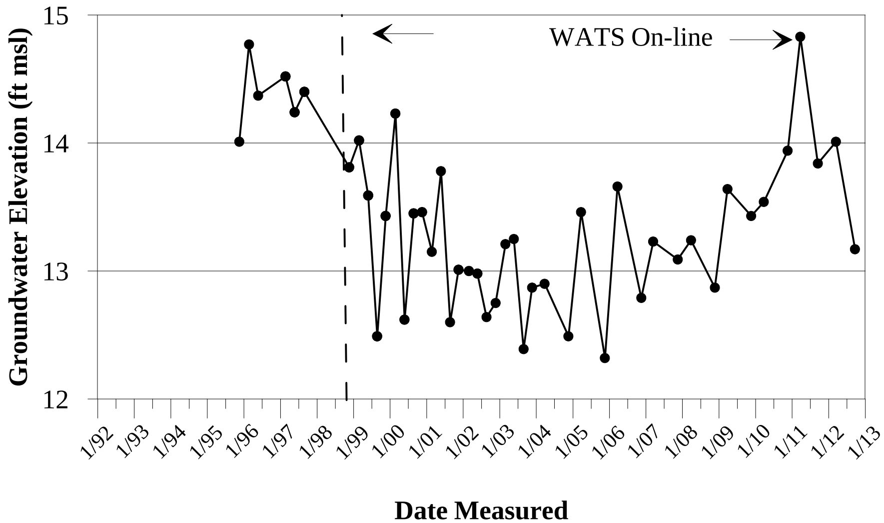


Figure 2-15 W9-31 (Upper Portion of the A Aquifer)

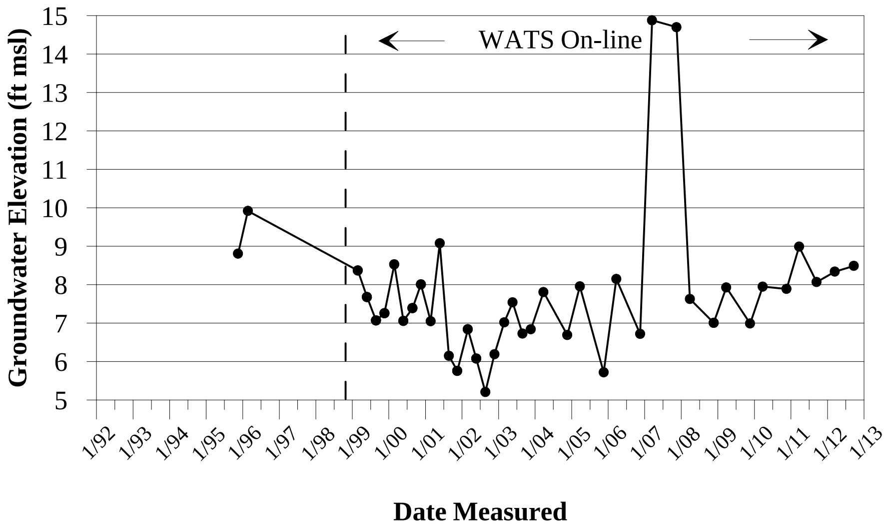
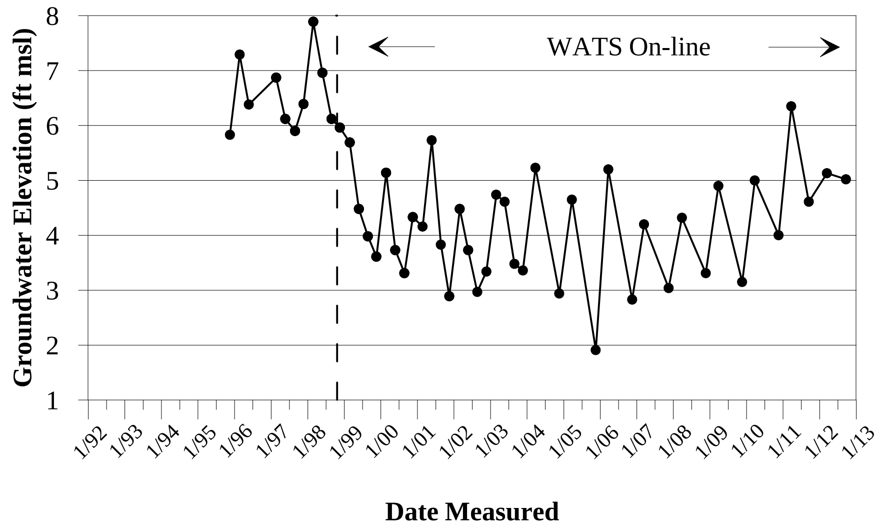


Figure 2-16 W29-1 (Upper Portion of the A Aquifer)



Notes:
ft msl - feet mean sea level

FIGURES 2-17 THROUGH 2-20
HYDROGRAPHS
IR SITE 28

Figure 2-17 W29-3 (Upper Portion of the A Aquifer)

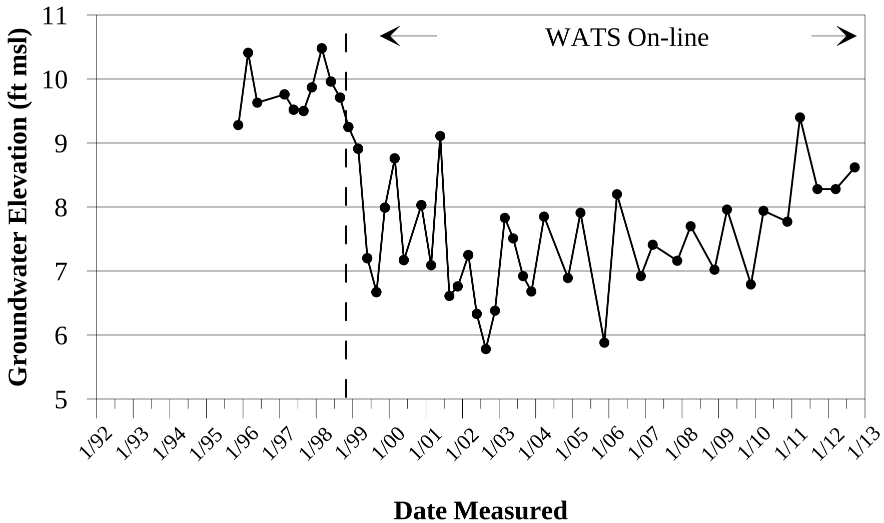


Figure 2-18 WIC-1 (Upper Portion of the A Aquifer)

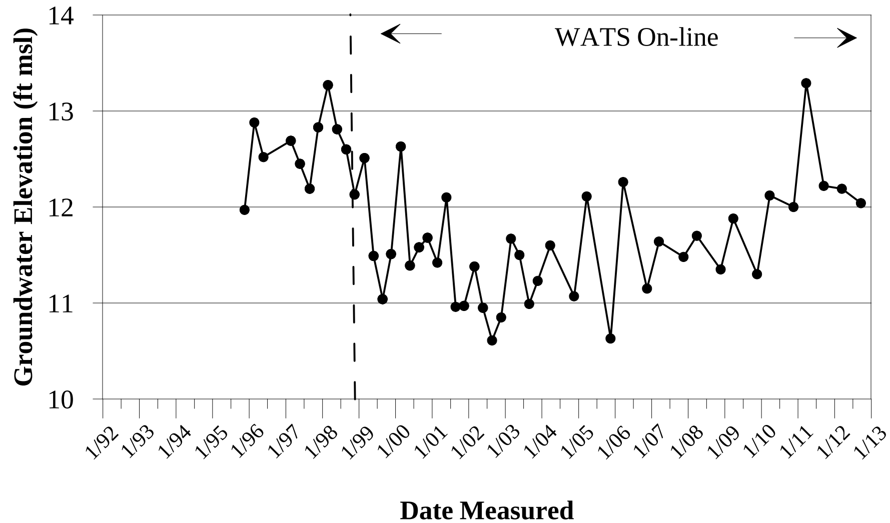


Figure 2-19 WU4-8 (Upper Portion of the A Aquifer)

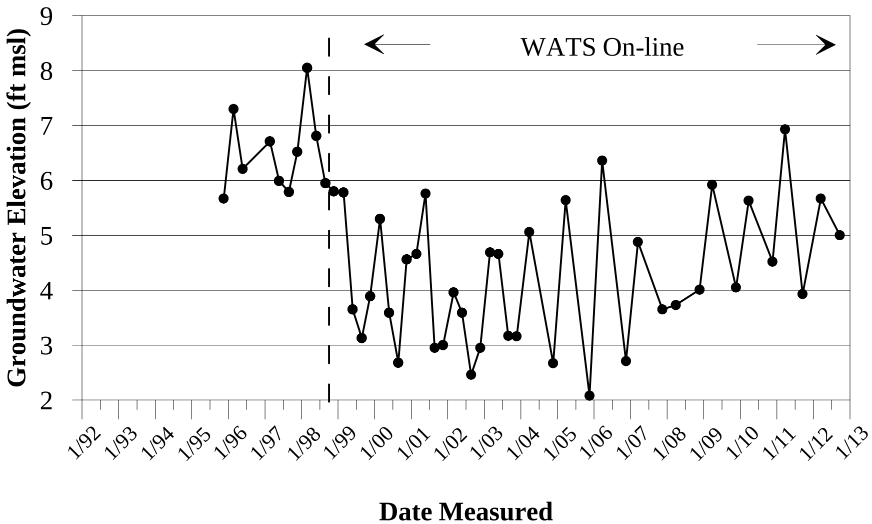
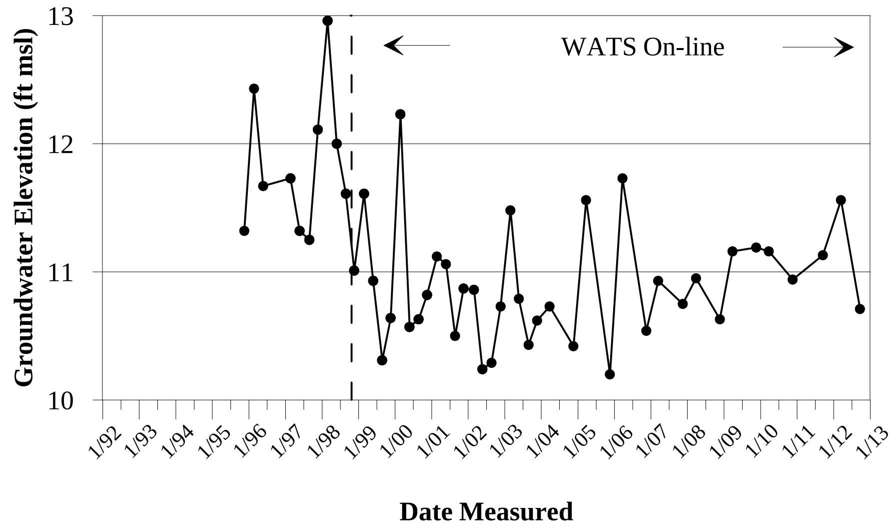


Figure 2-20 WU4-10 (Upper Portion of the A Aquifer)



Notes:
ft msl - feet mean sea level

FIGURES 2-21 THROUGH 2-24
HYDROGRAPHS
IR SITE 28

Figure 2-21 WU4-14 (Upper Portion of the A Aquifer)

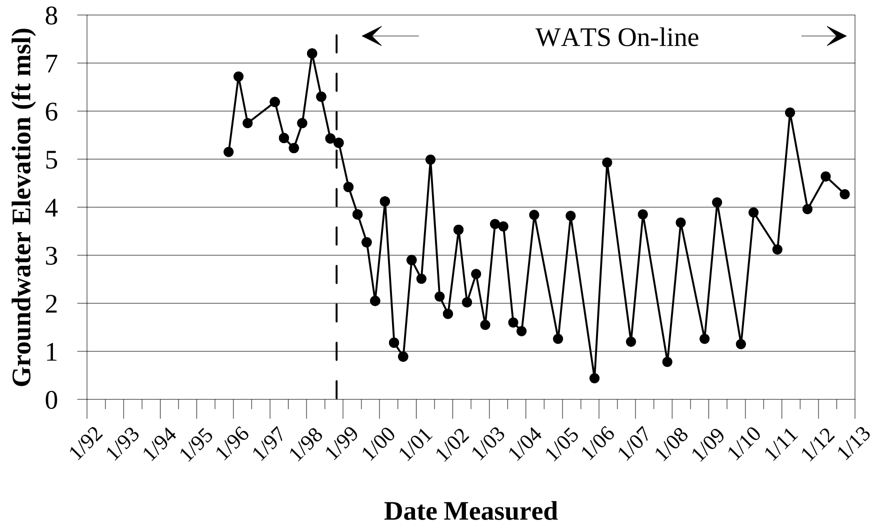


Figure 2-22 WU4-17 (Upper Portion of the A Aquifer)

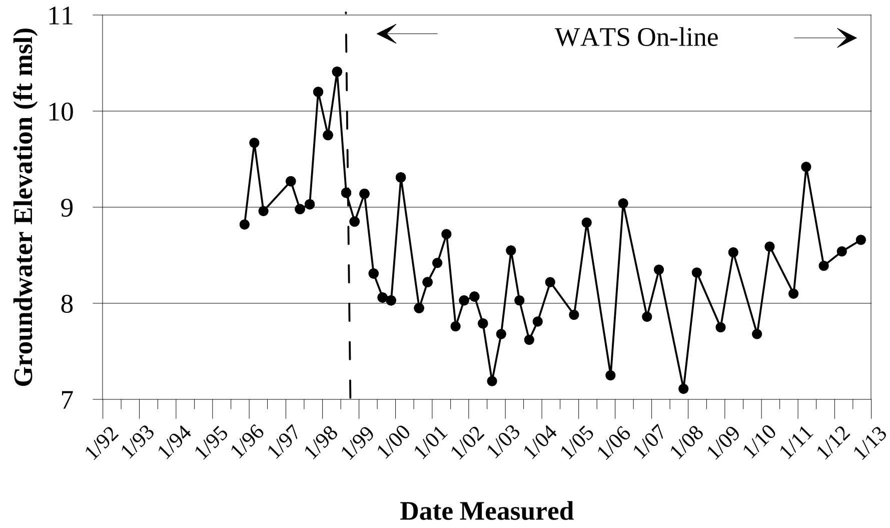


Figure 2-23 WU4-21 (Upper Portion of the A Aquifer)

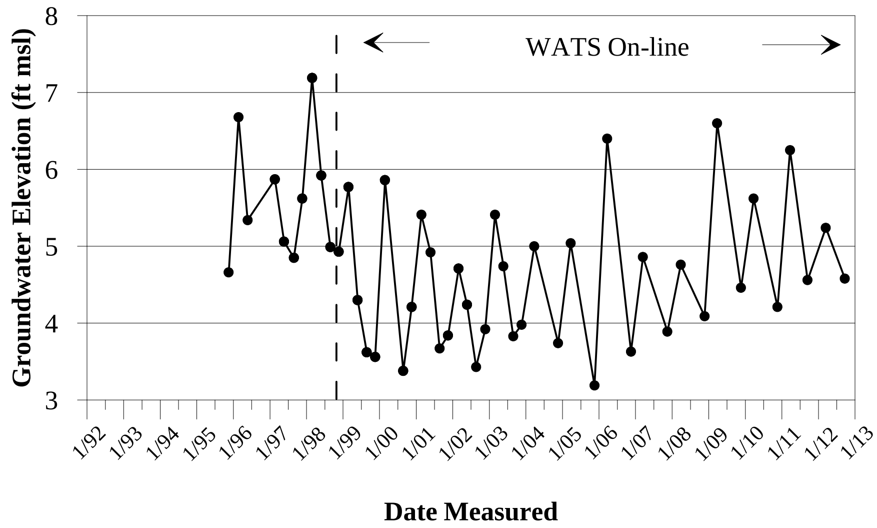
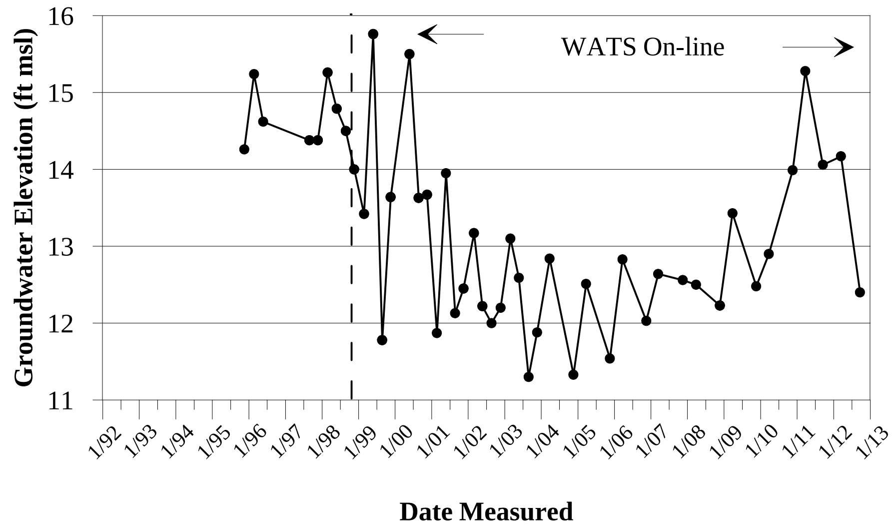


Figure 2-24 WWR-1 (Upper Portion of the A Aquifer)



Notes:
ft msl - feet mean sea level

FIGURES 2-25 THROUGH 2-28
HYDROGRAPHS
IR SITE 28

Figure 2-25 80B1 (Lower Portion of the A Aquifer)

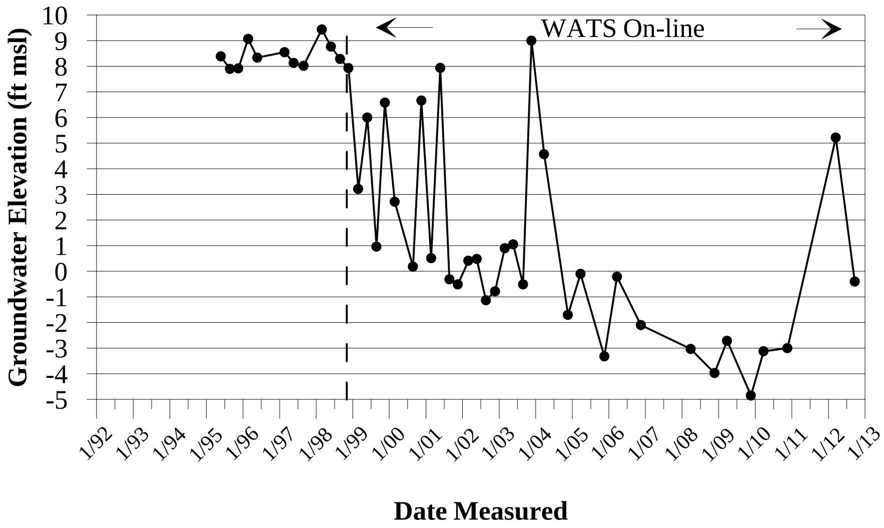


Figure 2-26 W9-27 (Lower Portion of the A Aquifer)

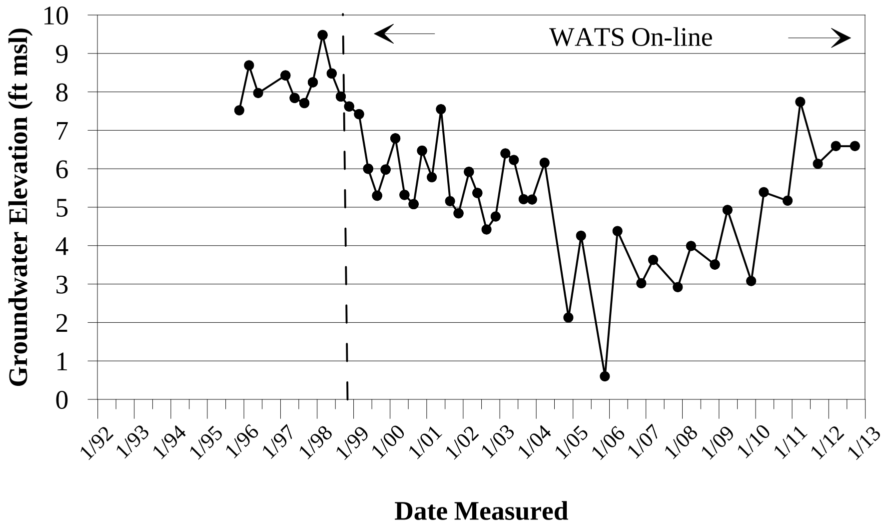


Figure 2-27 W9-28 (Lower Portion of the A Aquifer)

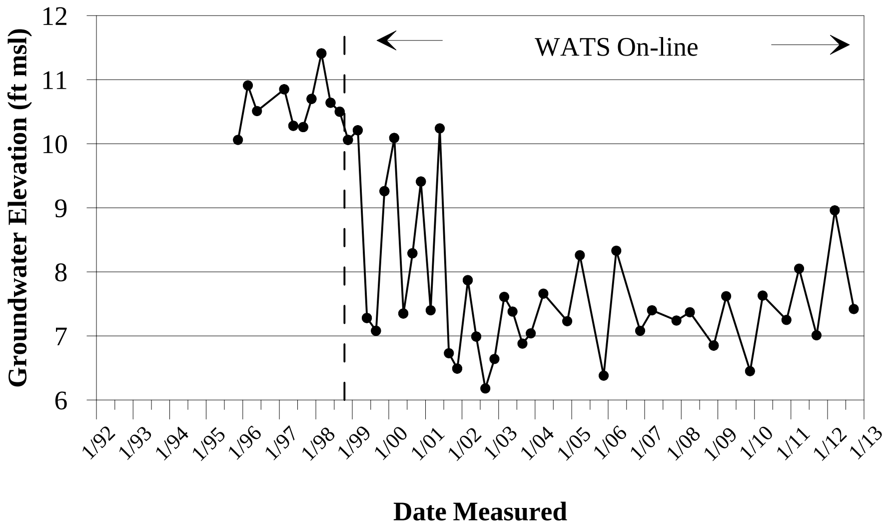
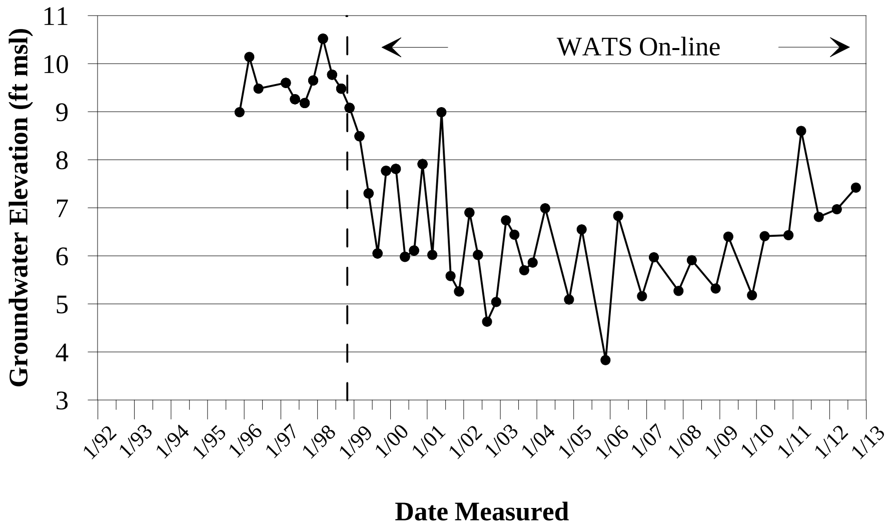


Figure 2-28 W29-8 (Lower Portion of the A Aquifer)



***Notes*:**
ft msl - feet mean sea level

FIGURES 2-29 THROUGH 2-32
HYDROGRAPHS
IR SITE 28

Figure 2-29 WU4-9 (Lower Portion of the A Aquifer)

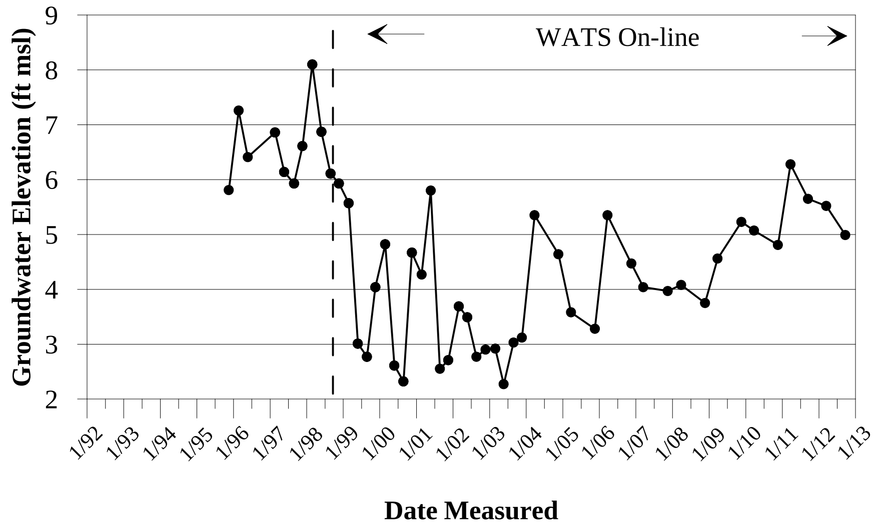


Figure 2-30 WU4-11 (Lower Portion of the A Aquifer)

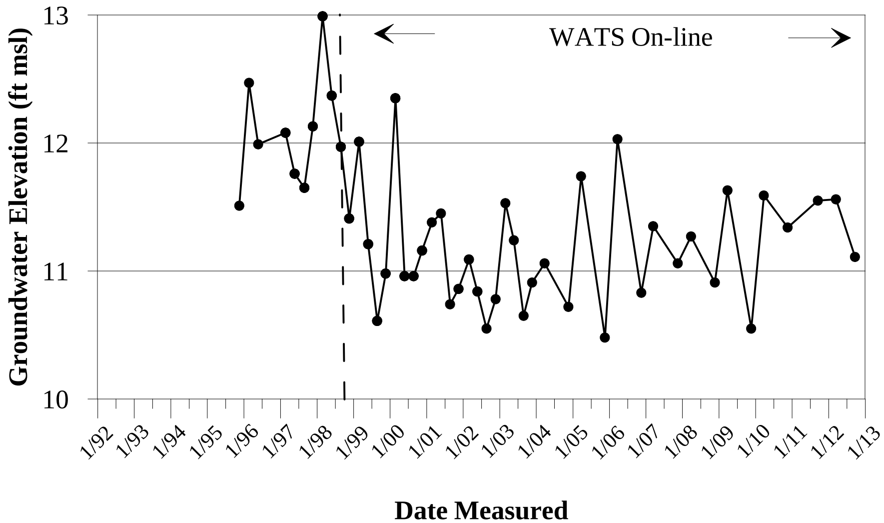


Figure 2-31 PIC-1 (Upper Portion of the A Aquifer)

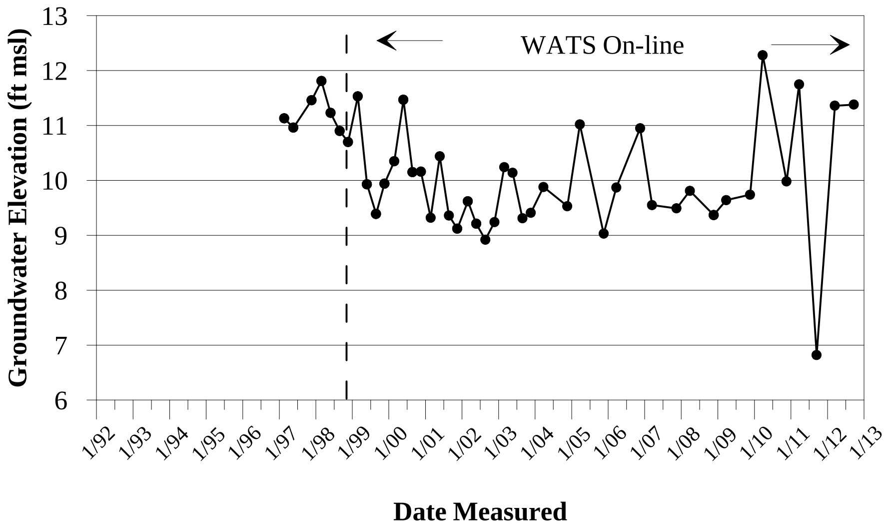
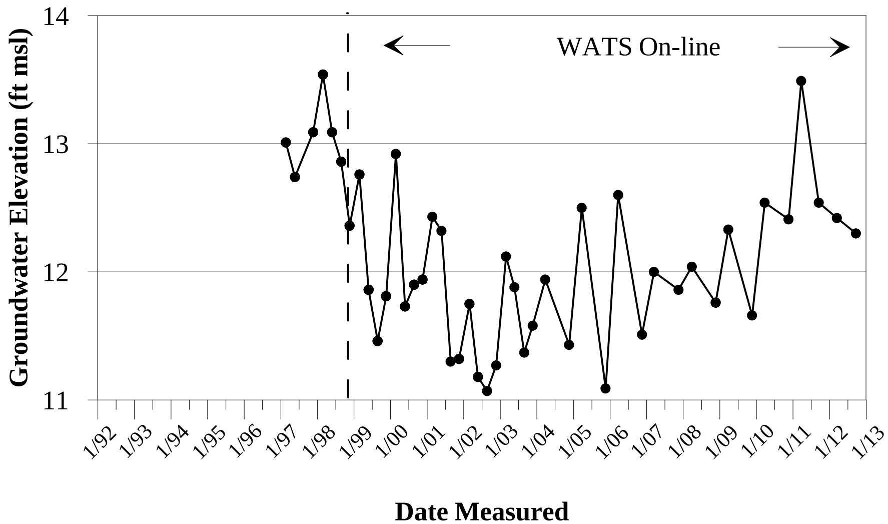


Figure 2-32 PIC-12 (Upper Portion of the A Aquifer)



Notes:
ft msl - feet mean sea level

FIGURES 2-33 THROUGH 2-36
HYDROGRAPHS
IR SITE 28

Figure 2-33 W9-43 (Upper Portion of the A Aquifer)

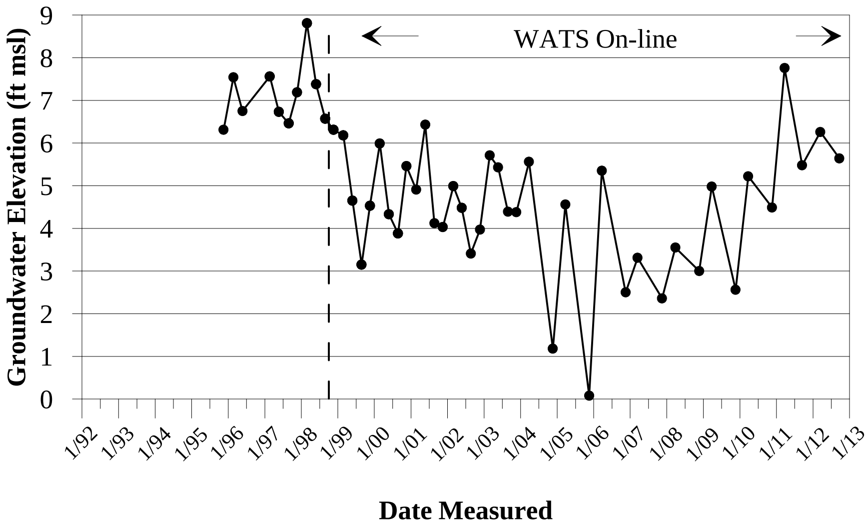


Figure 2-34 W12-6 (Upper Portion of the A Aquifer)

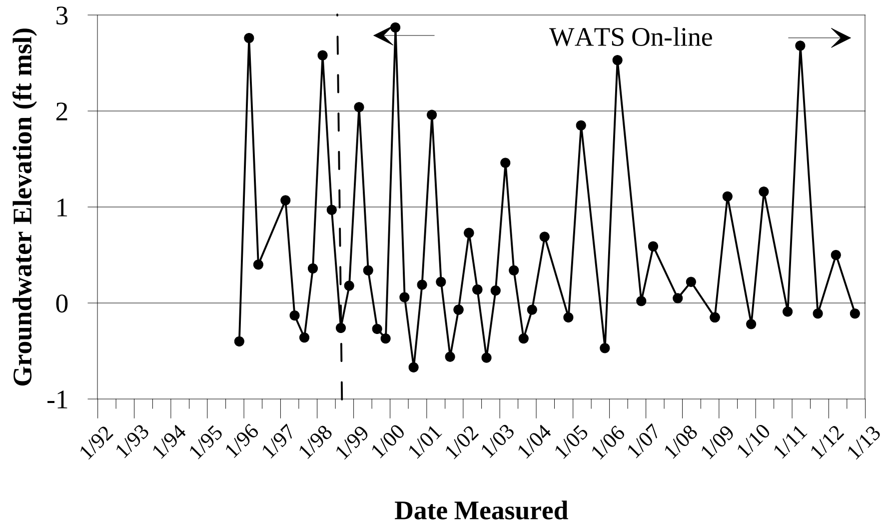


Figure 2-35 W89-2 (Upper Portion of the A Aquifer)

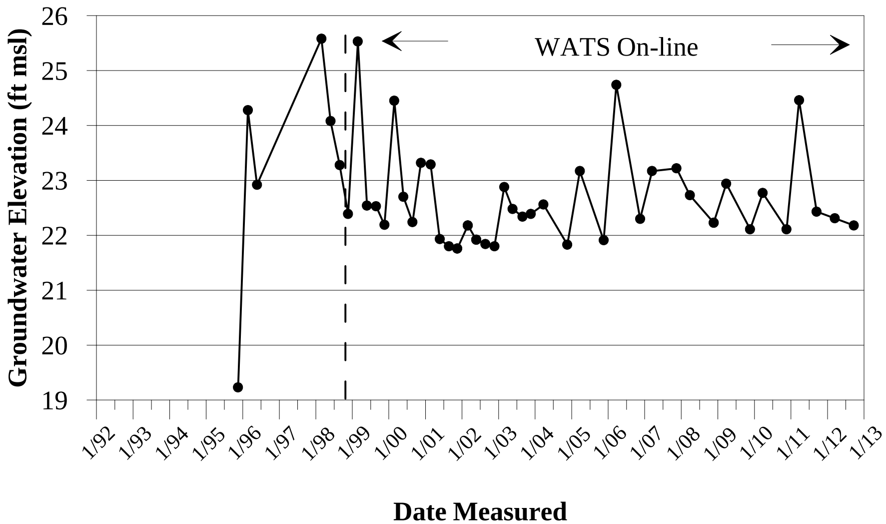
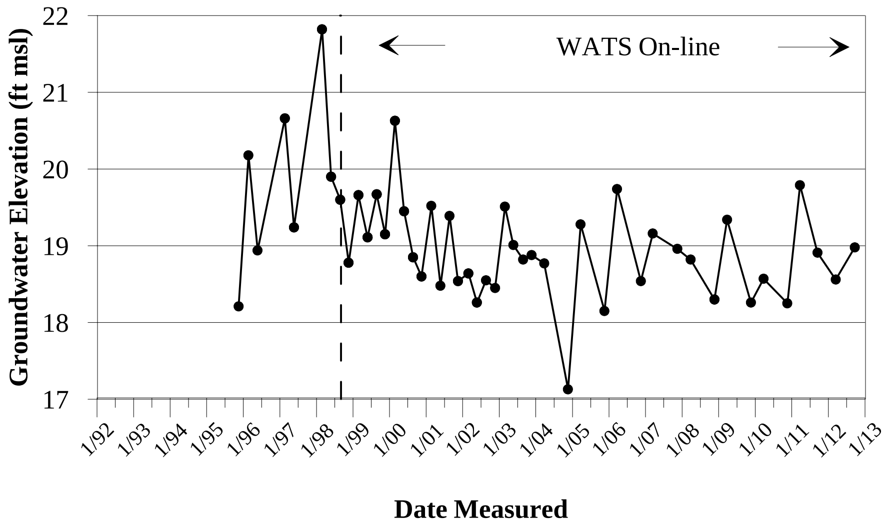


Figure 2-36 W89-5 (Upper Portion of the A Aquifer)



Notes:
ft msl - feet mean sea level

FIGURES 2-37 THROUGH 2-40
HYDROGRAPHS
IR SITE 28

Figure 2-37 W89-7 (Upper Portion of the A Aquifer)

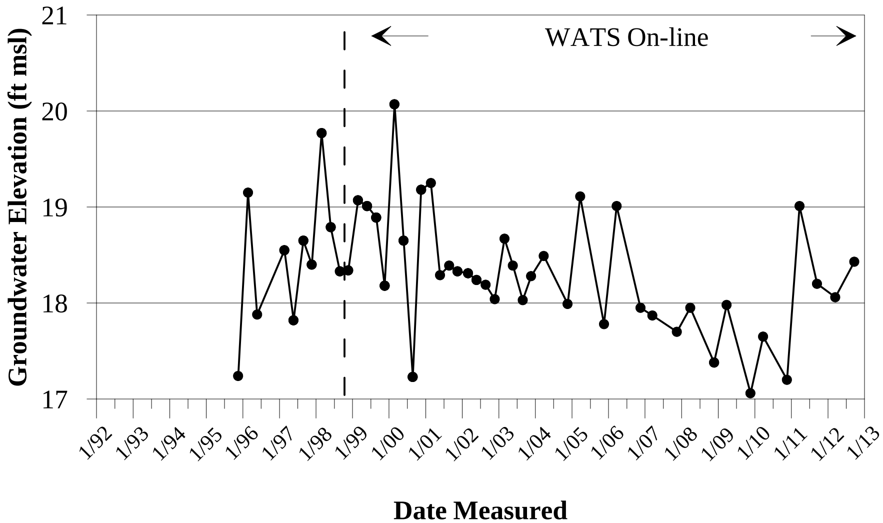


Figure 2-38 W89-9 (Upper Portion of the A Aquifer)

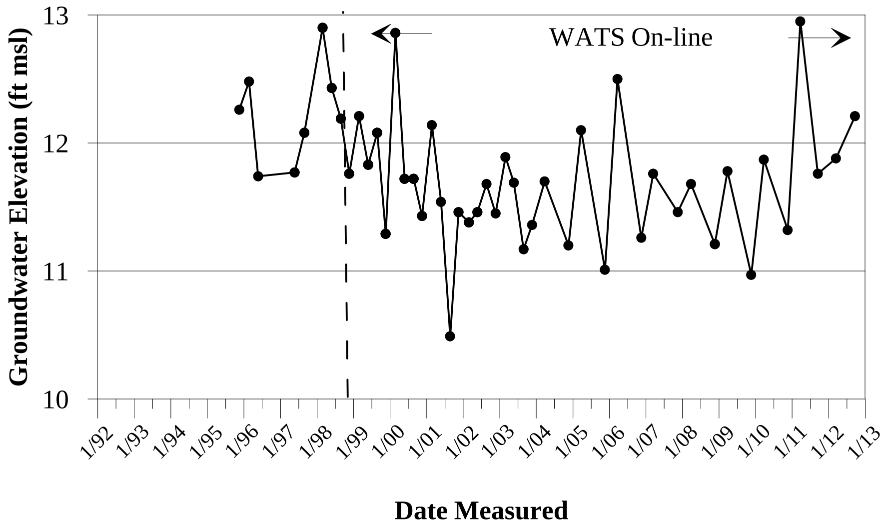


Figure 2-39 87B1 (Lower Portion of the A Aquifer)

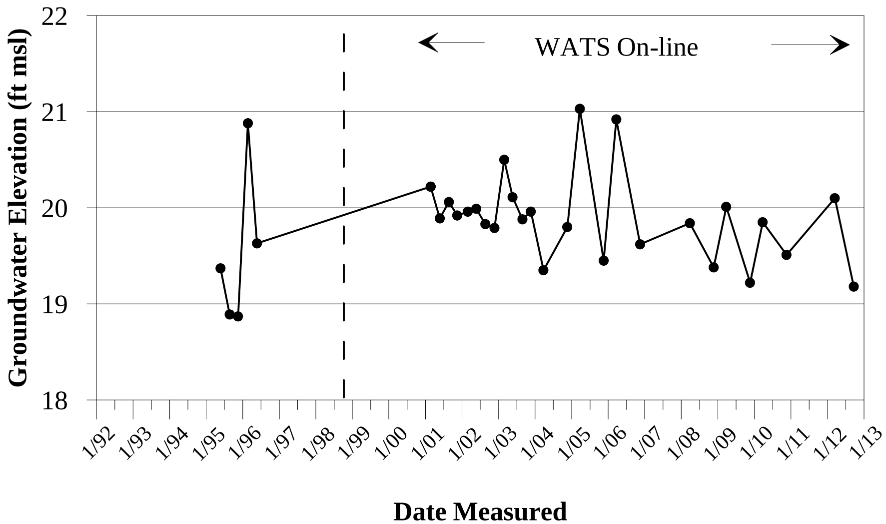
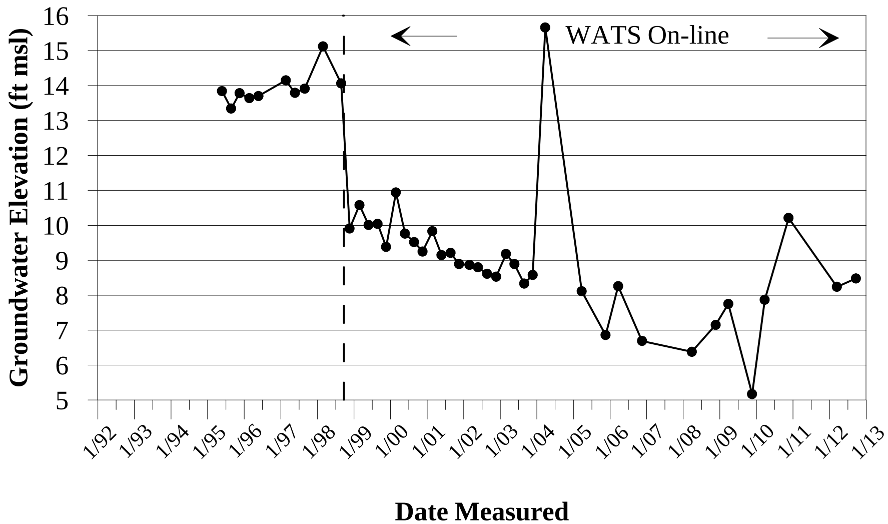


Figure 2-40 111B1 (Lower Portion of the A Aquifer)



Notes:
ft msl - feet mean sea level

FIGURES 2-41 THROUGH 2-44
HYDROGRAPHS
IR SITE 28

Figure 2-41 W9-17 (Lower Portion of the A Aquifer)

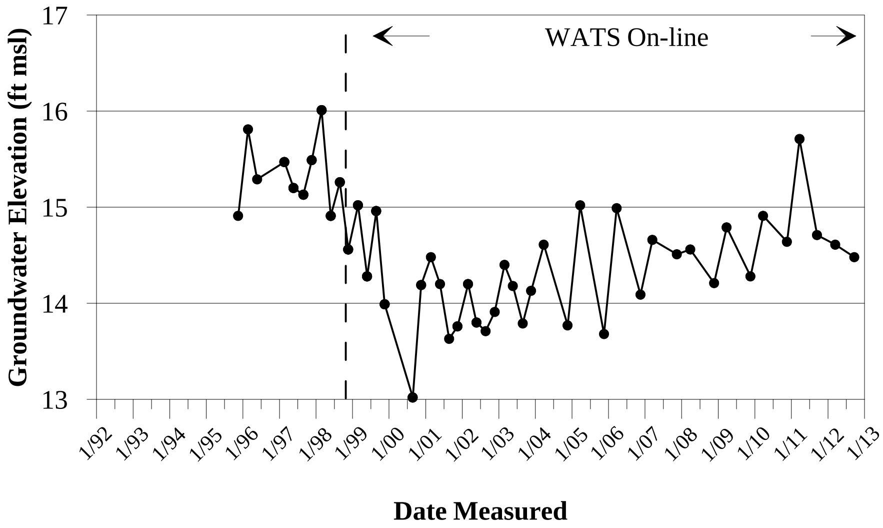


Figure 2-42 W9-25 (Lower Portion of the A Aquifer)

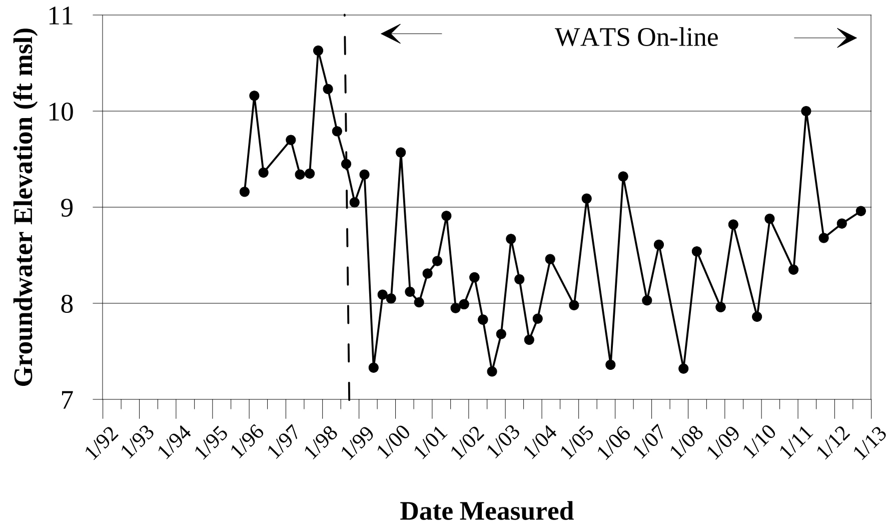


Figure 2-43 W89-12 (Lower Portion of the A Aquifer)

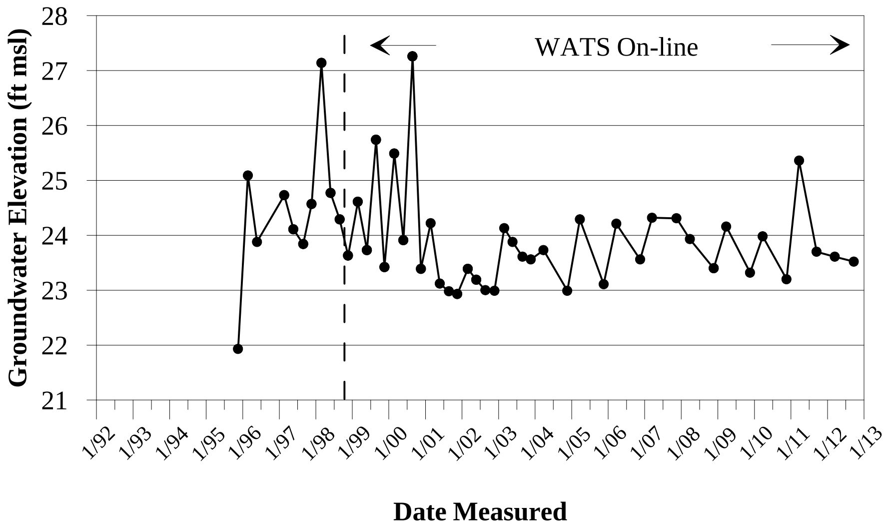
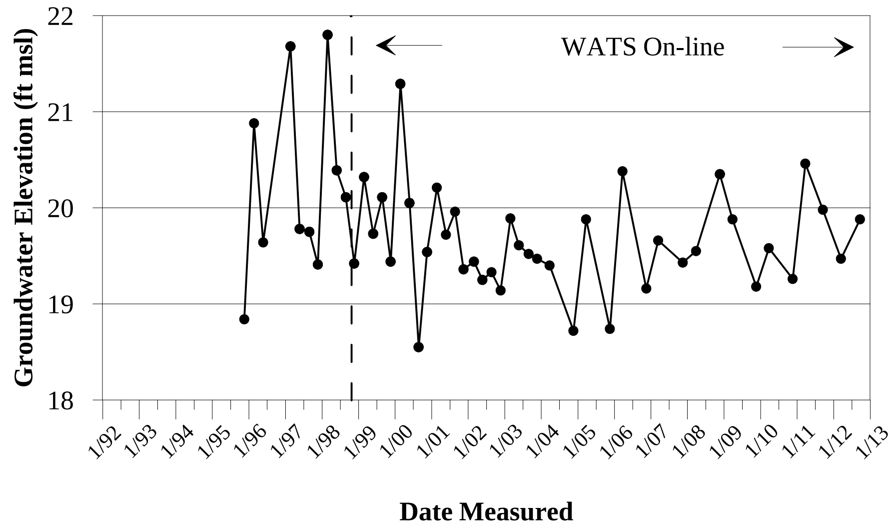


Figure 2-44 W89-14 (Lower Portion of the A Aquifer)



***Notes*:**
ft msl - feet mean sea level

FIGURES 2-45 THROUGH 2-48
HYDROGRAPHS
IR SITE 28

Figure 2-45 WU4-13 (Lower Portion of the A Aquifer)

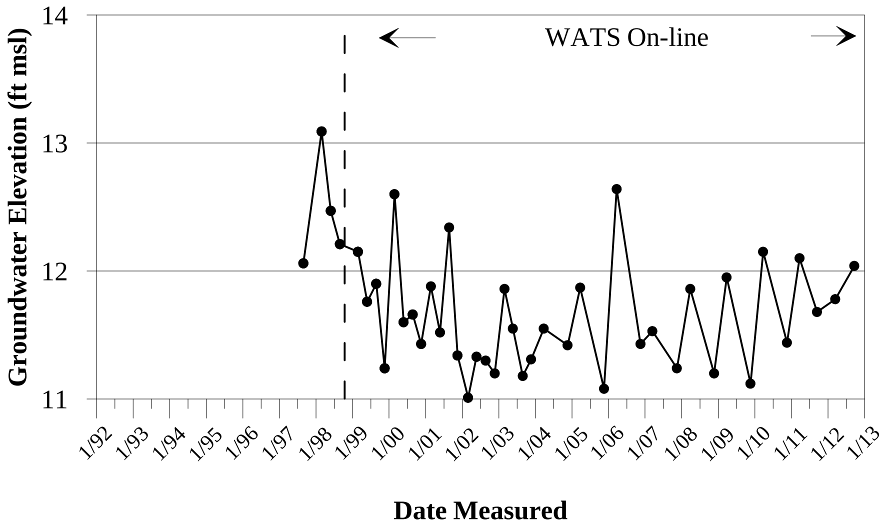


Figure 2-46 54B2 (B2 Aquifer)

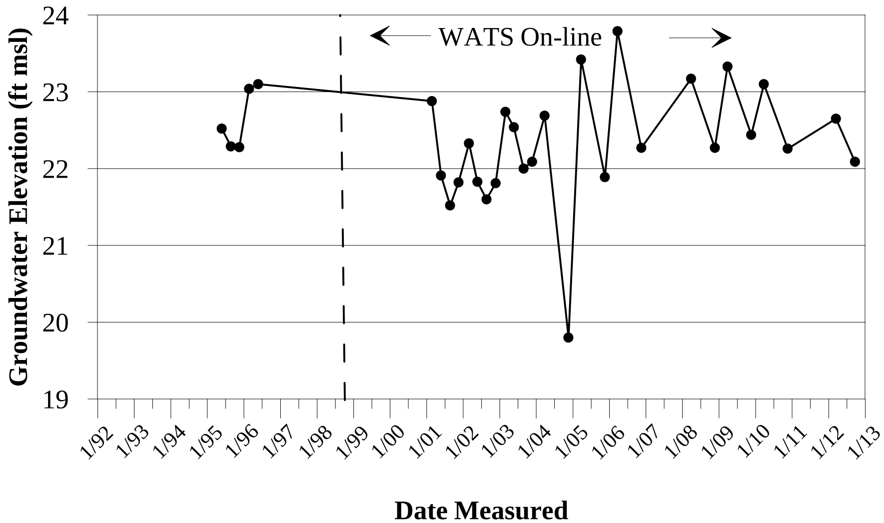


Figure 2-47 82B2 (B2 Aquifer)

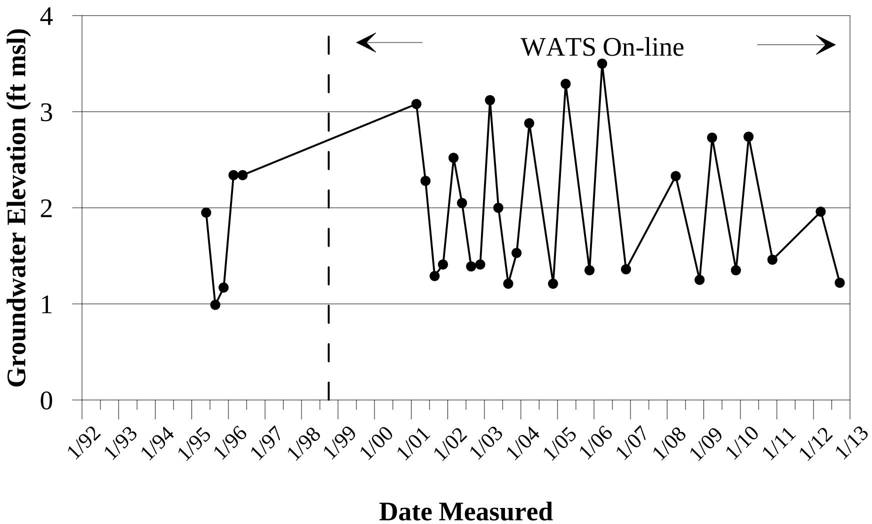
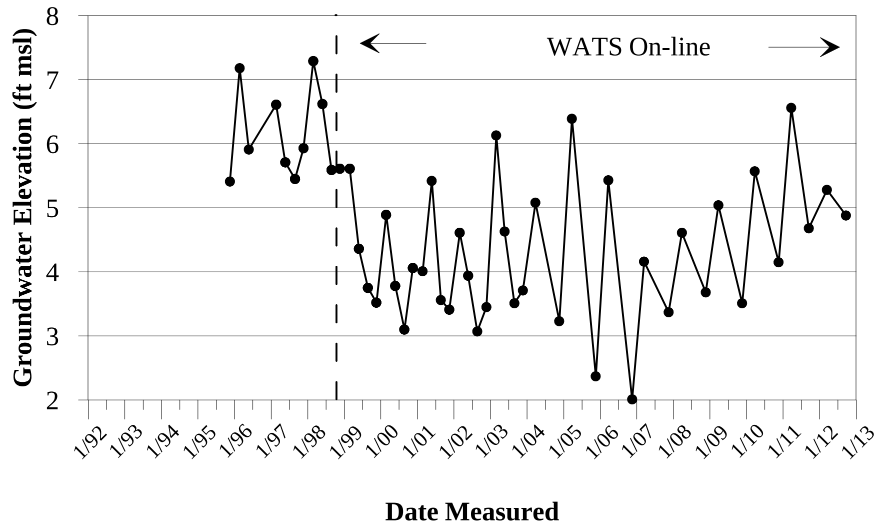


Figure 2-48 W9-11 (B2 Aquifer)



Notes:
ft msl - feet mean sea level

FIGURES 2-49 THROUGH 2-52
HYDROGRAPHS
IR SITE 28

Figure 2-49 W9-12 (B2 Aquifer)

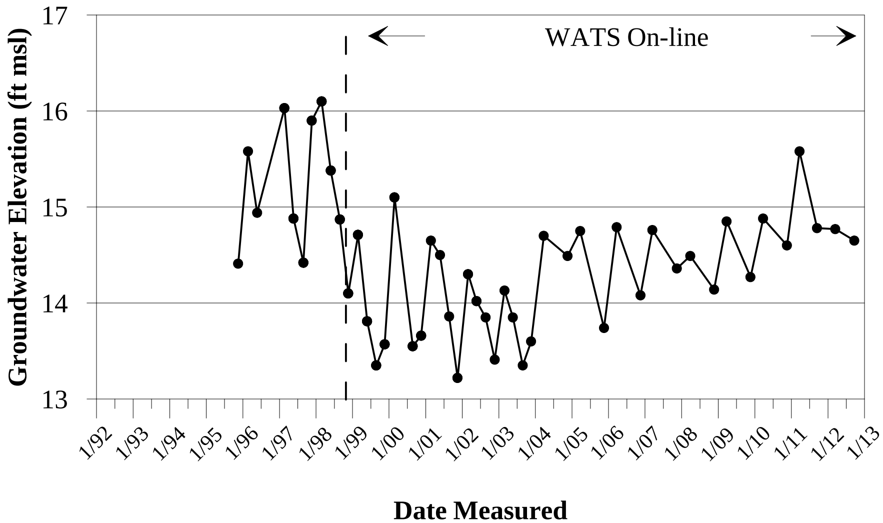


Figure 2-50 W9-15 (B2 Aquifer)

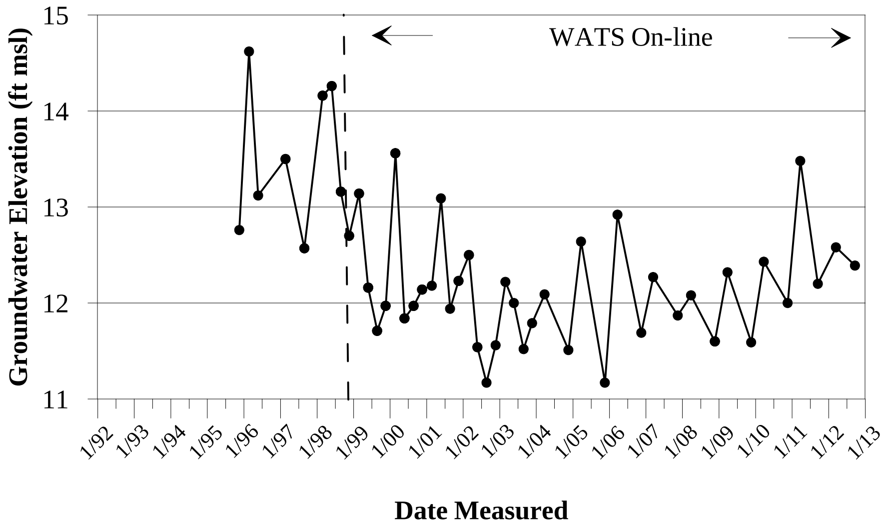


Figure 2-51 W9-39 (B2 Aquifer)

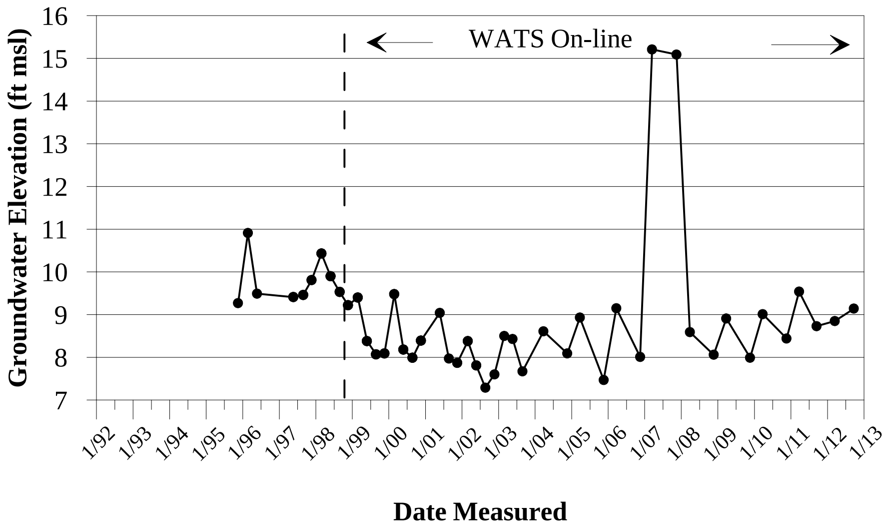
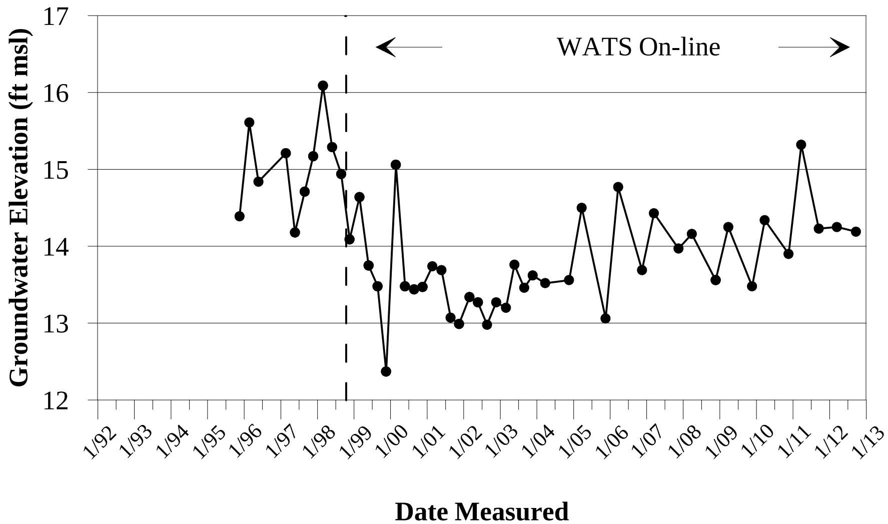
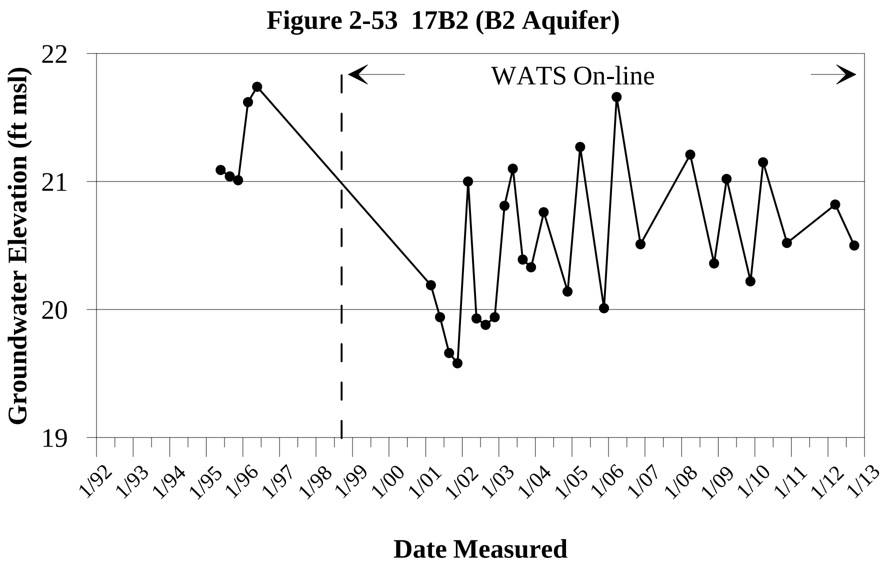


Figure 2-52 W9-40 (B2 Aquifer)



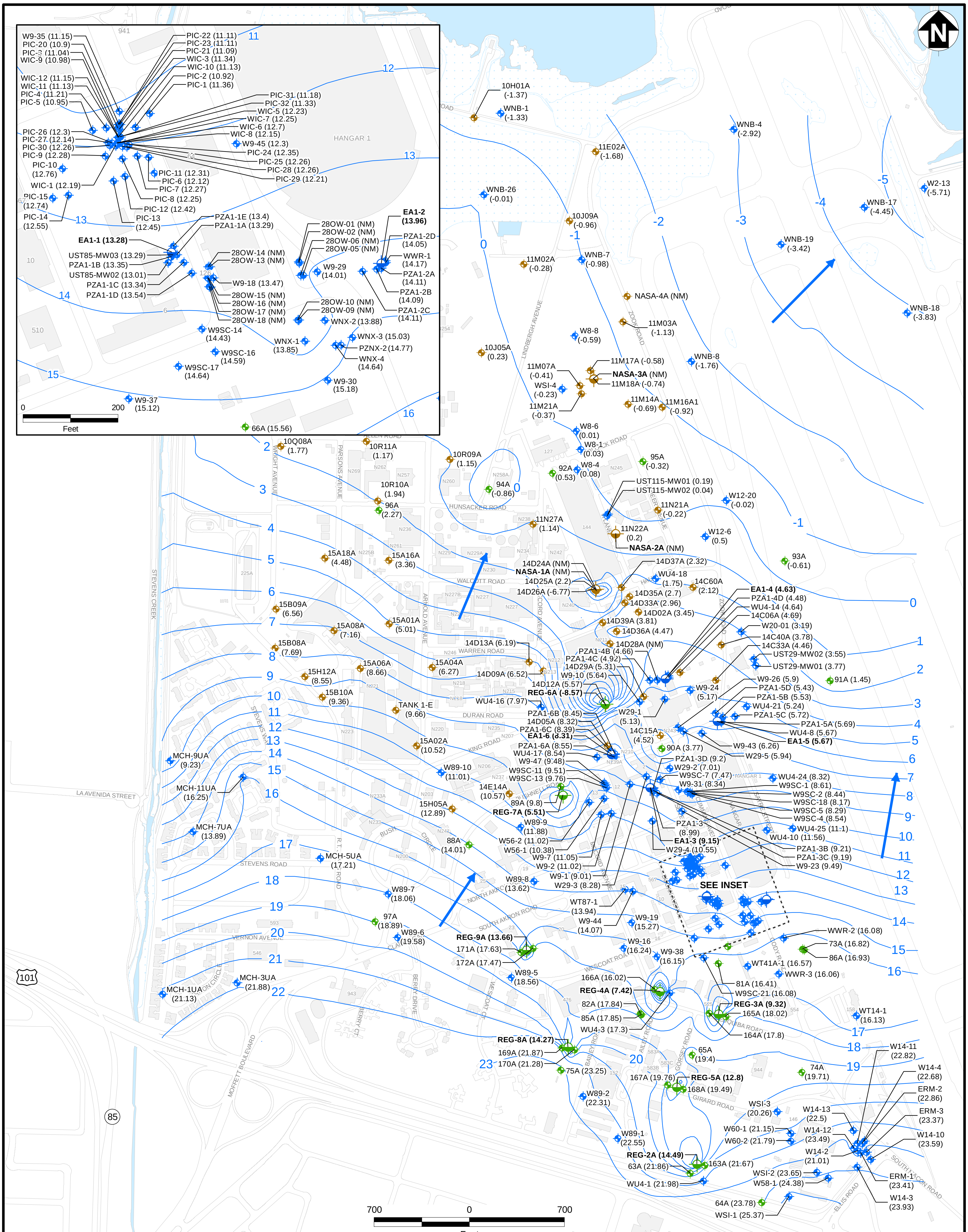
Notes:
ft msl - feet mean sea level

FIGURE 2-53
HYDROGRAPHS
IR SITE 28



Notes:
ft msl - feet mean sea level

10B04A



NAVY EXTRACTION WELL

NAVY MONITORING WELL

MEW EXTRACTION WELL

MEW MONITORING WELL

NASA EXTRACTION WELL

NASA MONITORING WELL

(5.5) GROUNDWATER ELEVATION

—20— GROUNDWATER CONTOUR

GROUNDWATER FLOW DIRECTION

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

Notes:

1. Groundwater levels measured on March 15, 2012
2. Groundwater elevations shown in feet amsl

AMSL - Above Mean Sea Level
IR - Installation Restoration
MEW - Middlefield Ellis Whisman
NAS - Naval Air Station
NASA - National Aeronautics and Space Administration
NM - Not Measured

SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

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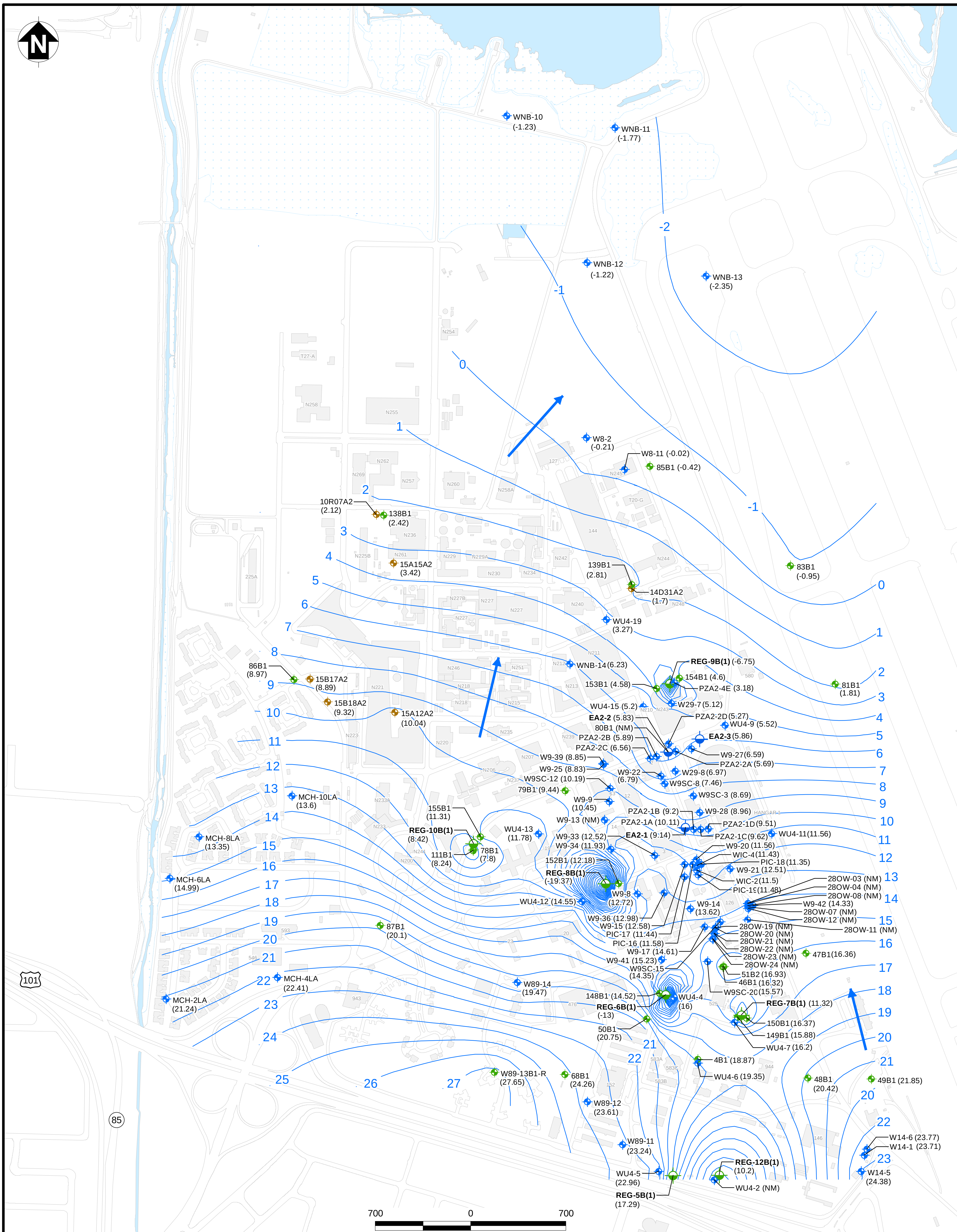
FIGURE 2-54

POTENTIOMETRIC SURFACE MAP, IR SITE 28, UPPER PORTION OF THE A AQUIFER MARCH 15, 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



NAVY EXTRACTION WELL

NAVY MONITORING WELL

MEW EXTRACTION WELL

MEW MONITORING WELL

NASA EXTRACTION WELL

NASA MONITORING WELL

(5.5) GROUNDWATER ELEVATION

20 GROUNDWATER CONTOUR

GROUNDWATER FLOW DIRECTION

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

Notes:

1. Groundwater levels measured on March 15, 2012
2. Groundwater elevations shown in feet amsl

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NASA - National Aeronautics and Space Administration
NM - Not Measured

SEALASKA ENVIRONMENTAL

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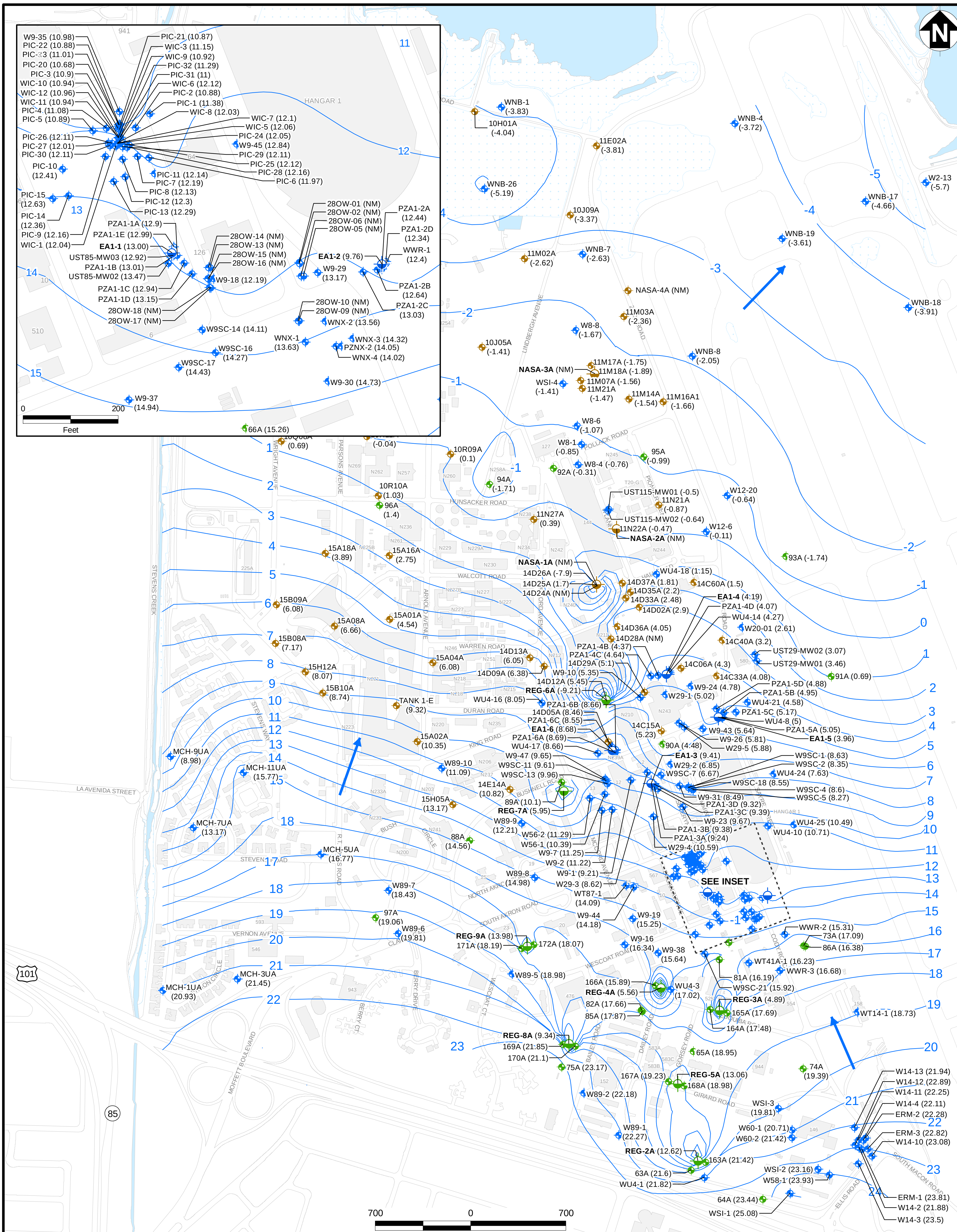
FIGURE 2-55

POTENTIOMETRIC SURFACE MAP, IR SITE 28 LOWER PORTION OF THE A AQUIFER - MARCH 15, 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA

10B04A (NM)



NAVY EXTRACTION WELL	GROUNDWATER CONTOUR
NAVY MONITORING WELL	GROUNDWATER FLOW DIRECTION
MEW EXTRACTION WELL	ROAD
MEW MONITORING WELL	FACILITY INFRASTRUCTURE
NASA EXTRACTION WELL	WATER
NASA MONITORING WELL	WETLAND
(5.5) GROUNDWATER ELEVATION	

Notes:

Groundwater levels measured on September 20 & 21, 2012
Groundwater elevations shown in feet amsl

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NASA - National Aeronautics and Space Administration
NM - Not Measured

SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

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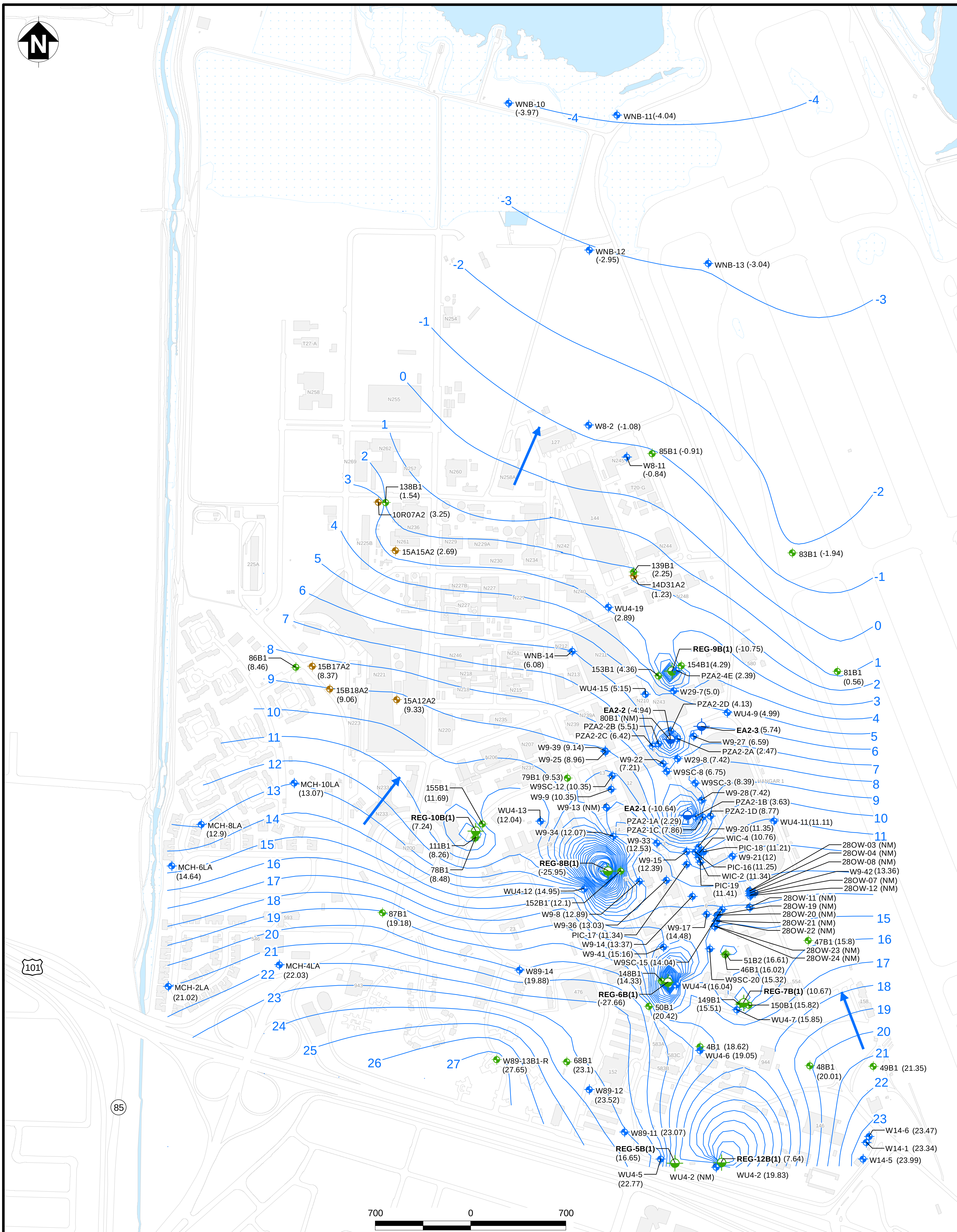
FIGURE 2-56
POTENTIOMETRIC SURFACE MAP, IR SITE 28, UPPER PORTION OF THE A AQUIFER - SEPTEMBER 20-21, 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



NAVY EXTRACTION WELL

NAVY MONITORING WELL

MEW EXTRACTION WELL

MEW MONITORING WELL

NASA EXTRACTION WELL

NASA MONITORING WELL

(5.5) GROUNDWATER ELEVATION

20 GROUNDWATER CONTOUR

GROUNDWATER FLOW DIRECTION

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

SEALASKA ENVIRONMENTAL

Notes:

1. Groundwater levels measured on September 20 & 21, 2012
2. Groundwater elevations shown in feet amsl

AMSL - Above Mean Sea Level
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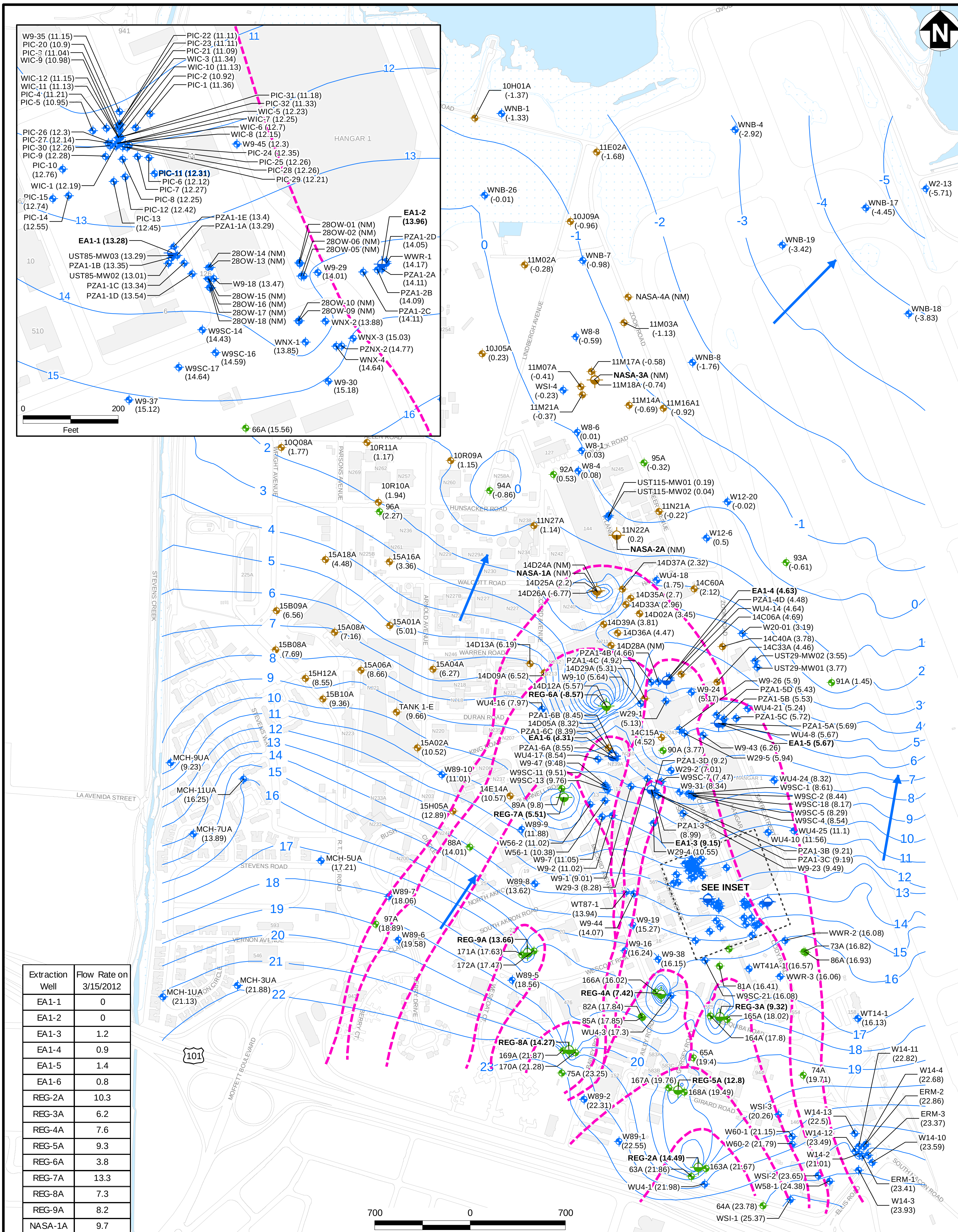
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

2012 ANNUAL GROUNDWATER REPORT
FOR IR SITES 26 & 28

FIGURE 2-57
POTENTIOMETRIC SURFACE MAP, IR SITE 28, LOWER PORTION OF THE A AQUIFER - SEPTEMBER 20-21, 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



Extraction Well	Flow Rate on 3/15/2012
EA1-1	0
EA1-2	0
EA1-3	1.2
EA1-4	0.9
EA1-5	1.4
EA1-6	0.8
REG-2A	10.3
REG-3A	6.2
REG-4A	7.6
REG-5A	9.3
REG-6A	3.8
REG-7A	13.3
REG-8A	7.3
REG-9A	8.2
NASA-1A	9.7

NAVY EXTRACTION WELL
NAVY MONITORING WELL
MEW EXTRACTION WELL
MEW MONITORING WELL
NASA EXTRACTION WELL
NASA MONITORING WELL
(5.5) GROUNDWATER ELEVATION
ESTIMATED EXTENT OF HYDRAULIC CAPTURE
20 GROUNDWATER CONTOUR
GROUNDWATER FLOW DIRECTION
ROAD
FACILITY INFRASTRUCTURE
WATER
WETLAND

Notes:

Groundwater levels measured on March 15, 2012
Groundwater elevations shown in feet amsl

AMSL - Above Mean Sea Level
IR - Installation Restoration
MEW - Middlefield Ellis Whisman
NAS - Naval Air Station
NASA - National Aeronautics and Space Administration
NM - Not Measured

SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

2012 ANNUAL GROUNDWATER REPORT
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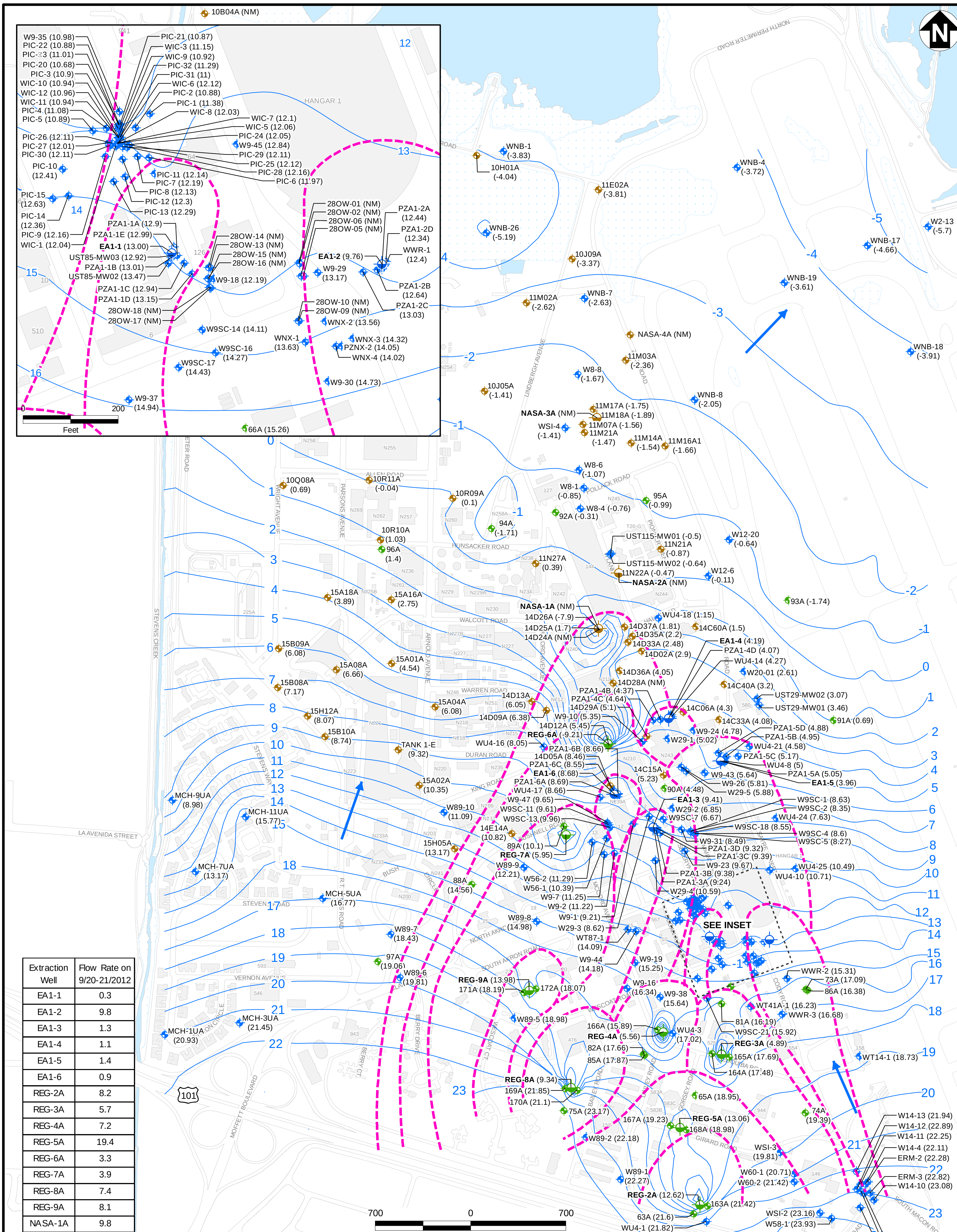
FIGURE 2-58

CAPTURE ZONE MAP, IR SITE 28, UPPER PORTION OF THE A AQUIFER - MARCH 15, 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



Extraction Well	Flow Rate on 9/20-21/2012
EA1-1	0.3
EA1-2	9.8
EA1-3	1.3
EA1-4	1.1
EA1-5	1.4
EA1-6	0.9
REG-2A	8.2
REG-3A	5.7
REG-4A	7.2
REG-5A	19.4
REG-6A	3.3
REG-7A	3.9
REG-8A	7.4
REG-9A	8.1
NASA-1A	9.8

NAVY EXTRACTION WELL
NAVY MONITORING WELL
MEW EXTRACTION WELL
MEW MONITORING WELL
NASA EXTRACTION WELL
NASA MONITORING WELL
(5.5) GROUNDWATER ELEVATION
ESTIMATED EXTENT OF HYDRAULIC CAPTURE

20 GROUNDWATER CONTOUR
GROUNDWATER FLOW DIRECTION
ROAD
FACILITY INFRASTRUCTURE
WATER
WETLAND

Notes:

1. Groundwater levels measured on September 20 & 21, 2012
2. Groundwater elevations shown in feet amsl

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IR - Installation Restoration
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SEALASKA ENVIRONMENTAL

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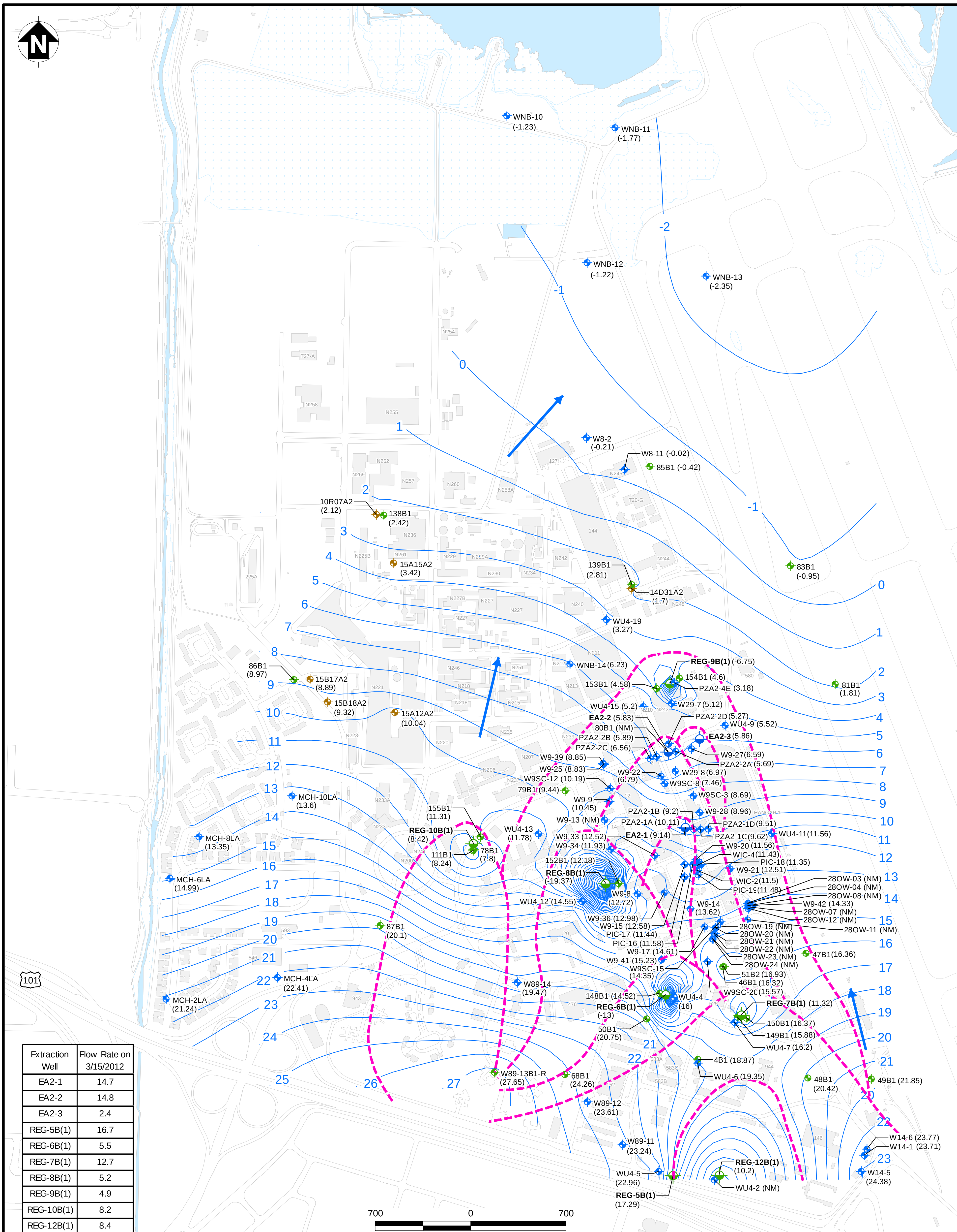
FIGURE 2-59
CAPTURE ZONE MAP, IR SITE 28, UPPER PORTION OF THE A AQUIFER - SEPTEMBER 20-21, 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



Extraction Well	Flow Rate on 3/15/2012
EA2-1	14.7
EA2-2	14.8
EA2-3	2.4
REG-5B(1)	16.7
REG-6B(1)	5.5
REG-7B(1)	12.7
REG-8B(1)	5.2
REG-9B(1)	4.9
REG-10B(1)	8.2
REG-12B(1)	8.4

NAVY EXTRACTION WELL
NAVY MONITORING WELL
MEW EXTRACTION WELL
MEW MONITORING WELL
NASA EXTRACTION WELL
NASA MONITORING WELL
(5.5) GROUNDWATER ELEVATION
ESTIMATED EXTENT OF HYDRAULIC CAPTURE

20 GROUNDWATER CONTOUR
GROUNDWATER FLOW DIRECTION
ROAD
FACILITY INFRASTRUCTURE
WATER
WETLAND

Notes:

Groundwater levels measured on March 15, 2012
Groundwater elevations shown in feet amsl

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SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
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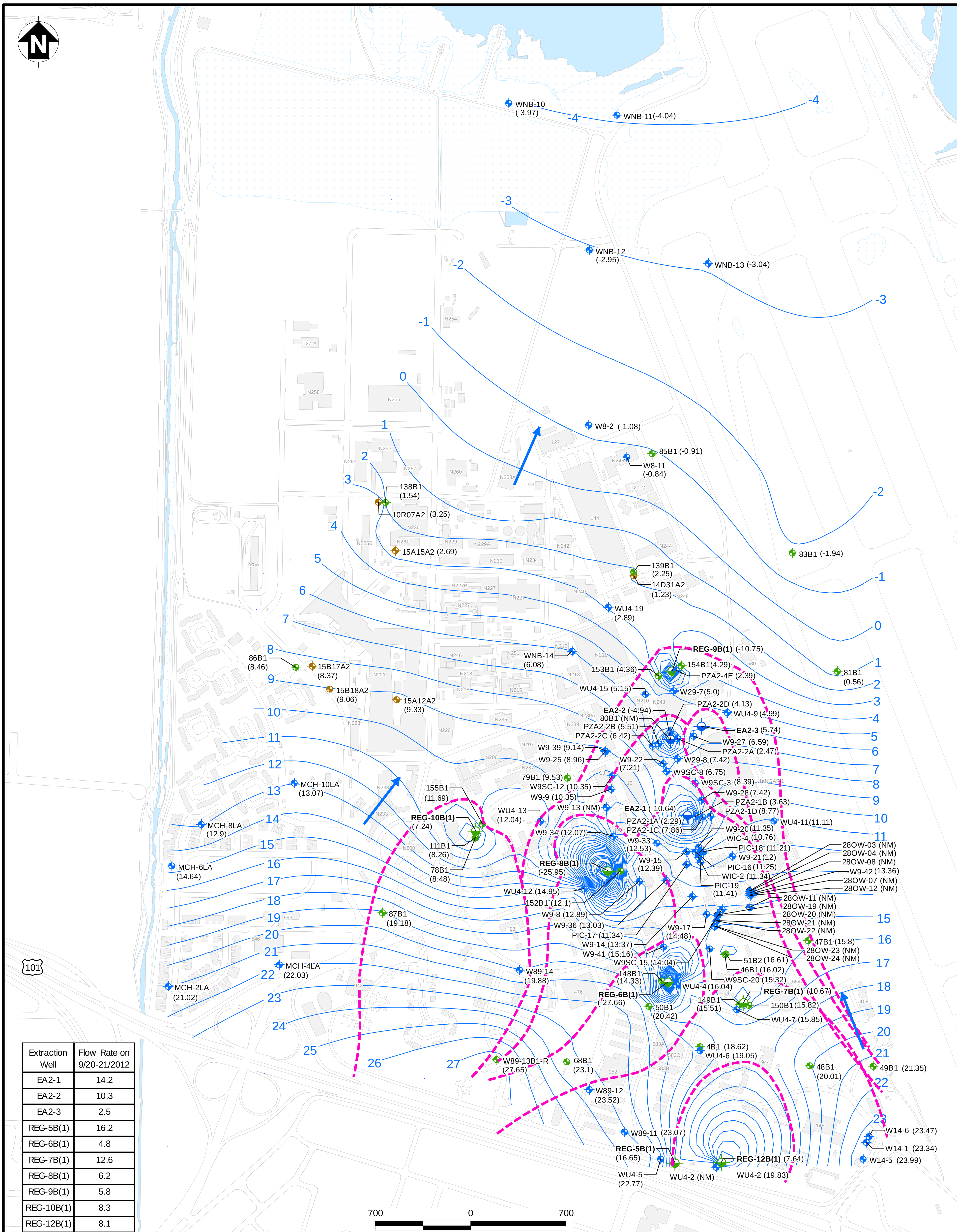
FIGURE 2-60

CAPTURE ZONE MAP, IR SITE 28, LOWER PORTION OF THE A AQUIFER - MARCH 15, 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



Extraction Well	Flow Rate on 9/20-21/2012
EA2-1	14.2
EA2-2	10.3
EA2-3	2.5
REG-5B(1)	16.2
REG-6B(1)	4.8
REG-7B(1)	12.6
REG-8B(1)	6.2
REG-9B(1)	5.8
REG-10B(1)	8.3
REG-12B(1)	8.1

NAVY EXTRACTION WELL
NAVY MONITORING WELL
MEW EXTRACTION WELL
MEW MONITORING WELL
NASA EXTRACTION WELL
NASA MONITORING WELL
(5.5) GROUNDWATER ELEVATION
ESTIMATED EXTENT OF HYDRAULIC CAPTURE

20 GROUNDWATER CONTOUR
GROUNDWATER FLOW DIRECTION
ROAD
FACILITY INFRASTRUCTURE
WATER
WETLAND

Notes:

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2. Groundwater elevations shown in feet amsl

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SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
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FIGURE 2-61
CAPTURE ZONE MAP, IR SITE 28, LOWER PORTION OF THE A AQUIFER - SEPTEMBER 20-21, 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA

FIGURES 2-62 THROUGH 2-65
TIME SERIES OF TCE CONCENTRATION PLOTS
WATS VICINITY

Figure 2-62 W9-2 (Upper Portion of the A Aquifer)

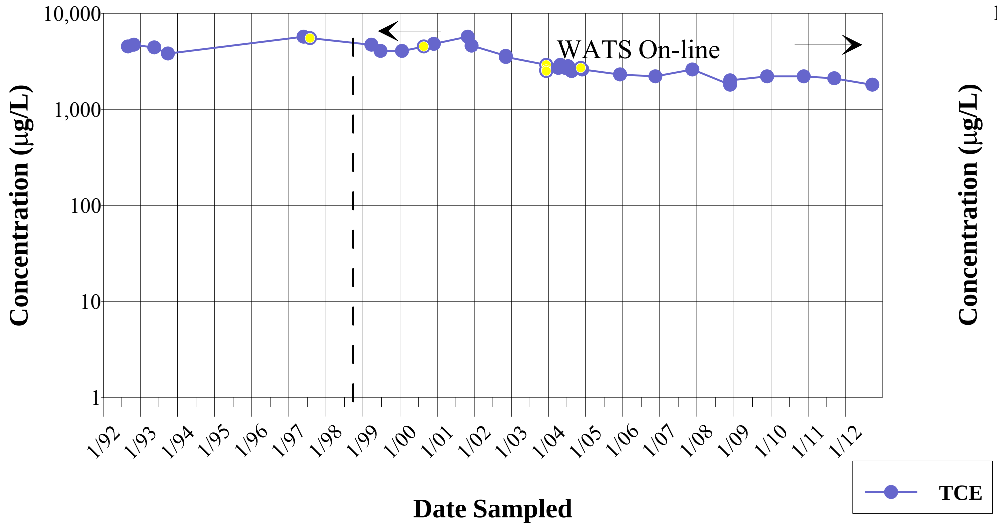


Figure 2-63 14D12A (Upper Portion of the A Aquifer)

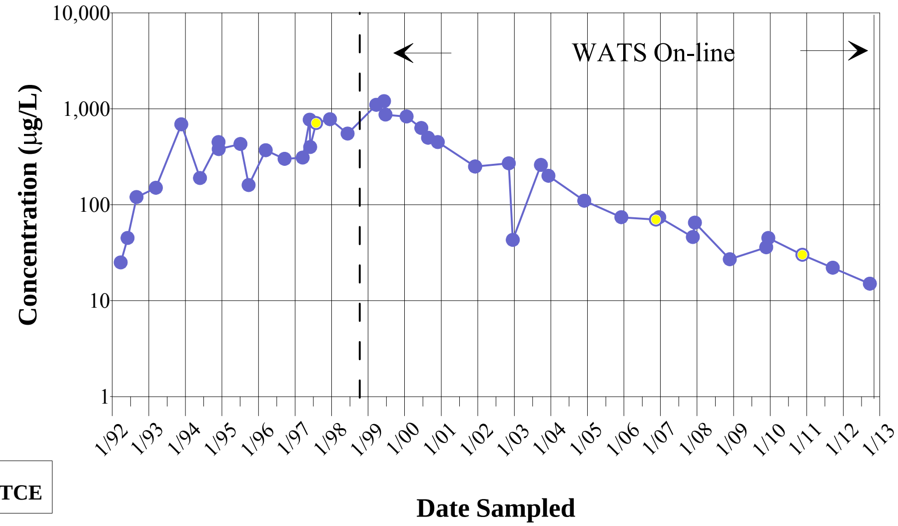


Figure 2-64 W9-10 (Upper Portion of the A Aquifer)

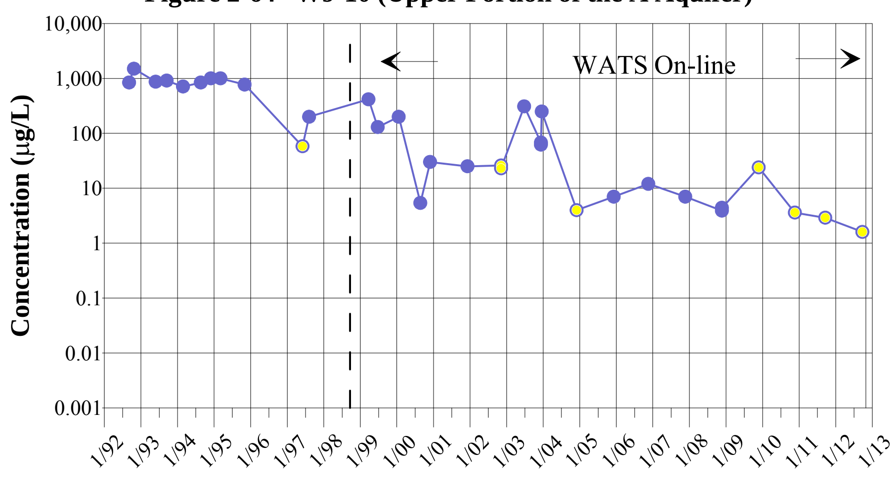
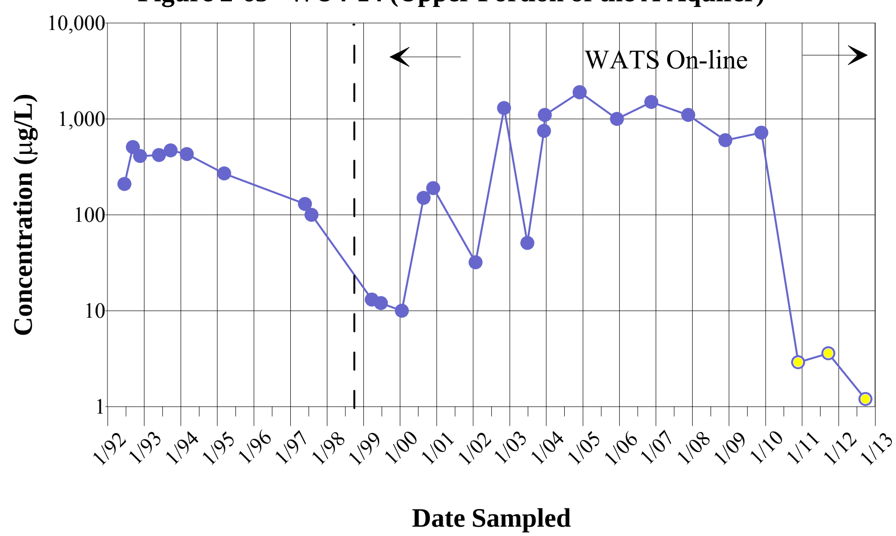


Figure 2-65 WU4-14 (Upper Portion of the A Aquifer)



Notes:
µg/L - micrograms per liter.
TCE - Trichloroethene
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limits.

FIGURES 2-66 THROUGH 2-69
TIME SERIES OF TCE CONCENTRATION PLOTS
DOWNGRADIENT OF WATS

Figure 2-66 14D02A (Upper Portion of the A Aquifer)

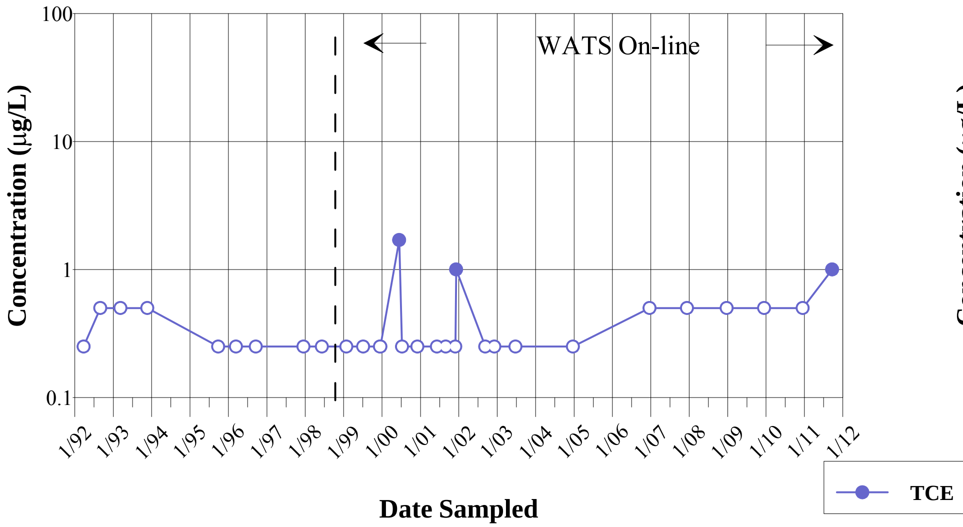


Figure 2-67 14D28A (Upper Portion of the A Aquifer)

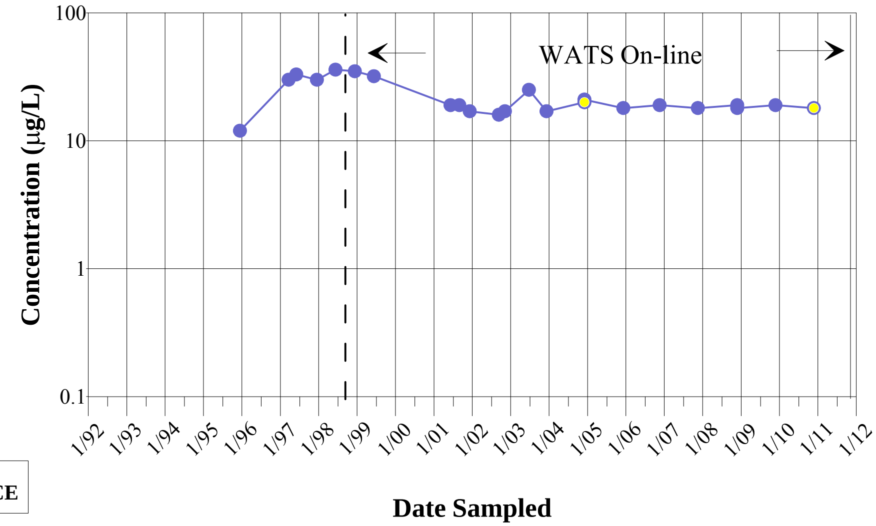


Figure 2-68 WU4-16 (Upper Portion of the A Aquifer)

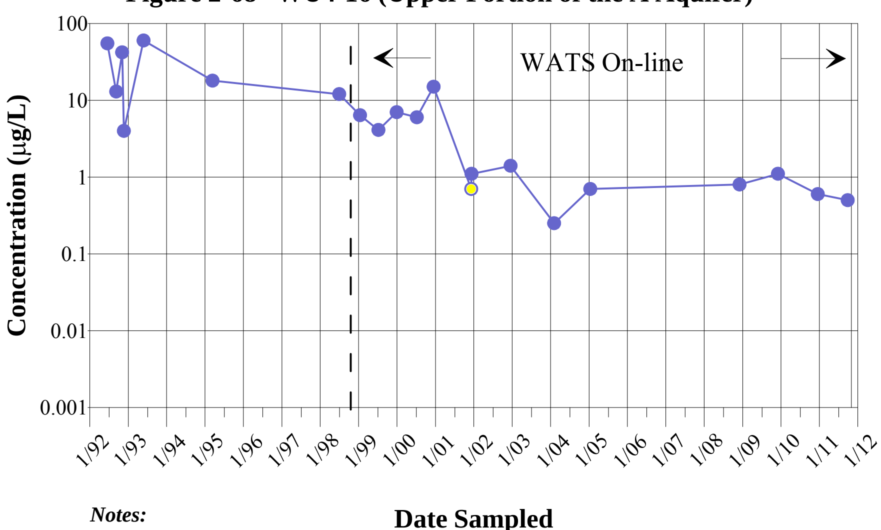
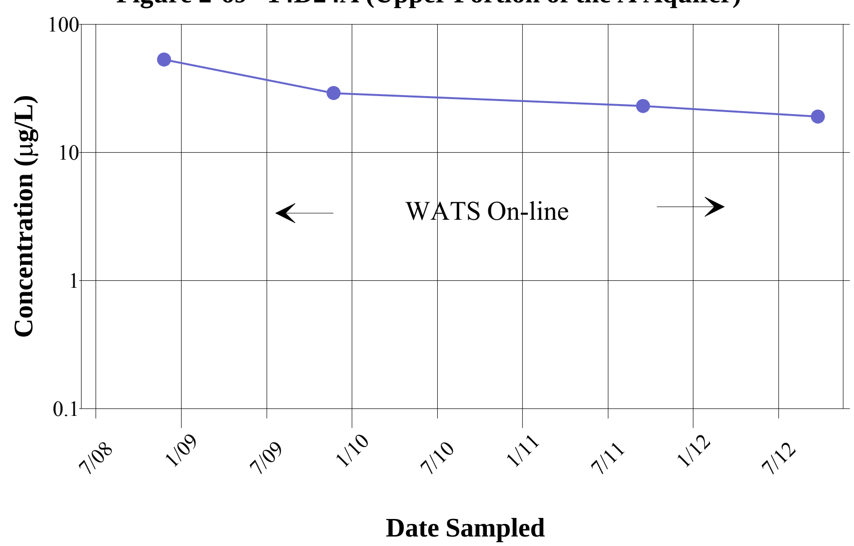


Figure 2-69 14D24A (Upper Portion of the A Aquifer)



Notes:
µg/L - micrograms per liter
TCE - Trichloroethene
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limit.

FIGURES 2-70 THROUGH 2-73
TIME SERIES OF TCE CONCENTRATION PLOTS
WATS VICINITY

Figure 2-70 154B1 (Lower Portion of the A Aquifer)

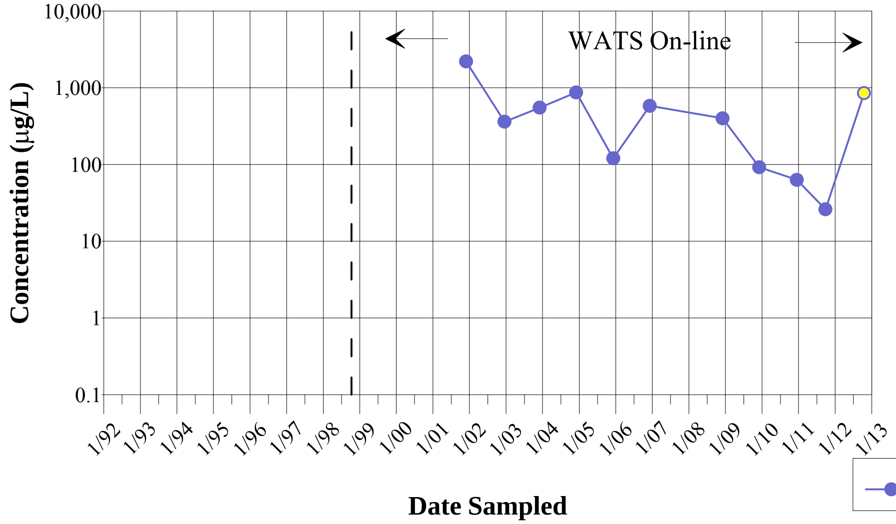
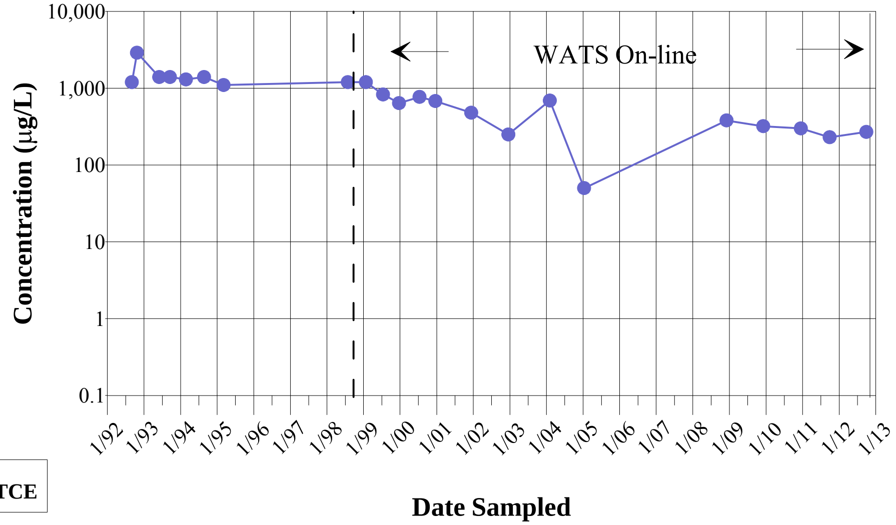


Figure 2-71 W9-25 (Lower Portion of the A Aquifer)



W29-7

Figure 2-72 W29-7 (Lower Portion of the A Aquifer)

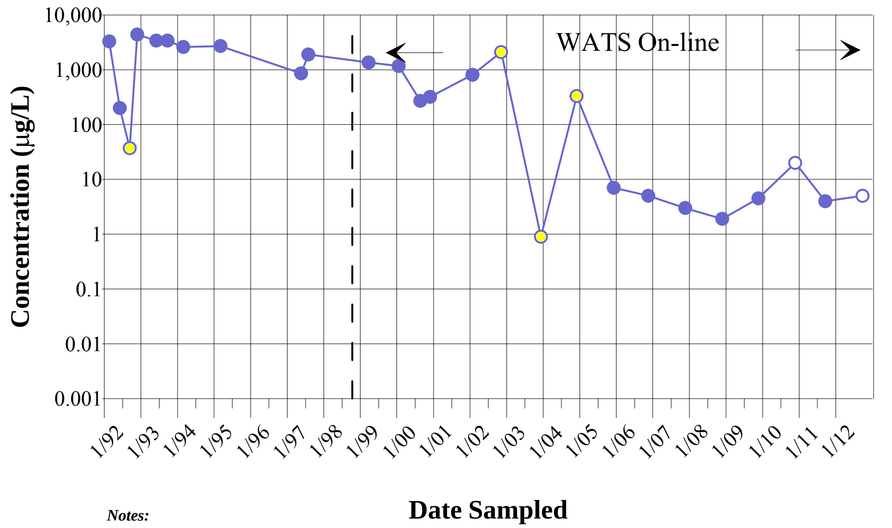
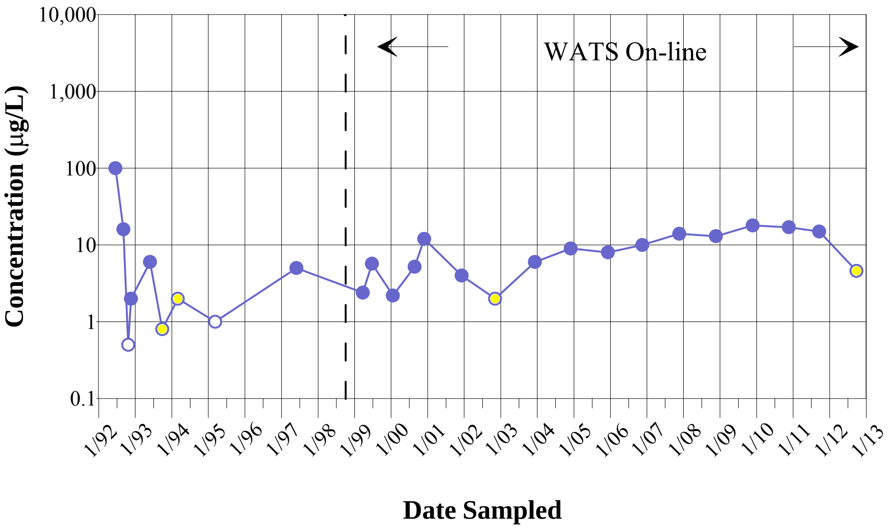


Figure 2-73 WU4-15 (Lower Portion of the A Aquifer)



Notes:
µg/L - micrograms per liter
TCE - Trichloroethene
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limits.

FIGURES 2-74 THROUGH 2-76
TIME SERIES OF TCE CONCENTRATION PLOTS
DOWNGRADIENT OF WATS

Figure 2-74 139B1 (Lower Portion of the A Aquifer)

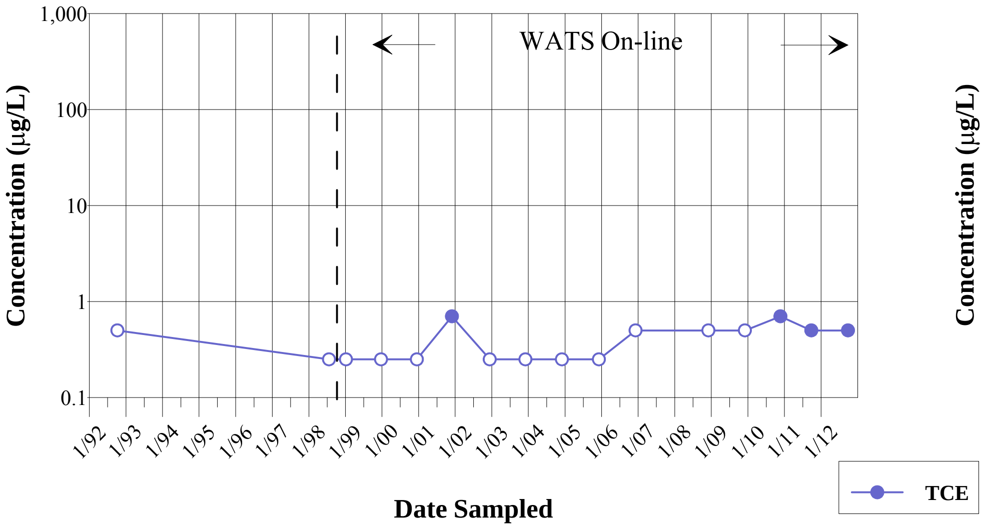


Figure 2-75 WNB-14 (Lower Portion of the A Aquifer)

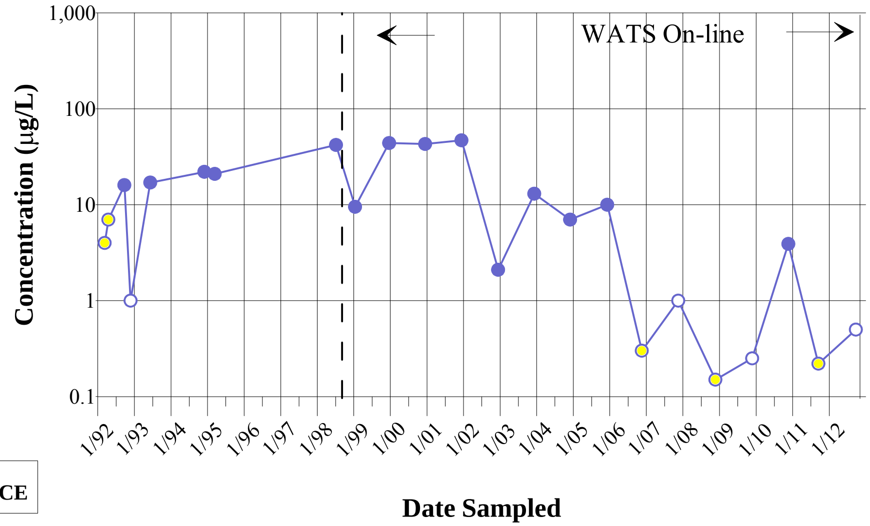
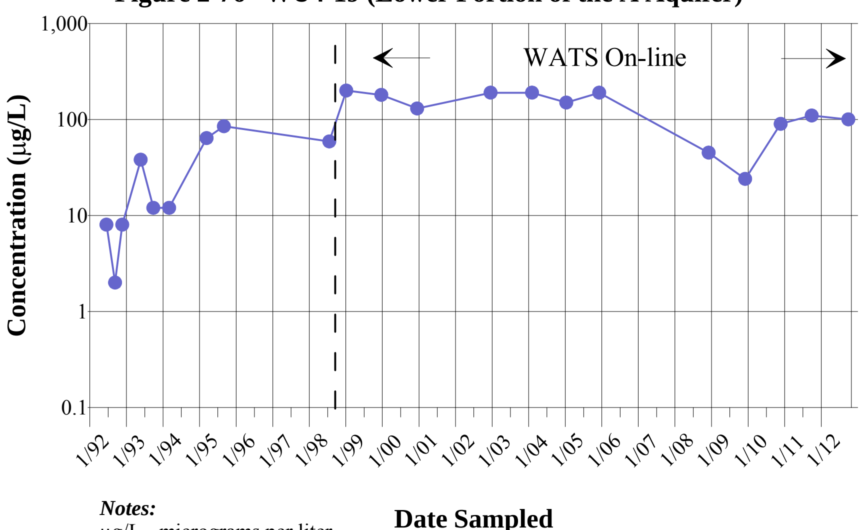


Figure 2-76 WU4-19 (Lower Portion of the A Aquifer)



Notes:
µg/L - micrograms per liter.
TCE - Trichloroethene.
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limits.

FIGURES 2-77 THROUGH 2-80
TIME SERIES OF VOCs CONCENTRATION PLOTS
IR SITE 28

Figure 2-77 14C33A (Upper Portion of the A Aquifer)

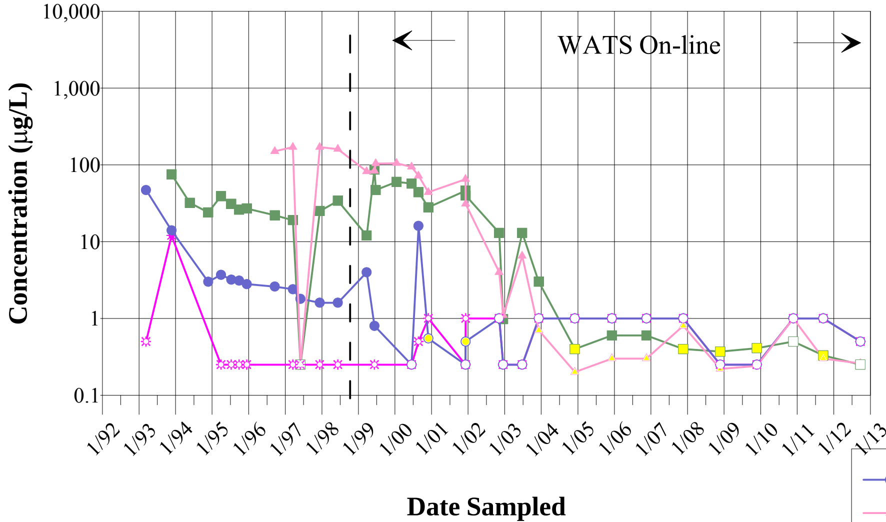
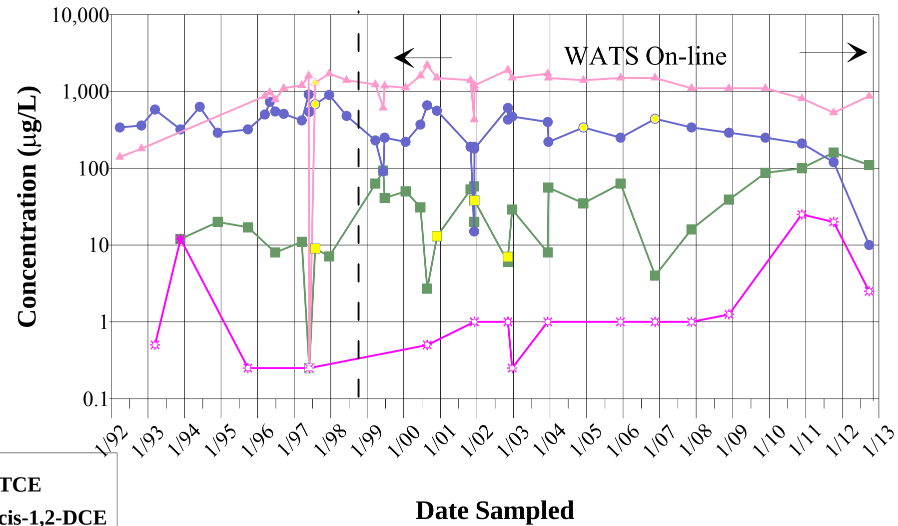


Figure 2-78 14D05A (Upper Portion of the A Aquifer)



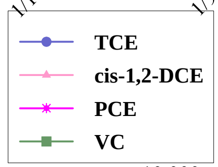


Figure 2-79 W9-2 (Upper Portion of the A Aquifer)

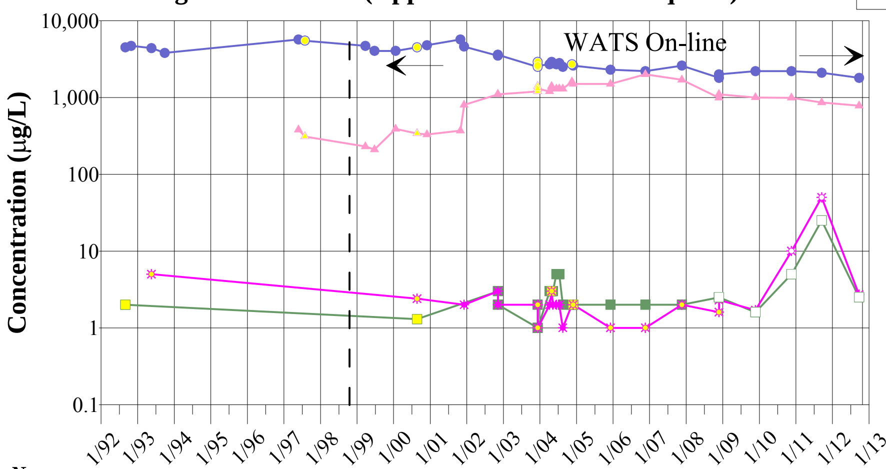
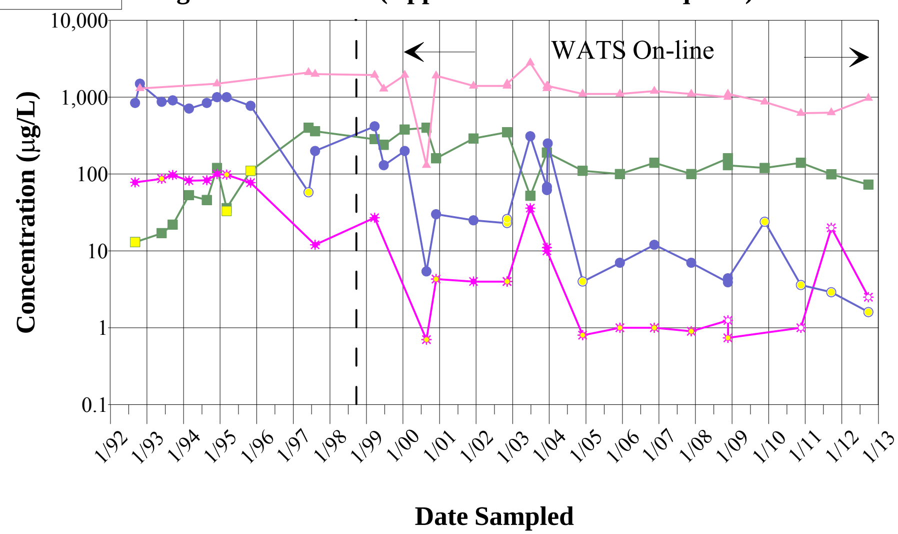


Figure 2-80 W9-10 (Upper Portion of the A Aquifer)



Notes:
VOCs - Volatile Organic Compounds
µg/L - micrograms per liter
TCE - trichloroethene; cis-1,2-DCE - cis-1,2,-dichloroethene; PCE - tetrachloroethene; VC - vinyl chloride
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limits.

FIGURES 2-81 THROUGH 2-84
TIME SERIES OF VOCs CONCENTRATION PLOTS
IR SITE 28

Figure 2-81 W9-18 (Upper Portion of the A Aquifer)

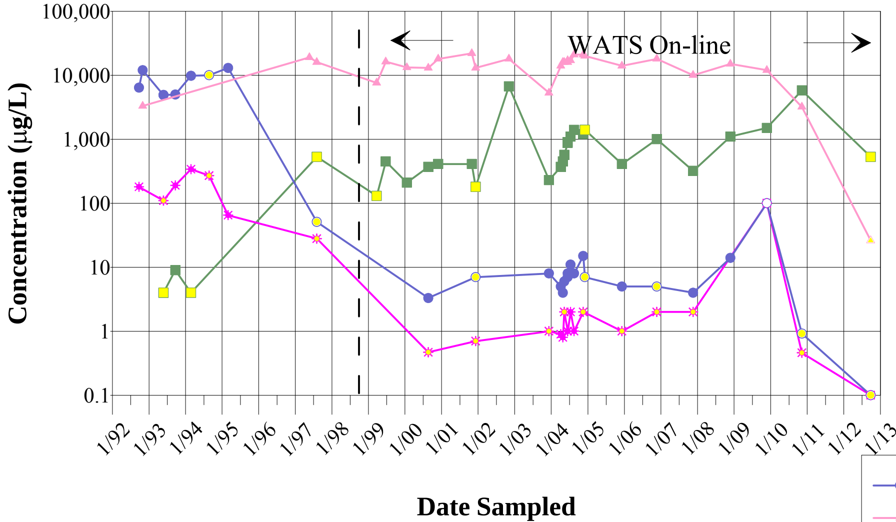
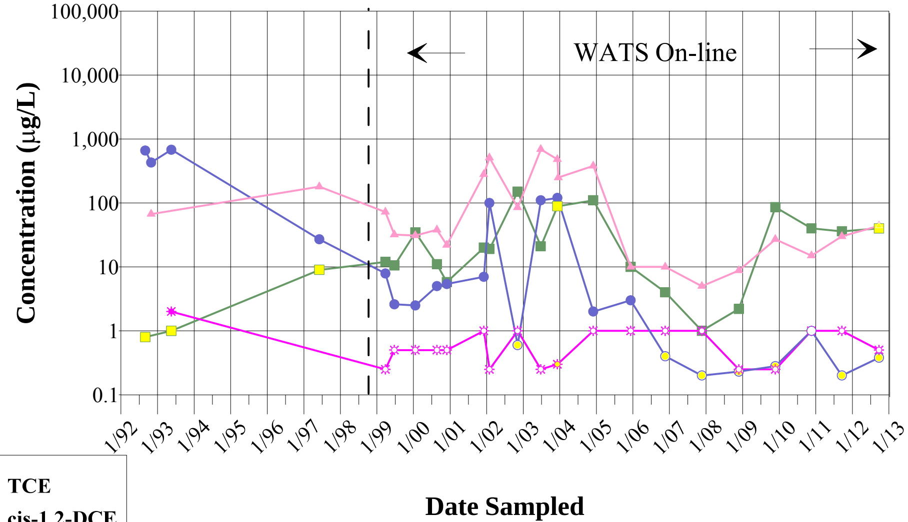


Figure 2-82 W9-19 (Upper Portion of the A Aquifer)



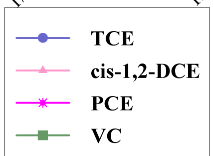
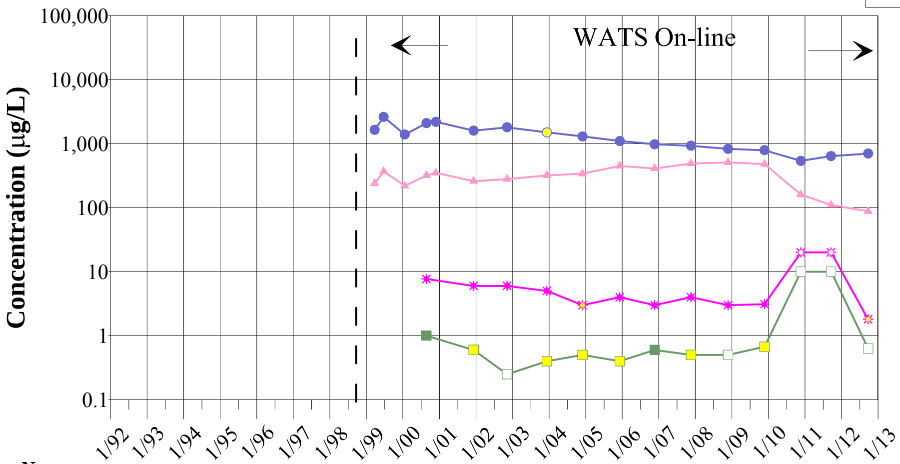
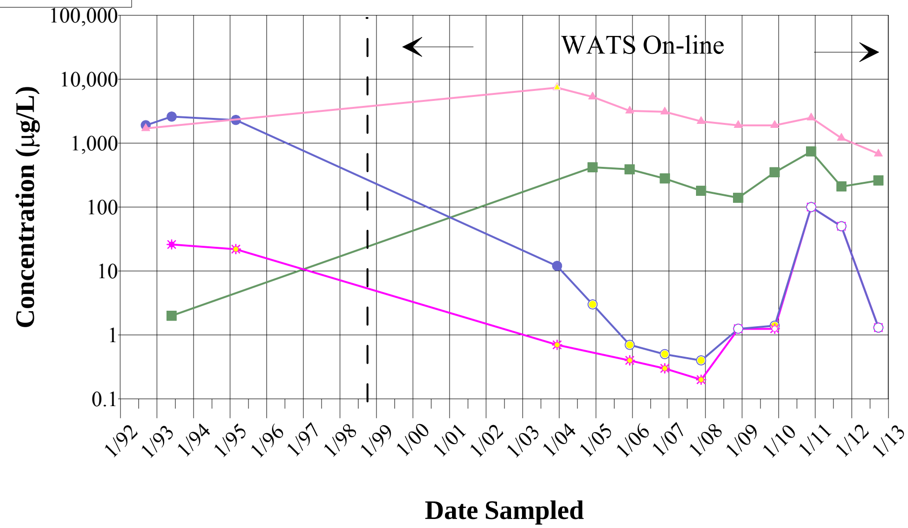


Figure 2-83 W9SC-1 (Upper Portion of the A Aquifer)



Date Sampled

Figure 2-84 W9-31 (Upper Portion of the A Aquifer)



Notes:
VOCs - Volatile Organic Compounds
µg/L - micrograms per liter
TCE - trichloroethene; cis-1,2-DCE - cis-1,2,-dichloroethene; PCE - tetrachloroethene; VC - vinyl chloride
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limits.

FIGURES 2-85 THROUGH 2-88
TIME SERIES OF VOCs CONCENTRATION PLOTS
IR SITE 28

Figure 2-85 W9-37 (Upper Portion of the A Aquifer)

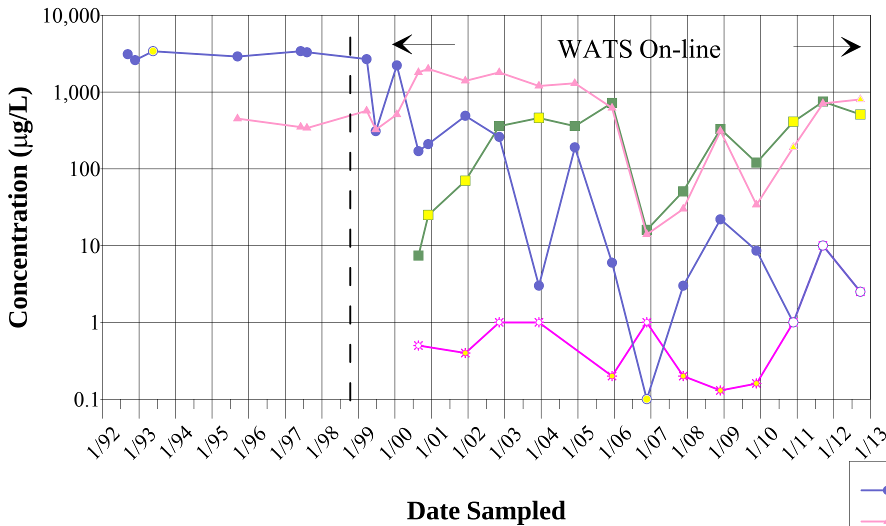
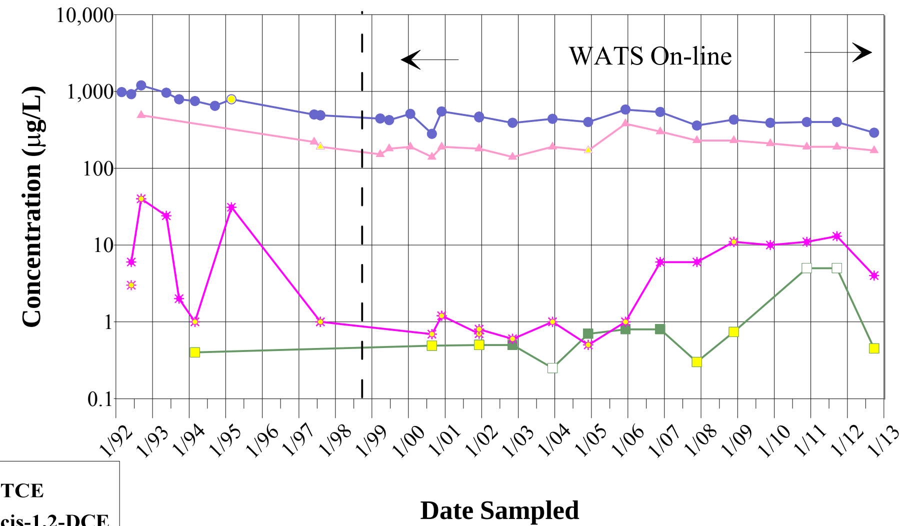


Figure 2-86 W9-45 (Upper Portion of the A Aquifer)



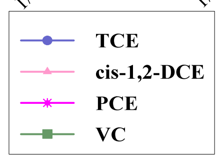


Figure 2-87 W9SC-7 (Upper Portion of the A Aquifer)

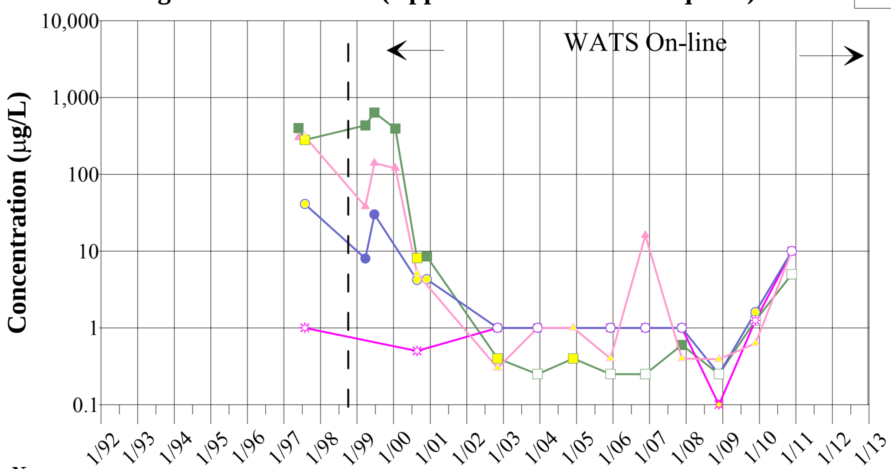
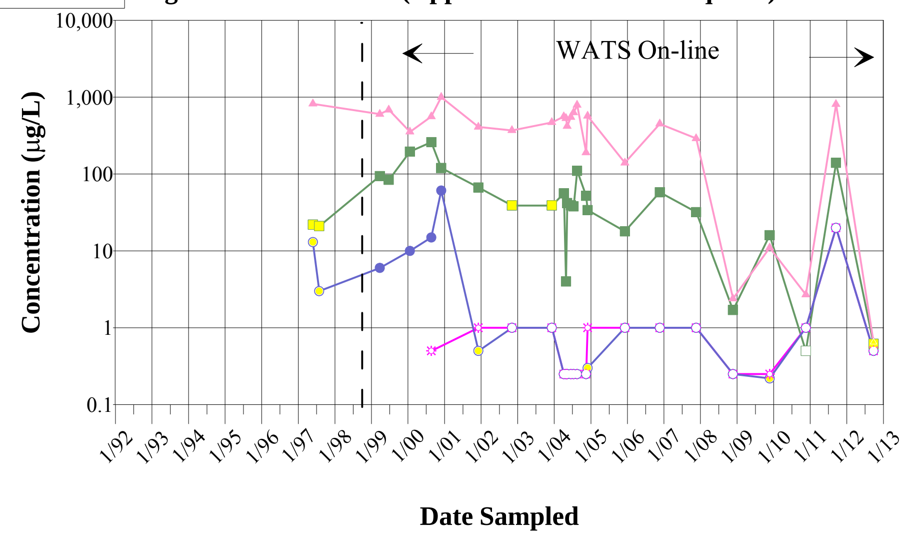


Figure 2-88 W9SC-13 (Upper Portion of the A Aquifer)



Notes:
VOCs - Volatile Organic Compounds
µg/L - micrograms per liter
TCE - trichloroethene; cis-1,2-DCE - cis-1,2,-dichloroethene; PCE - tetrachloroethene; VC - vinyl chloride
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limits.

FIGURES 2-89 THROUGH 2-92
TIME SERIES OF VOCs CONCENTRATION PLOTS
IR SITE 28

Figure 2-89 W9SC-14 (Upper Portion of the A Aquifer)

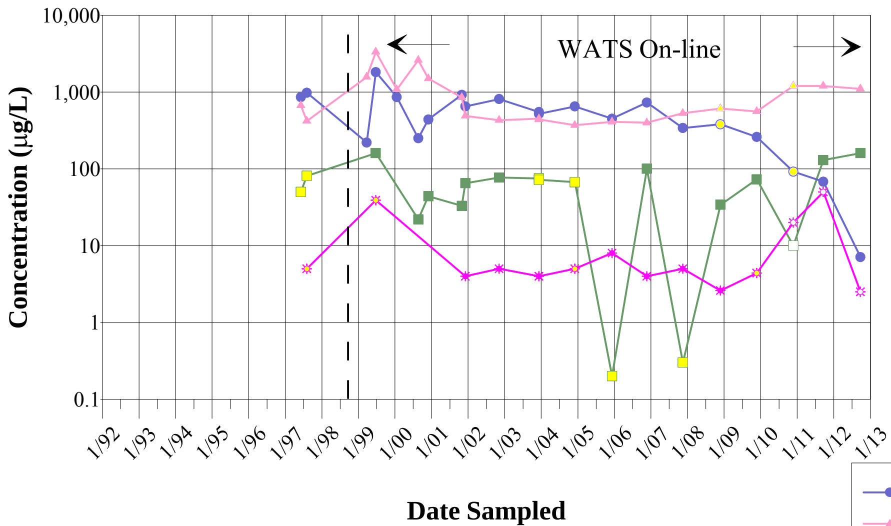
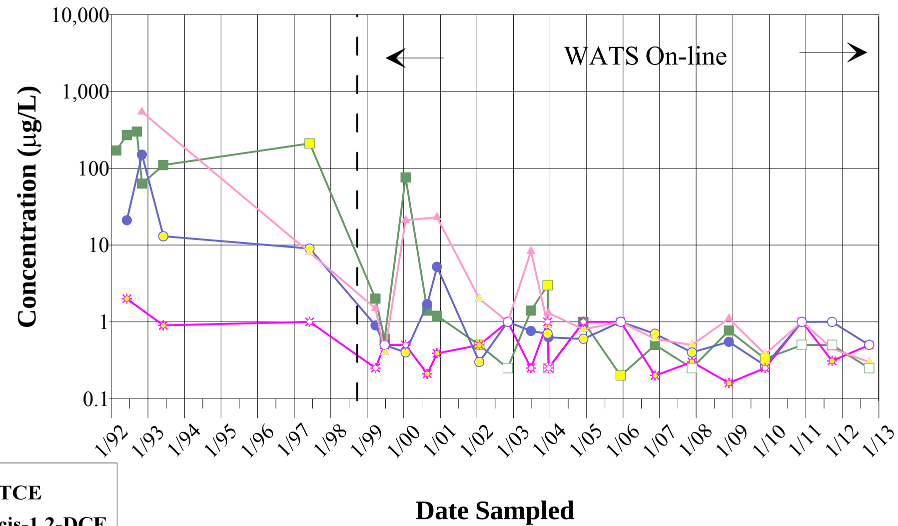


Figure 2-90 W29-1 (Upper Portion of the A Aquifer)



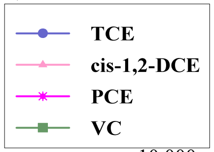


Figure 2-91 W29-3 (Upper Portion of the A Aquifer)

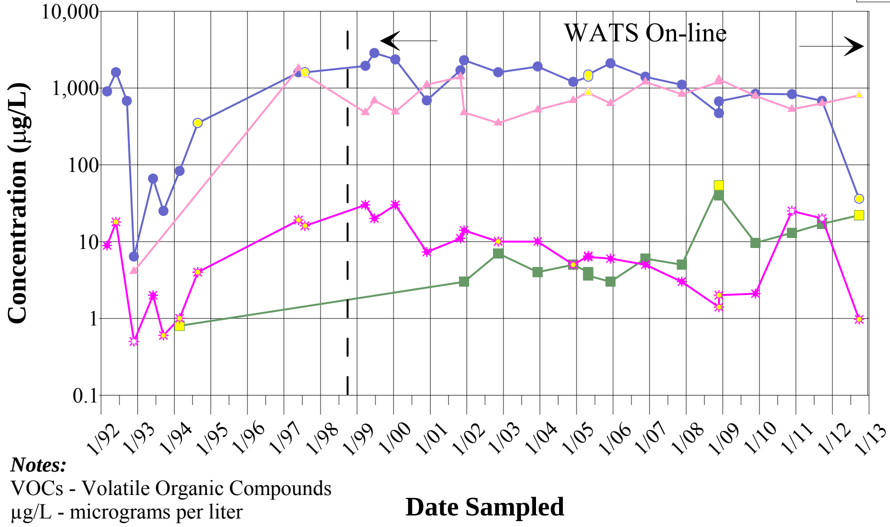
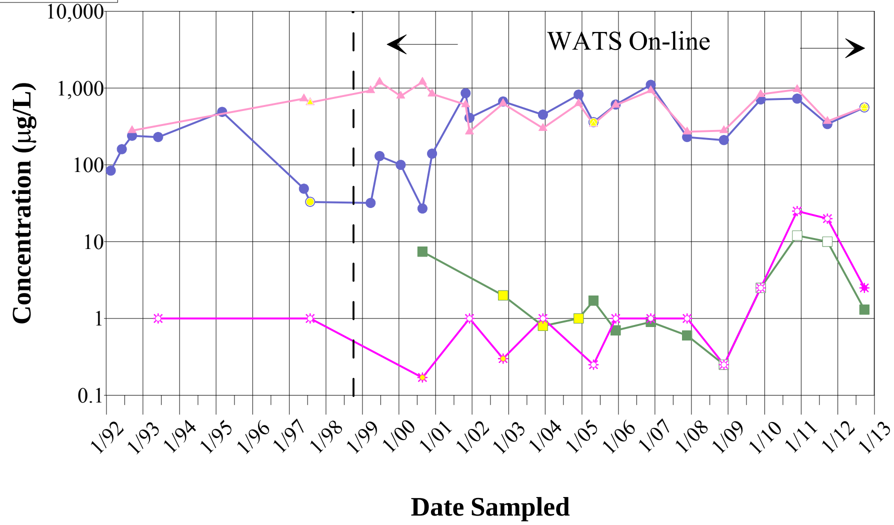


Figure 2-92 W29-4 (Upper Portion of the A Aquifer)



Notes:
VOCs - Volatile Organic Compounds
µg/L - micrograms per liter
TCE - trichloroethene; cis-1,2-DCE - cis-1,2,-dichloroethene; PCE - tetrachloroethene; VC - vinyl chloride
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limits.

FIGURES 2-93 THROUGH 2-96
TIME SERIES OF VOCs CONCENTRATION PLOTS
IR SITE 28

Figure 2-93 W56-2 (Upper Portion of the A Aquifer)

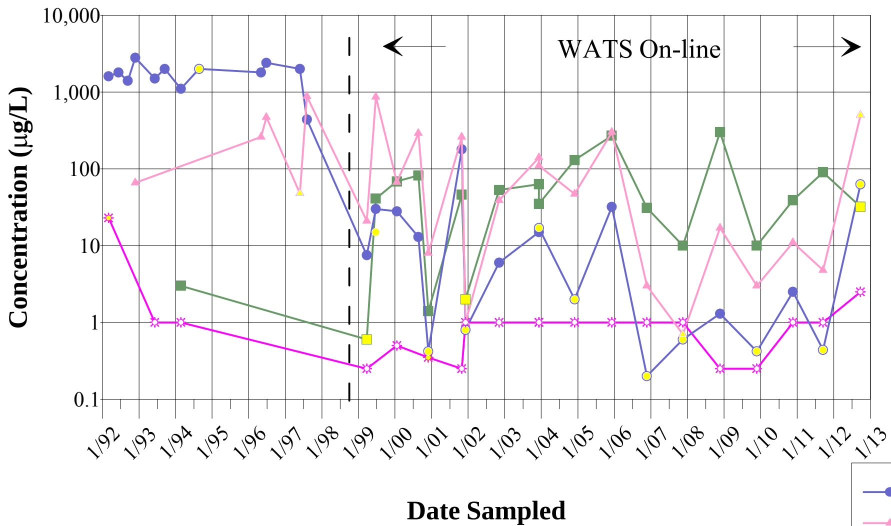
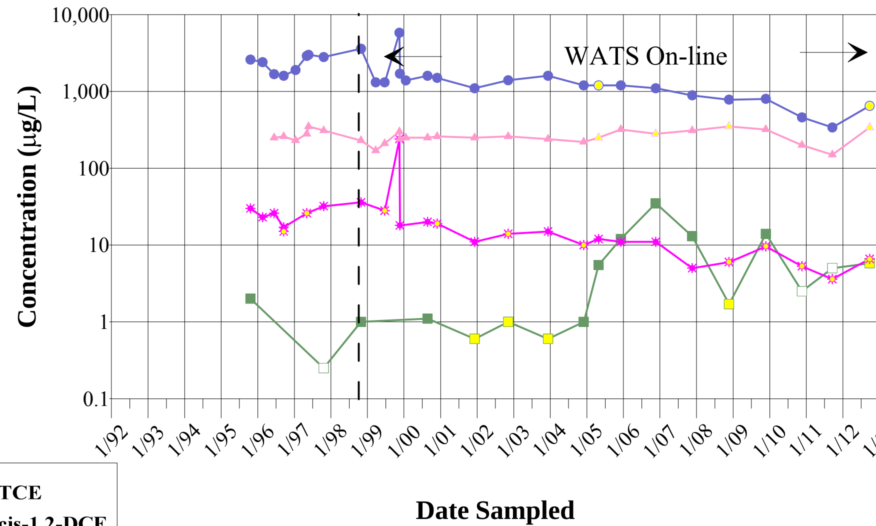


Figure 2-94 WIC-1 (Upper Portion of the A Aquifer)



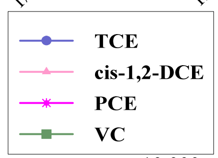


Figure 2-95 WU4-8 (Upper Portion of the A Aquifer)

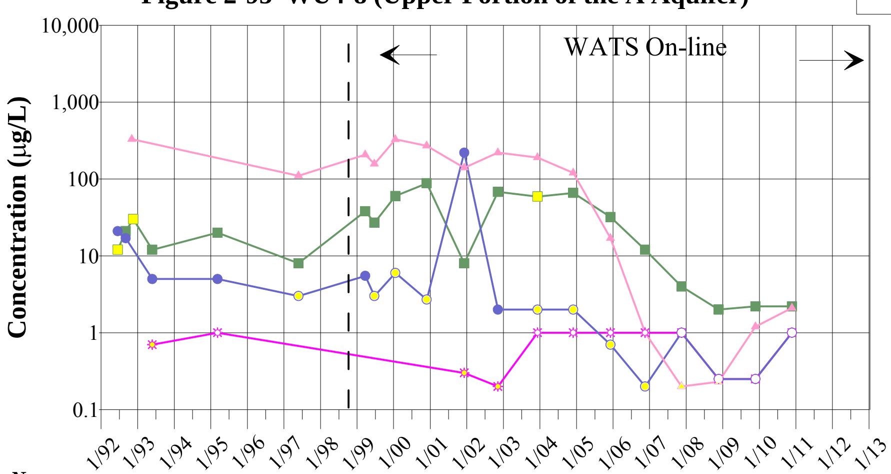
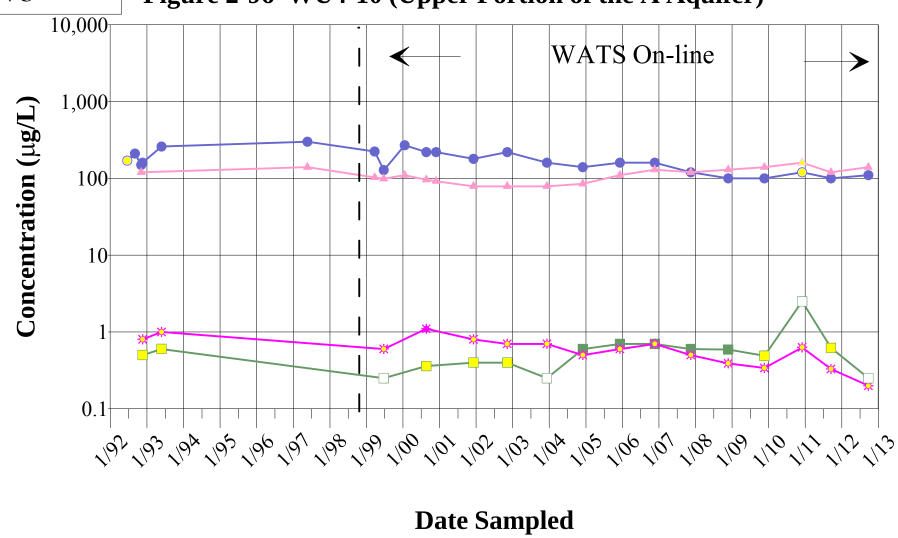


Figure 2-96 WU4-10 (Upper Portion of the A Aquifer)



Notes:
VOCs - Volatile Organic Compounds
µg/L - micrograms per liter
TCE - trichloroethene; cis-1,2-DCE - cis-1,2,-dichloroethene; PCE - tetrachloroethene; VC - vinyl chloride
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limits.

FIGURES 2-97 THROUGH 2-100
TIME SERIES OF VOCs CONCENTRATION PLOTS
IR SITE 28

Figure 2-97 WU4-14 (Upper Portion of the A Aquifer)

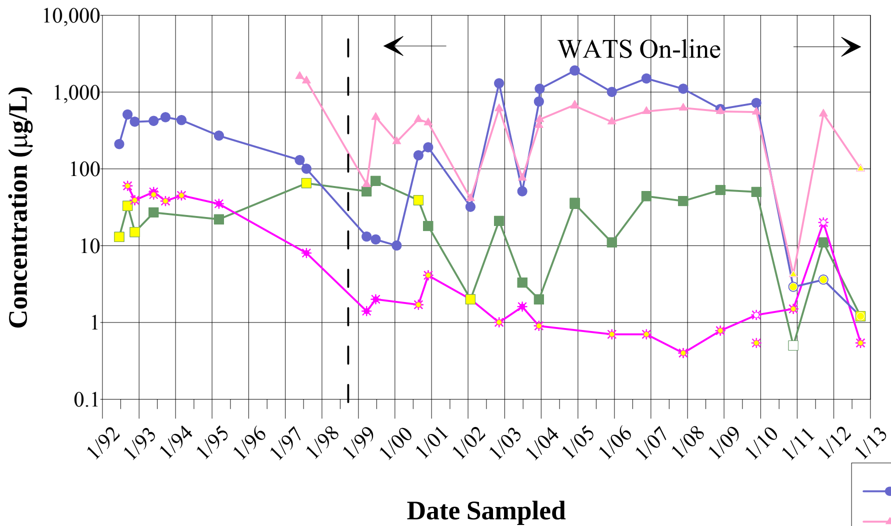
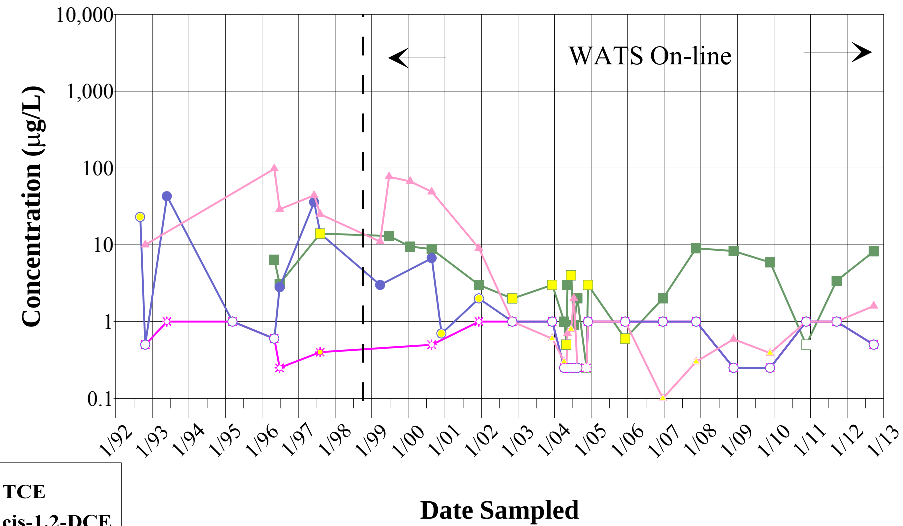


Figure 2-98 WU4-17 (Upper Portion of the A Aquifer)



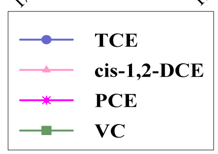


Figure 2-99 WU4-21 (Upper Portion of the A Aquifer)

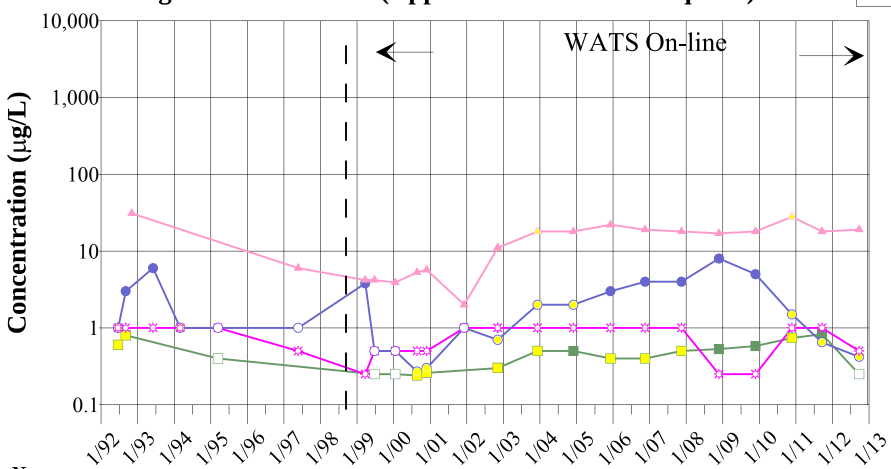
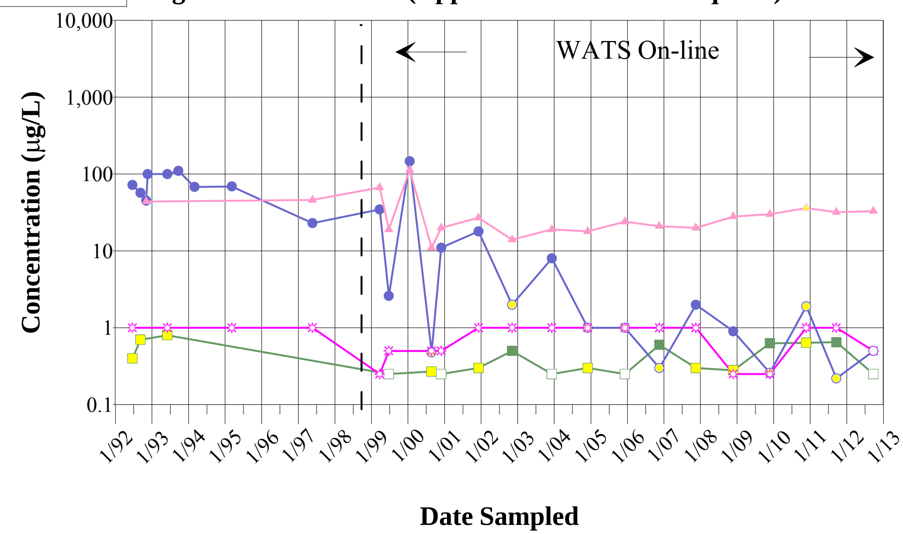


Figure 2-100 WU4-25 (Upper Portion of the A Aquifer)



Notes:
VOCs - Volatile Organic Compounds
µg/L - micrograms per liter
TCE - trichloroethene; cis-1,2-DCE - cis-1,2,-dichloroethene; PCE - tetrachloroethene; VC - vinyl chloride
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limits.

FIGURES 2-101 THROUGH 2-104
TIME SERIES OF VOCs CONCENTRATION PLOTS
IR SITE 28

Figure 2-101 WWR-1 (Upper Portion of the A Aquifer)

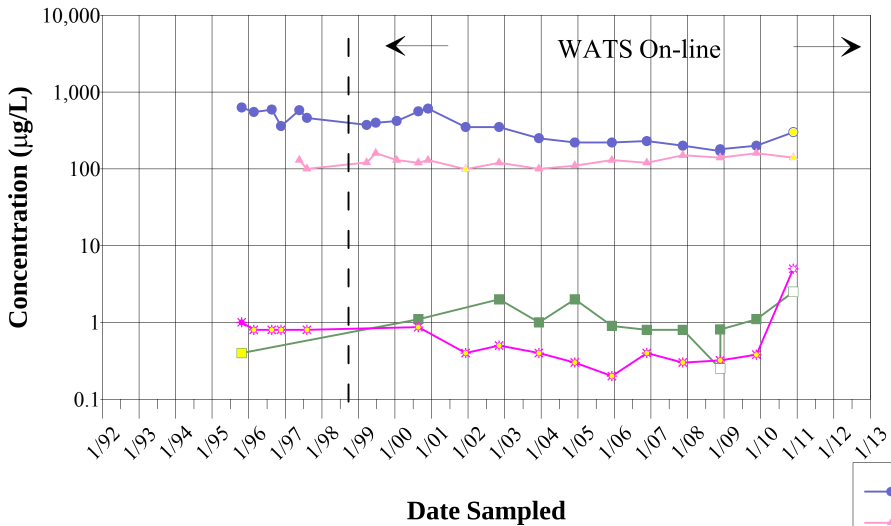
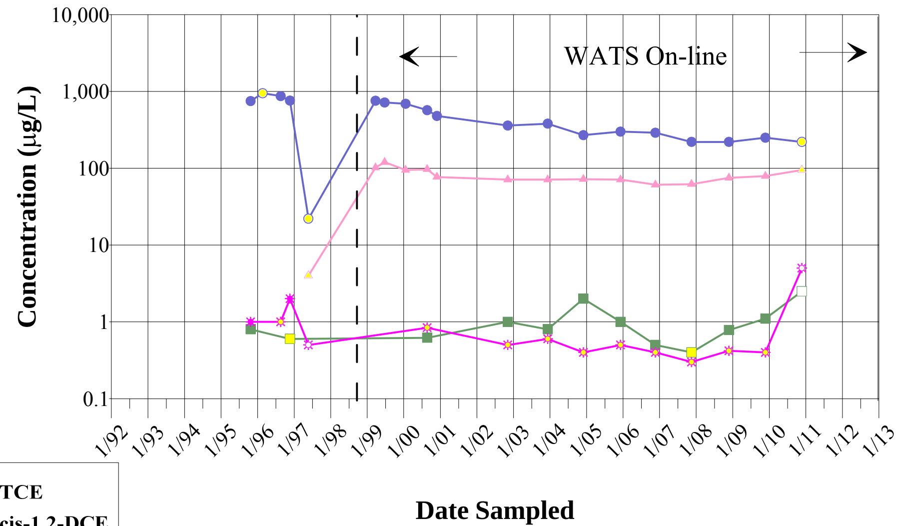


Figure 2-102 WWR-2 (Upper Portion of the A Aquifer)



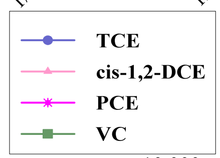


Figure 2-103 80B1 (Lower Portion of the A Aquifer)

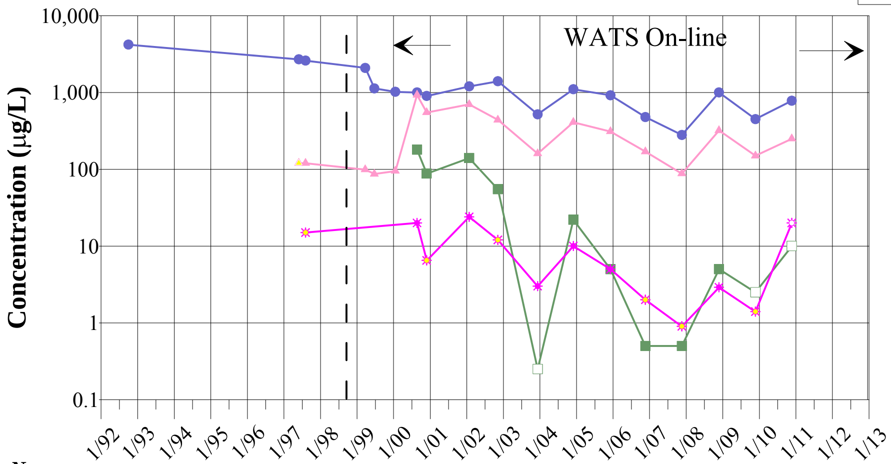
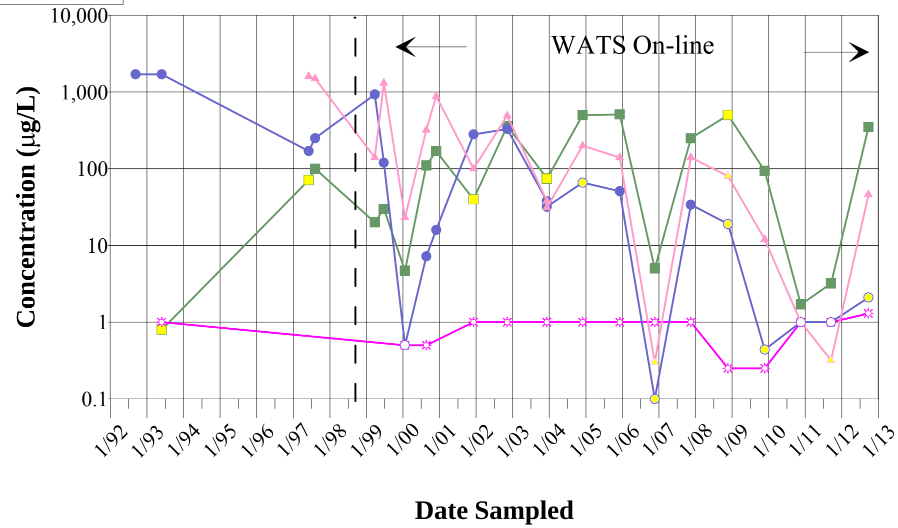


Figure 2-104 W9-9 (Lower Portion of the A Aquifer)



Notes:
VOCs - Volatile Organic Compounds
µg/L - micrograms per liter
TCE - trichloroethene; cis-1,2-DCE - cis-1,2,-dichloroethene; PCE - tetrachloroethene; VC - vinyl chloride
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limits.

FIGURES 2-105 THROUGH 2-108
TIME SERIES OF VOCs CONCENTRATION PLOTS
IR SITE 28

Figure 2-105 W9-14 (Lower Portion of the A Aquifer)

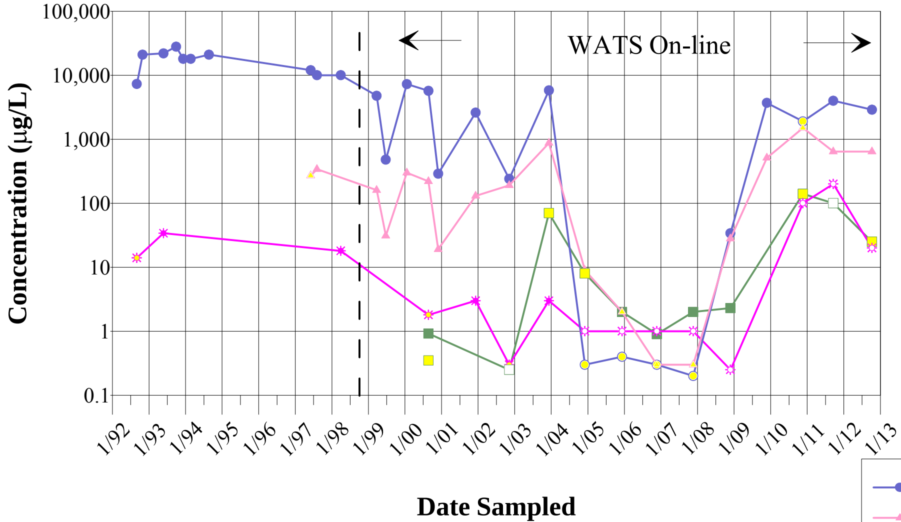
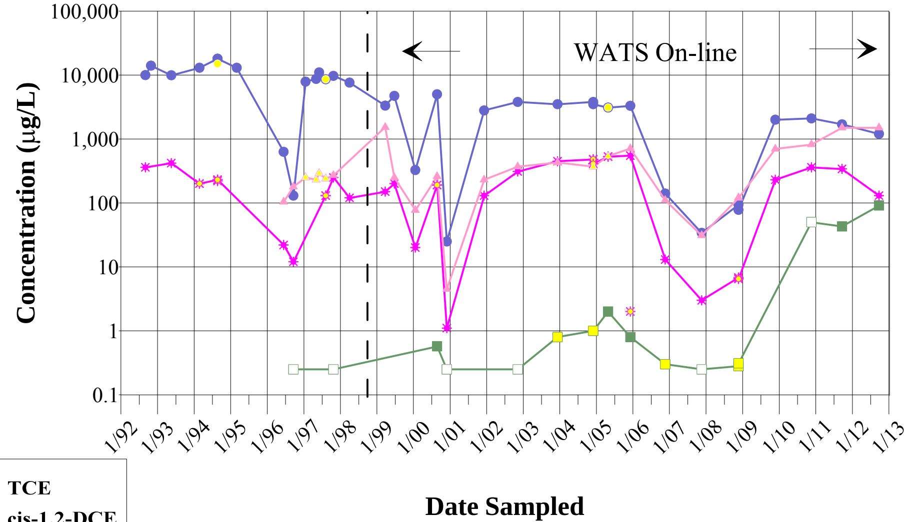


Figure 2-106 W9-20 (Lower Portion of the A Aquifer)



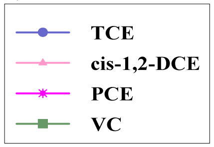


Figure 2-107 W9-21 (Lower Portion of the A Aquifer)

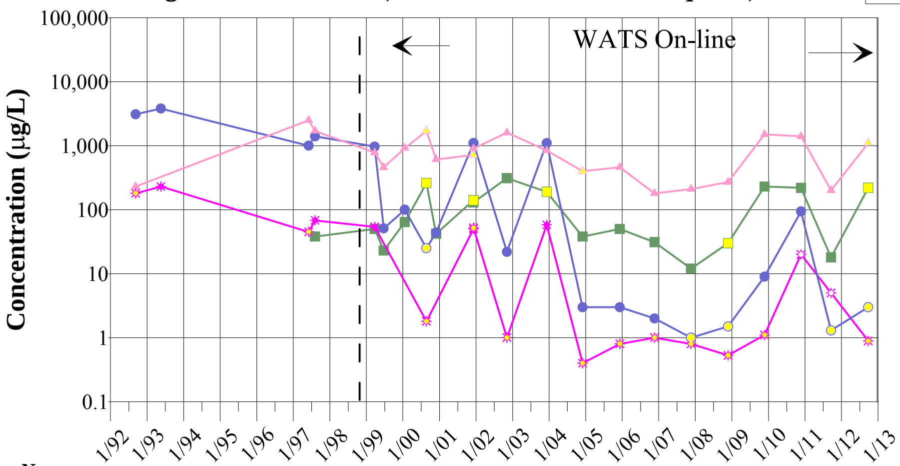
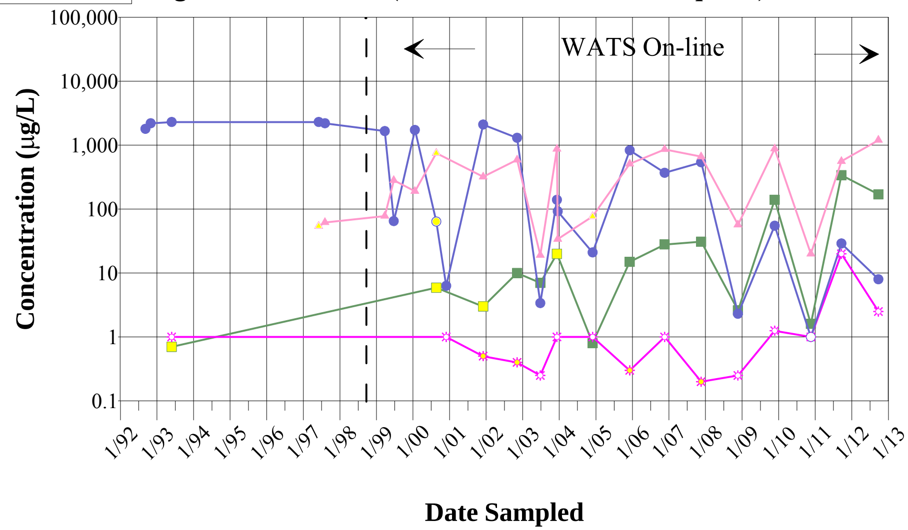


Figure 2-108 W9-34 (Lower Portion of the A Aquifer)



Date Sampled

Notes:
VOCs - Volatile Organic Compounds
µg/L - micrograms per liter
TCE - trichloroethene; cis-1,2-DCE - cis-1,2,-dichloroethene; PCE - tetrachloroethene; VC - vinyl chloride
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limits.

FIGURES 2-109 THROUGH 2-112
TIME SERIES OF VOCs CONCENTRATION PLOTS
IR SITE 28

Figure 2-109 W29-7 (Lower Portion of the A Aquifer)

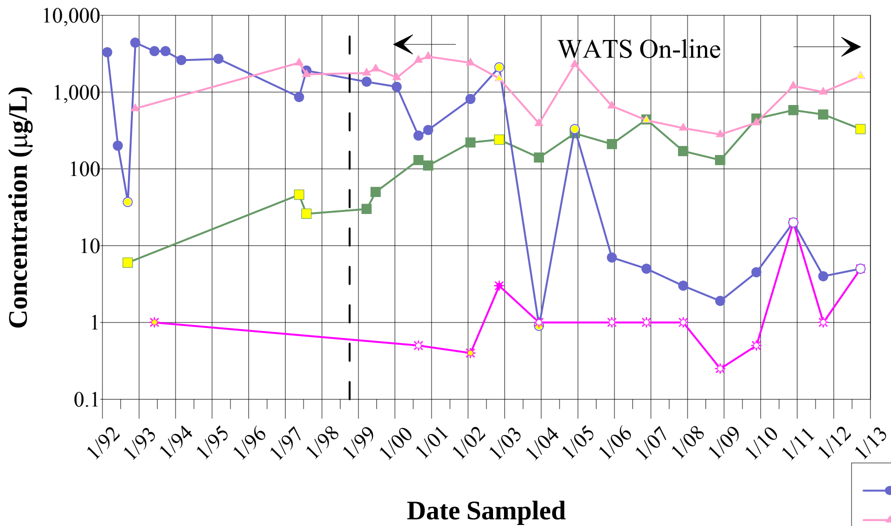
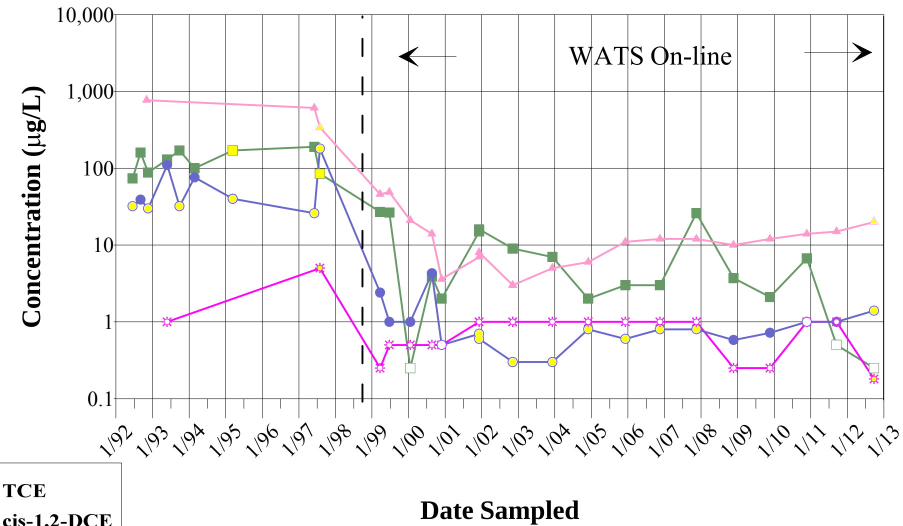


Figure 2-110 WU4-9 (Lower Portion of the A Aquifer)



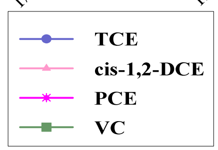
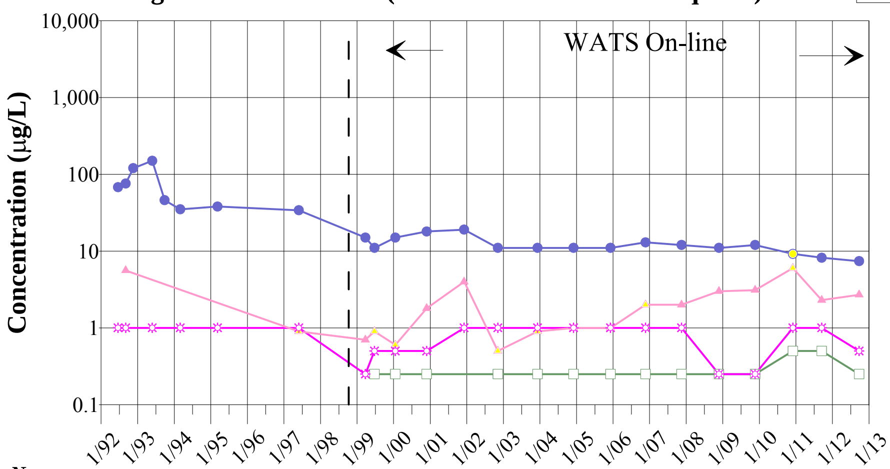
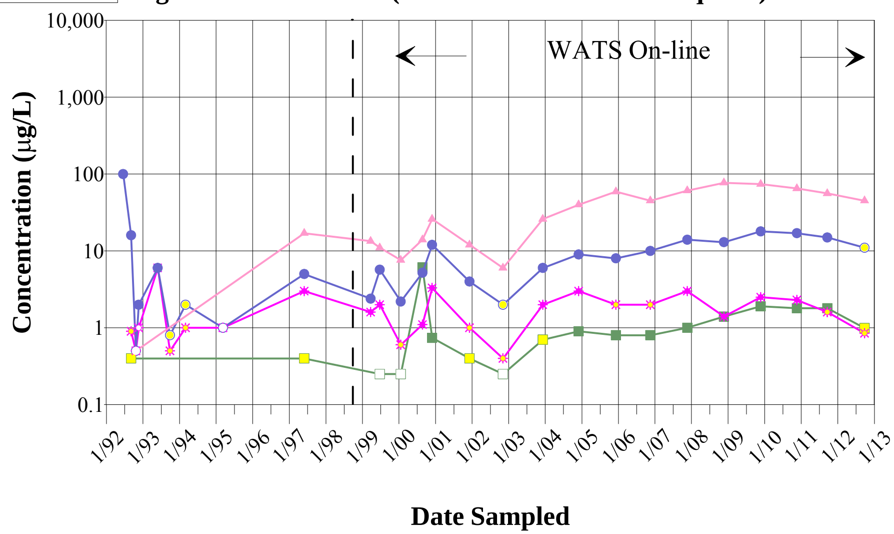


Figure 2-111 WU4-11 (Lower Portion of the A Aquifer)

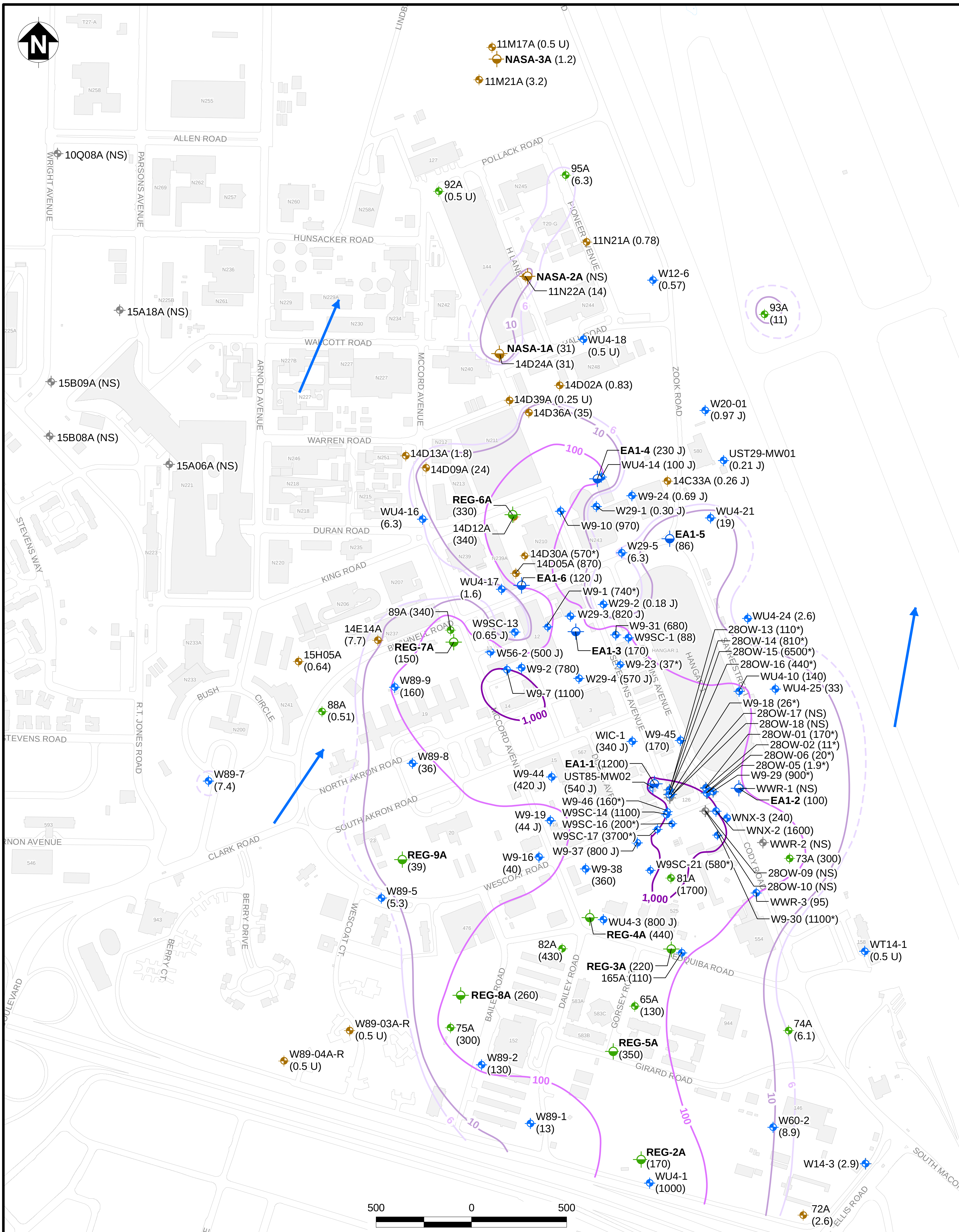


Date Sampled

Figure 2-112 WU4-15 (Lower Portion of the A Aquifer)



Notes:
VOCs - Volatile Organic Compounds
µg/L - micrograms per liter
TCE - trichloroethene; cis-1,2-DCE - cis-1,2,-dichloroethene; PCE - tetrachloroethene; VC - vinyl chloride
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limits.



NAVY EXTRACTION WELL

NAVY MONITORING WELL

MEW EXTRACTION WELL

MEW MONITORING WELL

NASA EXTRACTION WELL

NASA MONITORING WELL

MONITORING WELL, NOT SAMPLED

cis-1,2-DCE ISOCONCENTRATION CONTOUR - 1,000 µg/L

cis-1,2-DCE ISOCONCENTRATION CONTOUR - 100 µg/L

cis-1,2-DCE ISOCONCENTRATION CONTOUR - 10 µg/L

cis-1,2-DCE ISOCONCENTRATION CONTOUR - 6 µg/L (DASHED WHERE INFERRED)

GROUNDWATER FLOW DIRECTION

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

Notes:
1. Samples collected on Sept. 24-26, and Oct. 9, 2012
2. (*) Samples collected Sept. 25 - Oct. 1, 2012 (Shaw, 2012. Anaerobic Biotic/Abiotic Treatability Study, IR Site 28)
3. Due to possible dilution issues, groundwater analytical data collected from active extraction wells were not used as part of the plume contouring
4. cis-1,2-DCE concentrations shown in µg/L

µg/L- Microgram per Liter
IR - Installation Restoration
J - Estimated Value
MEW - Middlefield Ellis Whisman
NAS - Naval Air Station
NASA - National Aeronautics and Space Administration
NS - Not Sampled
U - Not Detected

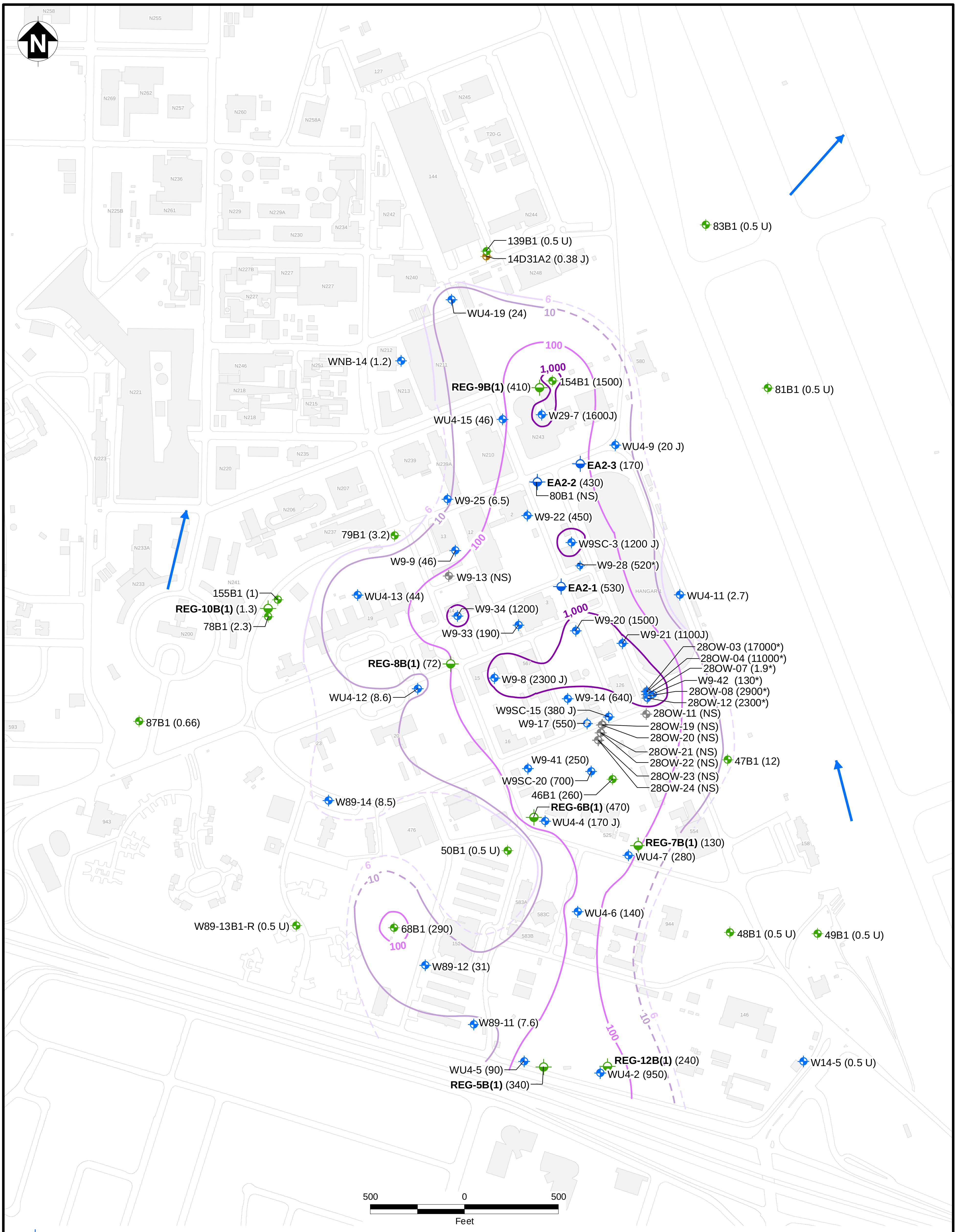
SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

2012 ANNUAL GROUNDWATER REPORT
FOR IR SITES 26 & 28

FIGURE 2-113
cis-1,2-DICHLOROETHENE (cis-1,2-DCE) DISTRIBUTION, IR SITE 28, UPPER PORTION OF THE A AQUIFER - SEPTEMBER 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



NAVY EXTRACTION WELL
NAVY MONITORING WELL
MEW EXTRACTION WELL
MEW MONITORING WELL
NASA EXTRACTION WELL
NASA MONITORING WELL
MONITORING WELL, NOT SAMPLED
cis-1,2-DCE ISOCONCENTRATION CONTOUR - 1,000 µg/L
cis-1,2-DCE ISOCONCENTRATION CONTOUR - 100 µg/L
cis-1,2-DCE ISOCONCENTRATION CONTOUR - 10 µg/L
cis-1,2-DCE ISOCONCENTRATION CONTOUR - 6 µg/L (DASHED WHERE INFERRED)

GROUNDWATER FLOW DIRECTION
ROAD
FACILITY INFRASTRUCTURE
WATER
WETLAND

Notes:
1. Samples collected on Sept. 24-26, and Oct. 9, 2012
2. (*) Samples collected Sept. 25 - Oct. 1, 2012 (Shaw, 2012. Anaerobic Biotic/Abiotic Treatability Study, IR Site 28)
3. Due to possible dilution issues, groundwater analytical data collected from active extraction wells were not used as part of the plume contouring
4. cis-1,2-DCE concentrations shown in µg/L

µg/L- Microgram per Liter
IR - Installation Restoration
J - Estimated Value
MEW - Middlefield Ellis Whisman
NAS - Naval Air Station
NASA - National Aeronautics and Space Administration
NS - Not Sampled
U - Not Detected

SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

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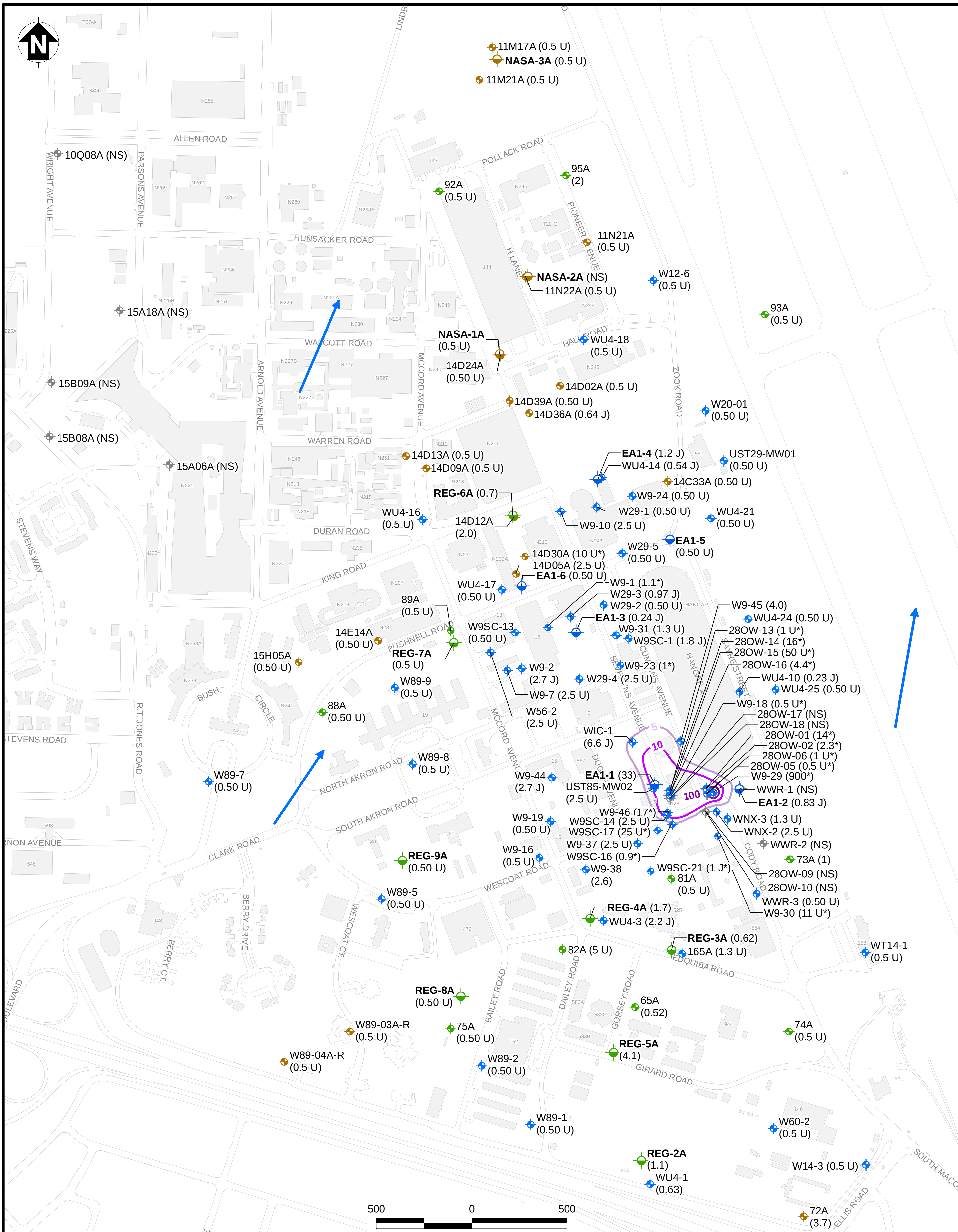
FIGURE 2-114
cis-1,2-DICHLOROETHENE (cis-1,2-DCE) DISTRIBUTION, IR SITE 28, LOWER PORTION OF THE A AQUIFER - SEPTEMBER 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



NAVY EXTRACTION WELL

NAVY MONITORING WELL

MEW EXTRACTION WELL

MEW MONITORING WELL

NASA EXTRACTION WELL

NASA MONITORING WELL

MONITORING WELL, NOT SAMPLED

PCE ISOCONCENTRATION CONTOUR - 100 µg/L

PCE ISOCONCENTRATION CONTOUR - 10 µg/L

PCE ISOCONCENTRATION CONTOUR - 5 µg/L

GROUNDWATER FLOW DIRECTION

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

Notes:
1. Samples collected on Sept. 24-26, and Oct. 9, 2012
2. (*) Samples collected Sept. 25 - Oct. 1, 2012 (Shaw, 2012. Anaerobic Biotic/Abiotic Treatability Study, IR Site 28)
3. Due to possible dilution issues, groundwater analytical data collected from active extraction wells were not used as part of the plume contouring
4. PCE concentrations shown in µg/L

µg/L- Microgram per Liter
IR - Installation Restoration
J - Estimated Value
MEW - Middlefield Ellis Whisman
NAS - Naval Air Station
NASA - National Aeronautics and Space Administration
NS - Not Sampled
U - Not Detected

SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

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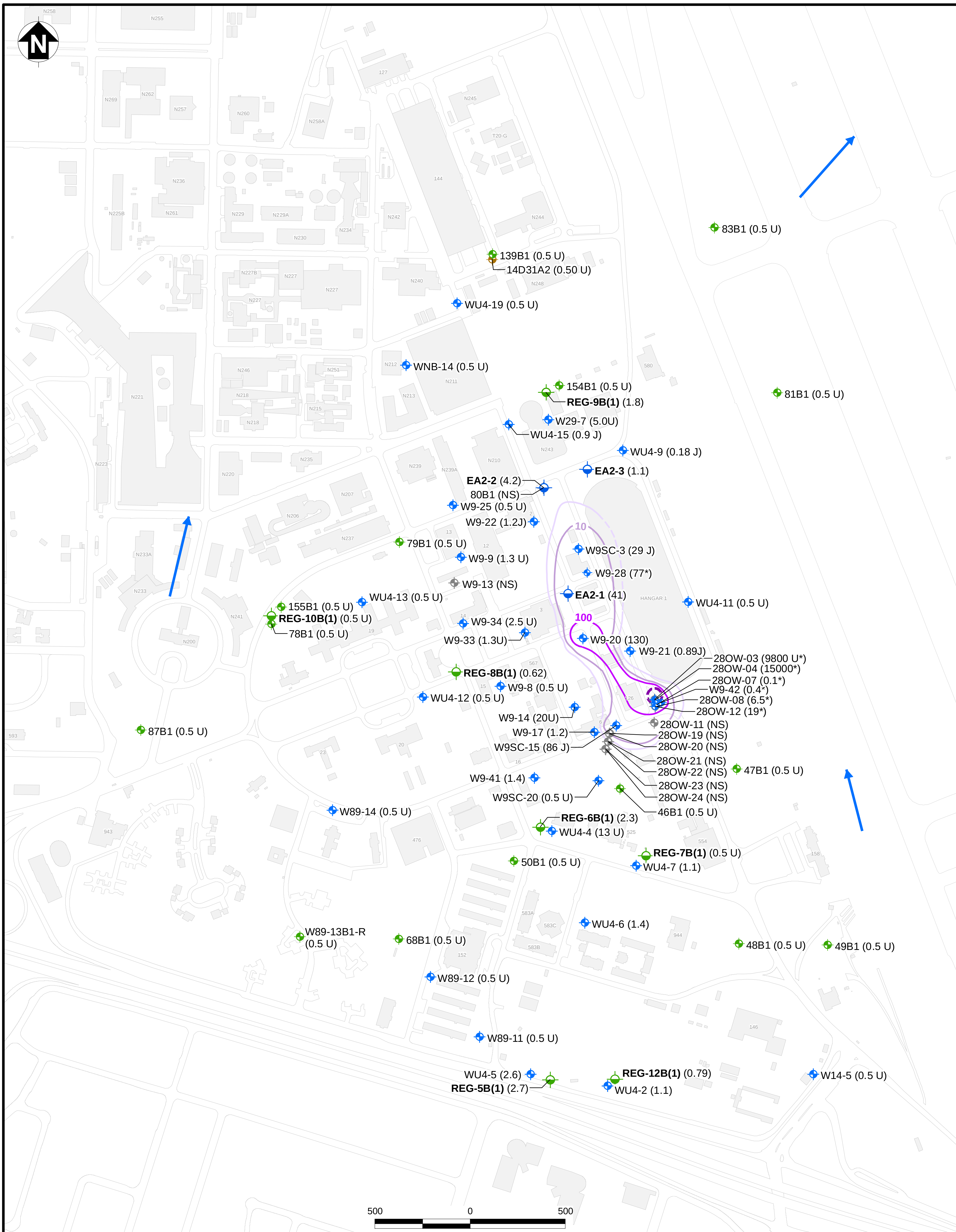
FIGURE 2-115
TETRACHLOROETHENE (PCE) DISTRIBUTION, IR SITE 28, UPPER PORTION OF THE A AQUIFER - SEPTEMBER 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



NAVY EXTRACTION WELL
NAVY MONITORING WELL
MEW EXTRACTION WELL
MEW MONITORING WELL
NASA EXTRACTION WELL
NASA MONITORING WELL
MONITORING WELL, NOT SAMPLED
PCE ISOCONCENTRATION CONTOUR - 1000 µg/L (DASHED WHERE INFERRED)
PCE ISOCONCENTRATION CONTOUR - 100 µg/L
PCE ISOCONCENTRATION CONTOUR - 10 µg/L
PCE ISOCONCENTRATION CONTOUR - 5 µg/L (DASHED WHERE INFERRED)

GROUNDWATER FLOW DIRECTION
ROAD
FACILITY INFRASTRUCTURE
WATER
WETLAND

Notes:
1. Samples collected on Sept. 24-26, and Oct. 9, 2012
2. (*) Samples collected Sept. 25 - Oct. 1, 2012 (Shaw, 2012. Anaerobic Biotic/Abiotic Treatability Study, IR Site 28)
3. Due to possible dilution issues, groundwater analytical data collected from active extraction wells were not used as part of the plume contouring
4. PCE concentrations shown in µg/L

µg/L- Microgram per Liter
IR - Installation Restoration
J - Estimated Value
MEW - Middlefield Ellis Whisman
NAS - Naval Air Station
NASA - National Aeronautics and Space Administration
NS - Not Sampled
U - Not Detected

SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

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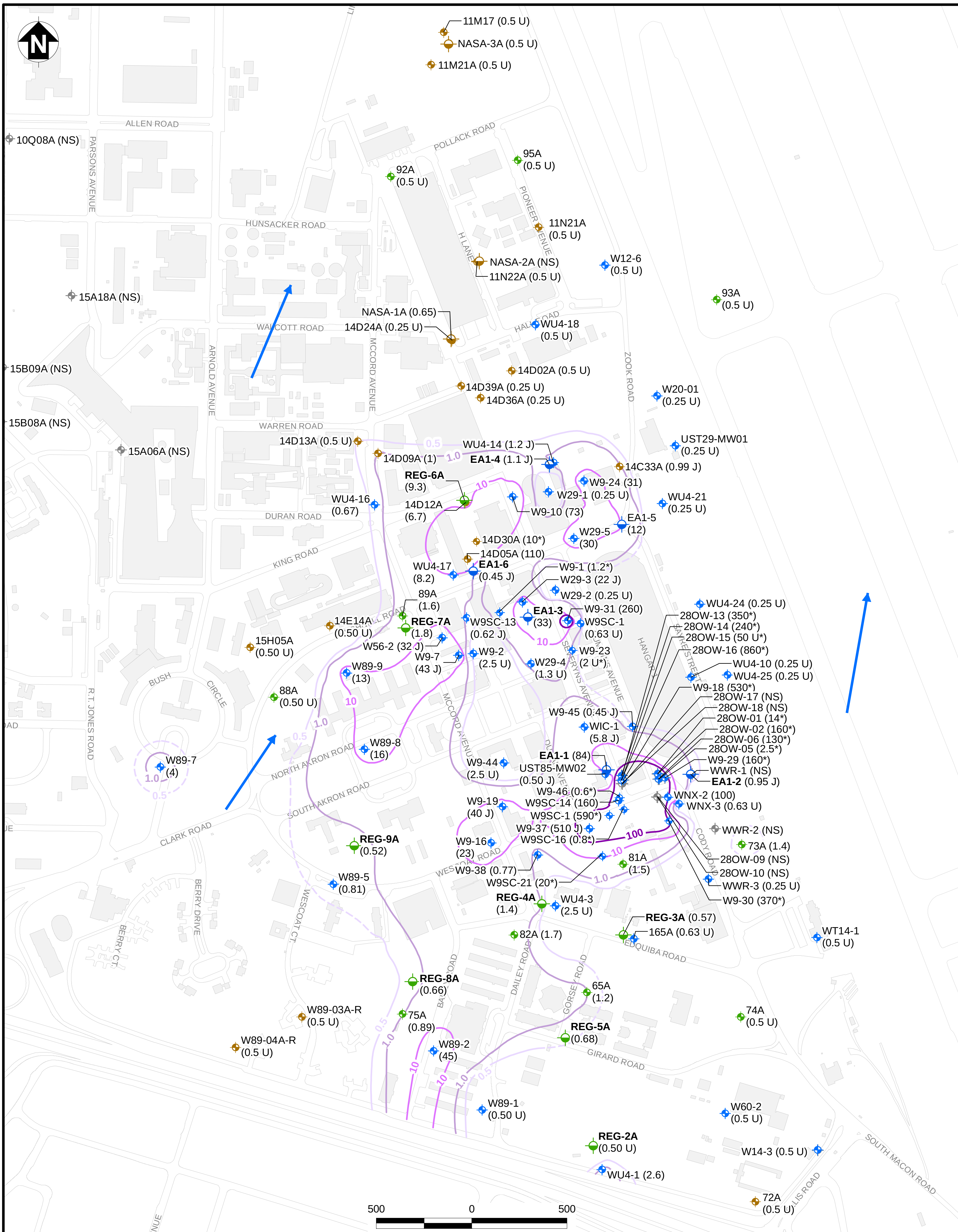
FIGURE 2-116
TETRACHLOROETHENE (PCE) DISTRIBUTION, IR SITE 28, LOWER PORTION OF THE A AQUIFER - SEPTEMBER 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



- NAVY EXTRACTION WELL
- NAVY MONITORING WELL
- MEW EXTRACTION WELL
- MEW MONITORING WELL
- NASA EXTRACTION WELL
- NASA MONITORING WELL
- MONITORING WELL, NOT SAMPLED
- VC ISOCONCENTRATION CONTOUR - 100 µg/L
- VC ISOCONCENTRATION CONTOUR - 10 µg/L
- VC ISOCONCENTRATION CONTOUR - 1.0 µg/L
- VC ISOCONCENTRATION CONTOUR - 0.5 µg/L (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- ROAD
- FACILITY INFRASTRUCTURE
- WATER
- WETLAND

Notes:
1. Samples collected on Sept. 24-26, and Oct. 9, 2012
2. (*) Samples collected Sept. 25 - Oct. 1, 2012 (Shaw, 2012. Anaerobic Biotic/Abiotic Treatability Study, IR Site 28)
3. Due to possible dilution issues, groundwater analytical data collected from active extraction wells were not used as part of the plume contouring
4. VC concentrations shown in µg/L

µg/L- Microgram per Liter
IR - Installation Restoration
J - Estimated Value
MEW - Middlefield Ellis Whisman
NAS - Naval Air Station
NASA - National Aeronautics and Space Administration
NS - Not Sampled
U - Not Detected

SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

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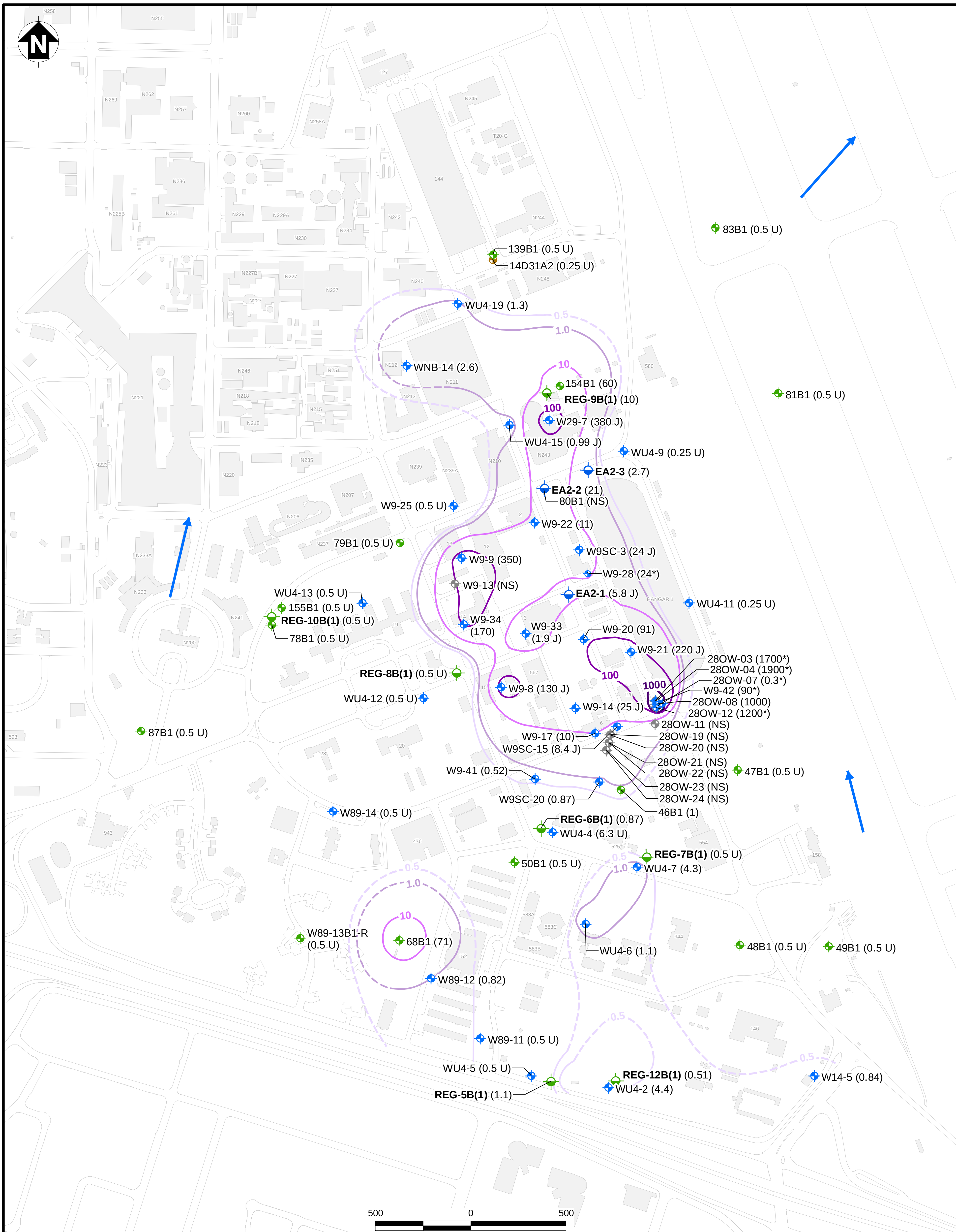
FIGURE 2-117
VINYL CHLORIDE (VC) DISTRIBUTION, IR SITE 28, UPPER PORTION OF THE A AQUIFER - SEPTEMBER 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



NAVY EXTRACTION WELL
NAVY MONITORING WELL
MEW EXTRACTION WELL
MEW MONITORING WELL
NASA EXTRACTION WELL
NASA MONITORING WELL
MONITORING WELL, NOT SAMPLED
VC ISOCONCENTRATION CONTOUR - 1000 µg/L
VC ISOCONCENTRATION CONTOUR - 100 µg/L
VC ISOCONCENTRATION CONTOUR - 10 µg/L
VC ISOCONCENTRATION CONTOUR - 1.0 µg/L (DASHED WHERE INFERRED)
VC ISOCONCENTRATION CONTOUR - 0.5 µg/L (DASHED WHERE INFERRED)

GROUNDWATER FLOW DIRECTION
ROAD
FACILITY INFRASTRUCTURE
WATER
WETLAND

Notes:
1. Samples collected on Sept. 24-26, and Oct. 9, 2012
2. (*) Samples collected Sept. 25 - Oct. 1, 2012 (Shaw, 2012. Anaerobic Biotic/Abiotic Treatability Study, IR Site 28)
3. Due to possible dilution issues, groundwater analytical data collected from active extraction wells were not used as part of the plume contouring
4. VC concentrations shown in µg/L

µg/L- Microgram per Liter
IR - Installation Restoration
J - Estimated Value
MEW - Middlefield Ellis Whisman
NAS - Naval Air Station
NASA - National Aeronautics and Space Administration
NS - Not Sampled
U - Not Detected

SEALASKA ENVIRONMENTAL

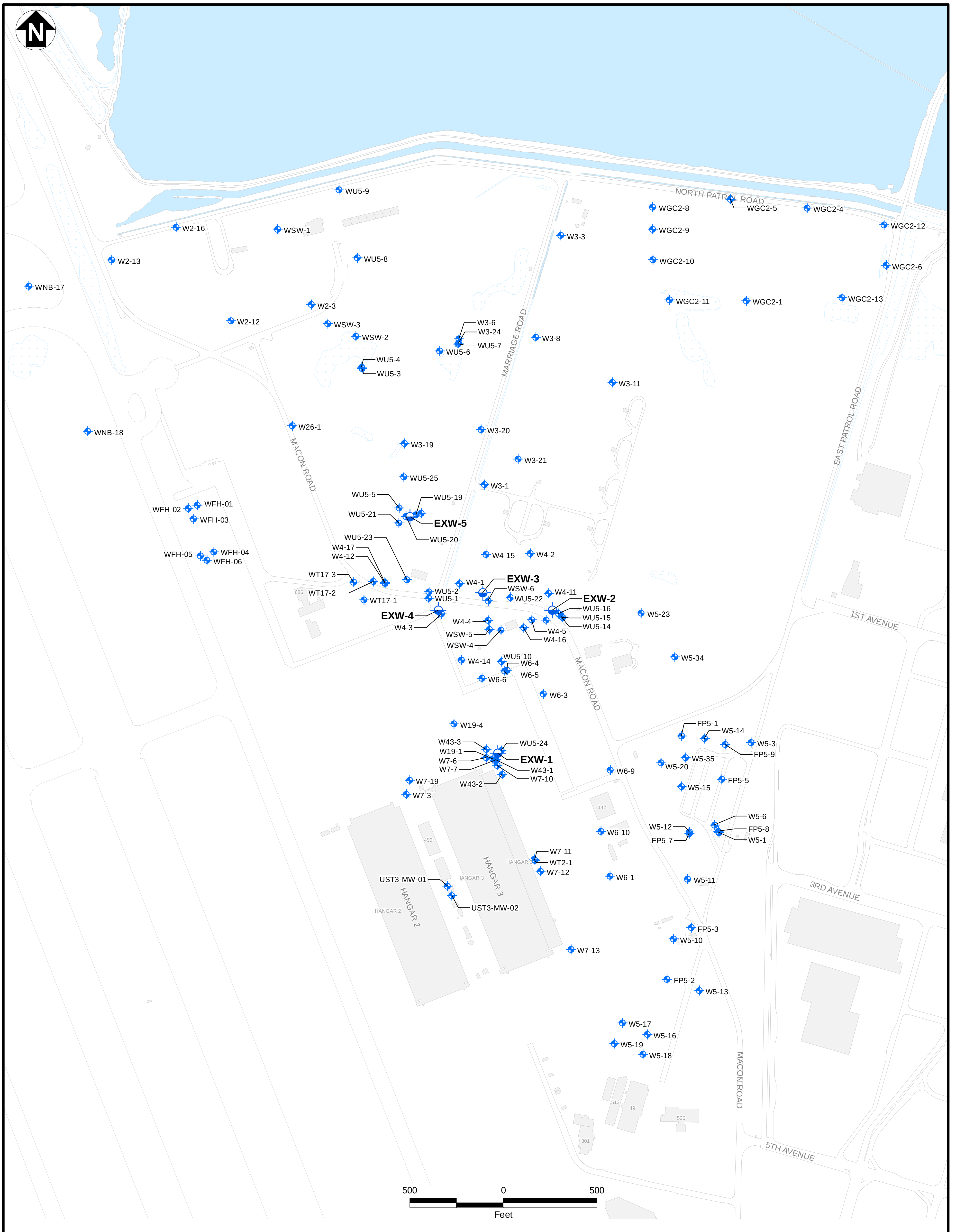
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

2012 ANNUAL GROUNDWATER REPORT
FOR IR SITES 26 & 28

FIGURE 2-118

VINYL CHLORIDE (VC) DISTRIBUTION, IR SITE 28, LOWER PORTION OF THE A AQUIFER - SEPTEMBER 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



NAVY EXTRACTION WELL

NAVY MONITORING WELL

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

SEALASKA ENVIRONMENTAL

Notes:

IR - Installation Restoration
NAS - Naval Air Station

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

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FIGURE 3-1
MONITORING AND EXTRACTION WELL LOCATION MAP, IR SITE 26, UPPER PORTION OF THE A AQUIFER

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA

FIGURES 3- 2 THROUGH 3- 5
HYDROGRAPHS
IR SITE 26

Figure 3- 2 W4-3 (Upper Portion of the A Aquifer)

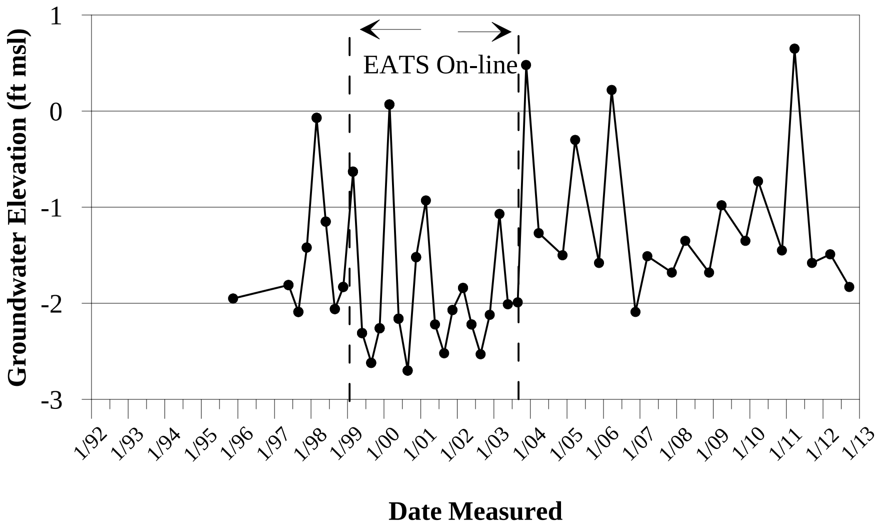


Figure 3- 3 W7-10 (Upper Portion of the A Aquifer)

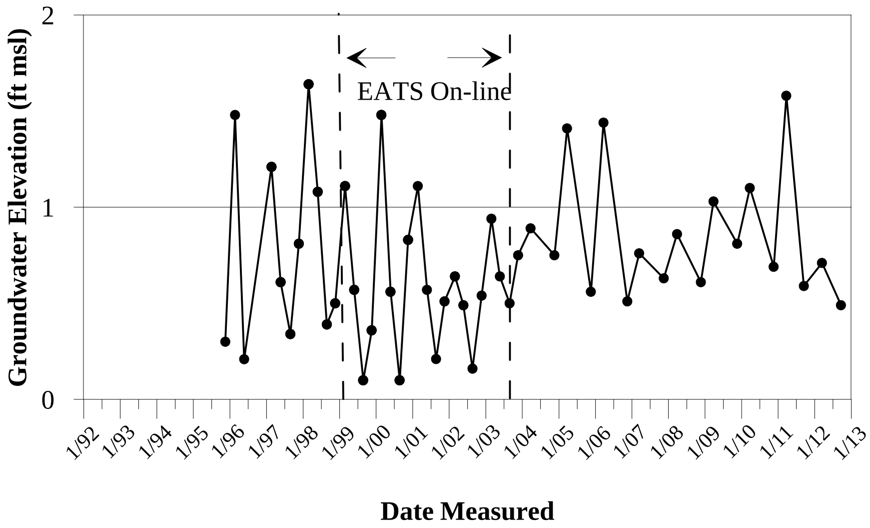


Figure 3- 4 WSW-6 (Upper Portion of the A Aquifer)

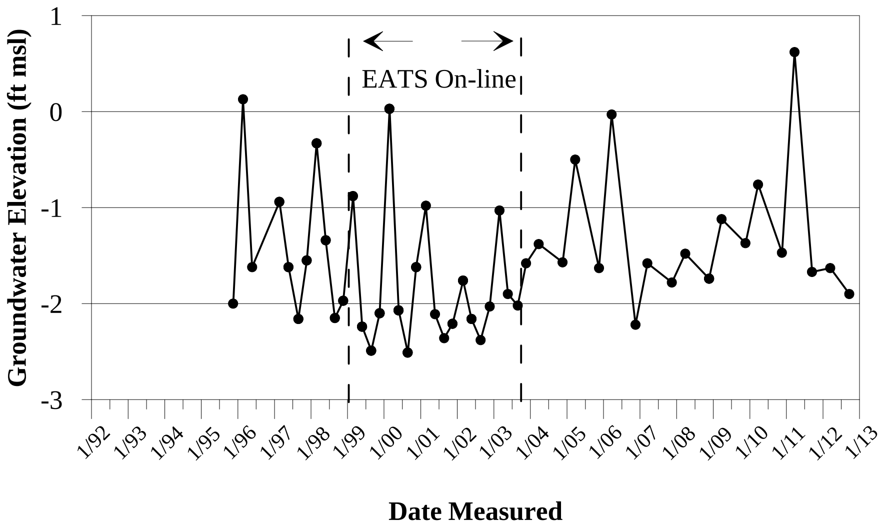
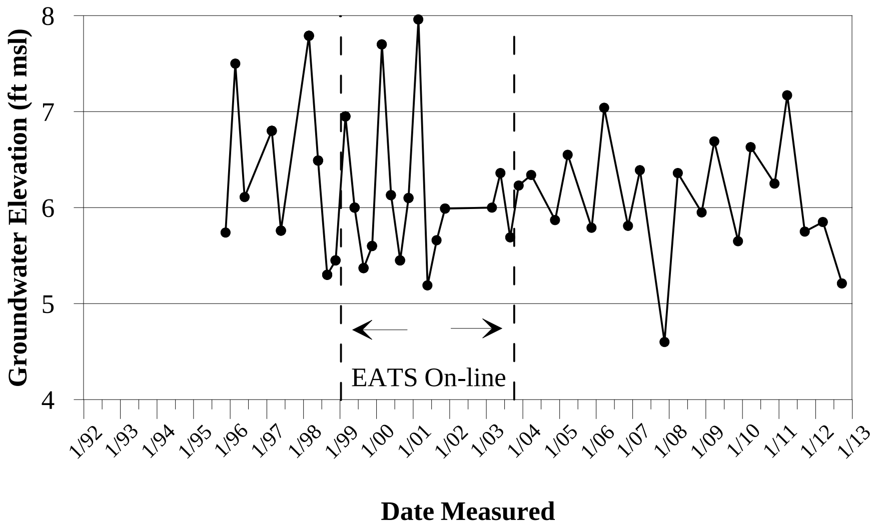


Figure 3- 5 W5-18 (Upper Portion of the A Aquifer)



Notes:
ft msl - feet mean sea level

FIGURES 3- 6 THROUGH 3- 9
HYDROGRAPHS
IR SITE 26

Figure 3- 6 W5-23 (Upper Portion of the A Aquifer)

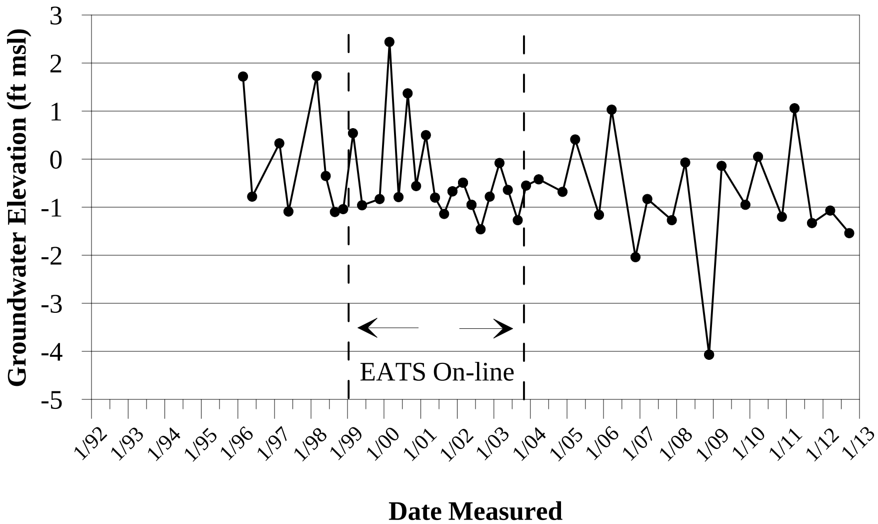


Figure 3- 7 W10-2 (Upper Portion of the A Aquifer)

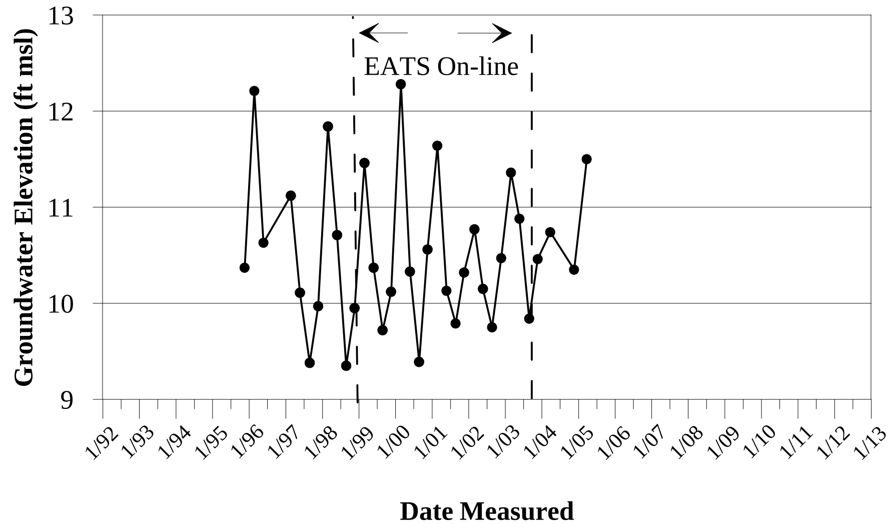


Figure 3- 8 W19-4 (Upper Portion of the A Aquifer)

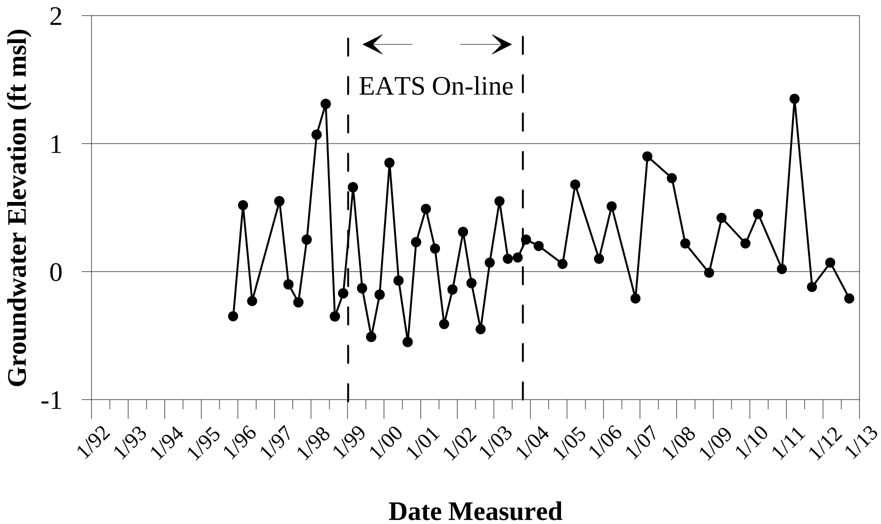
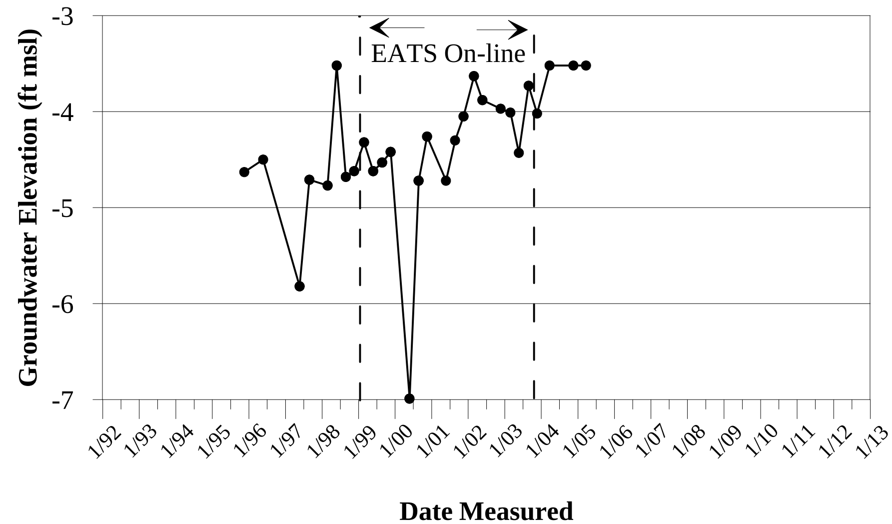


Figure 3- 9 W3-12 (Lower Portion of the A Aquifer)



Notes:
ft msl - feet mean sea level

FIGURES 3-10 THROUGH 3-13
HYDROGRAPHS
IR SITE 26

Figure 3-10 W3-13 (Lower Portion of the A Aquifer)

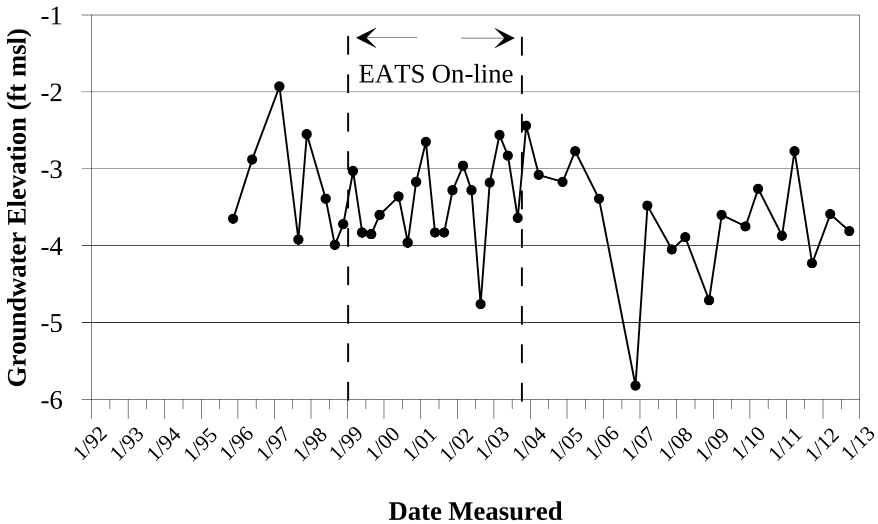


Figure 3-11 W5-7 (Lower Portion of the A Aquifer)

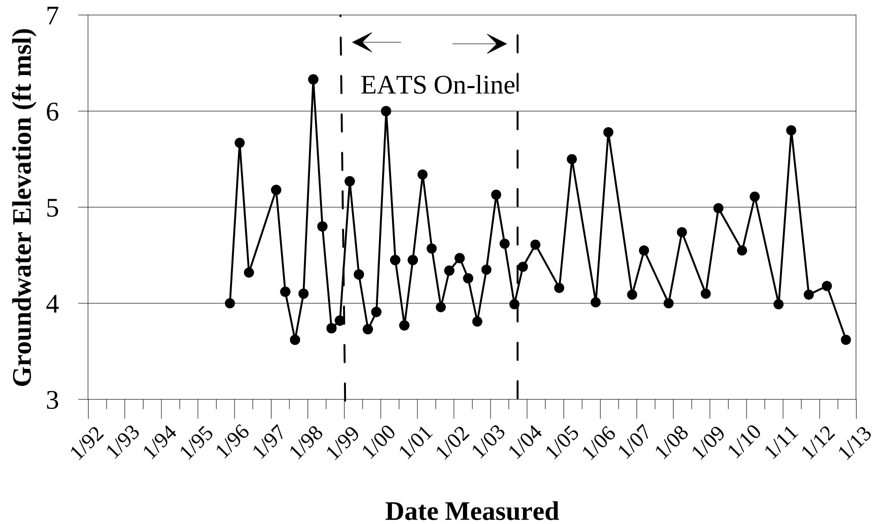


Figure 3-12 W5-8 (Lower Portion of the A Aquifer)

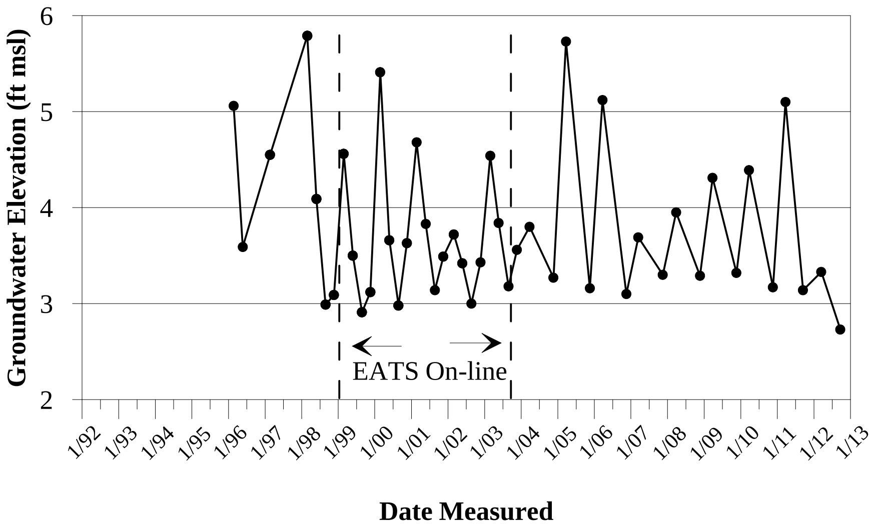
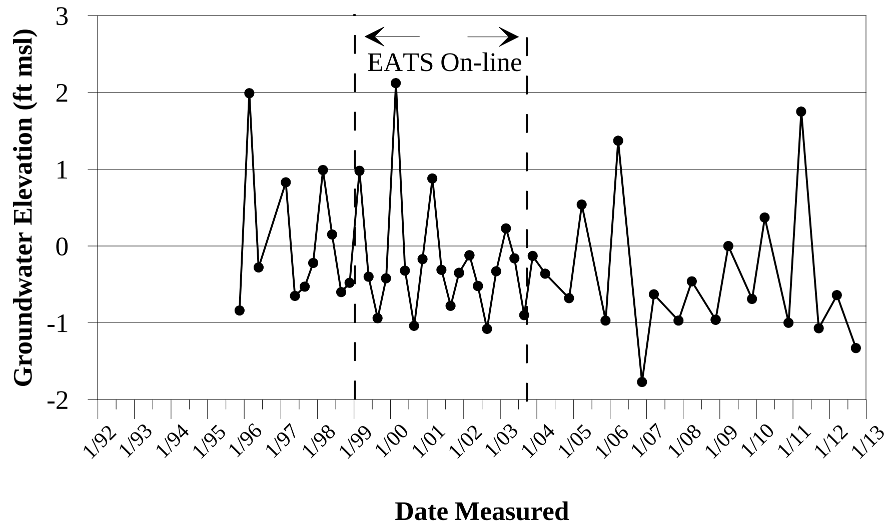


Figure 3-13 W5-25 (Lower Portion of the A Aquifer)



Notes:
ft msl - feet mean sea level

FIGURES 3-14 THROUGH 3-17
HYDROGRAPHS
IR SITE 26

Figure 3-14 W19-2 (Lower Portion of the A Aquifer)

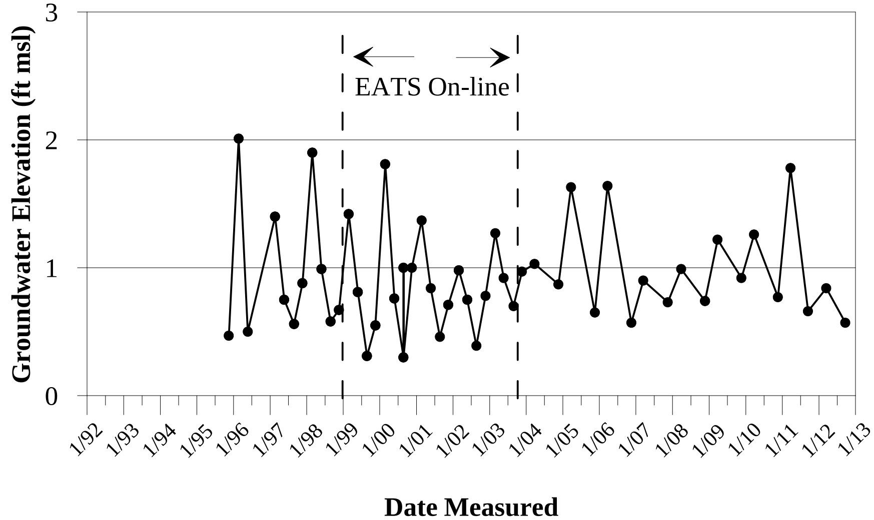


Figure 3-15 W19-3 (Lower Portion of the A Aquifer)

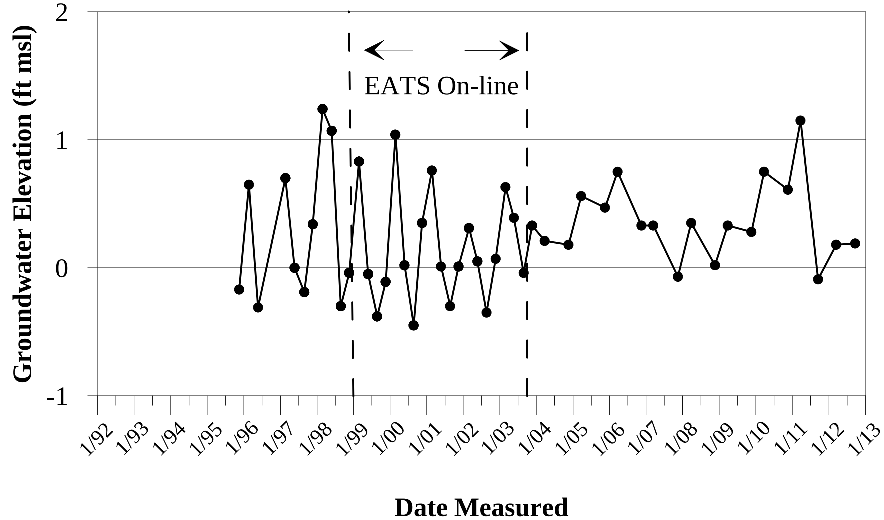


Figure 3-16 W4-13 (B Aquifer)

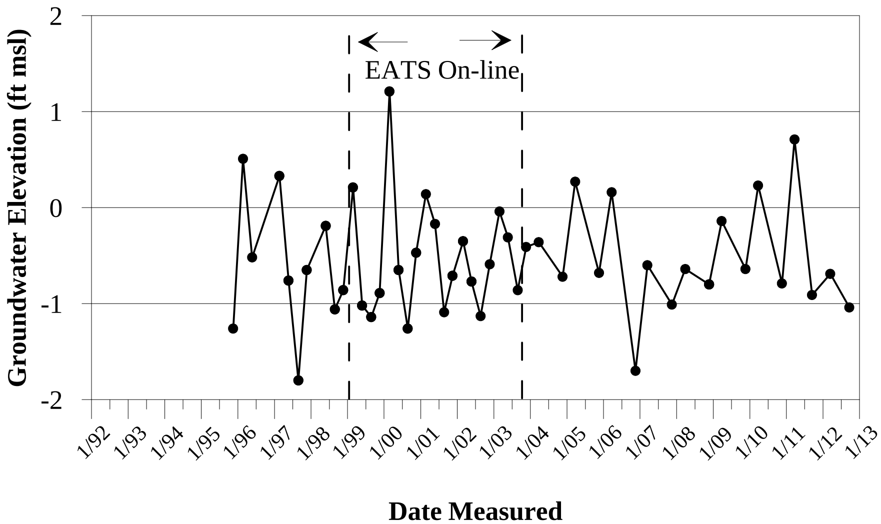
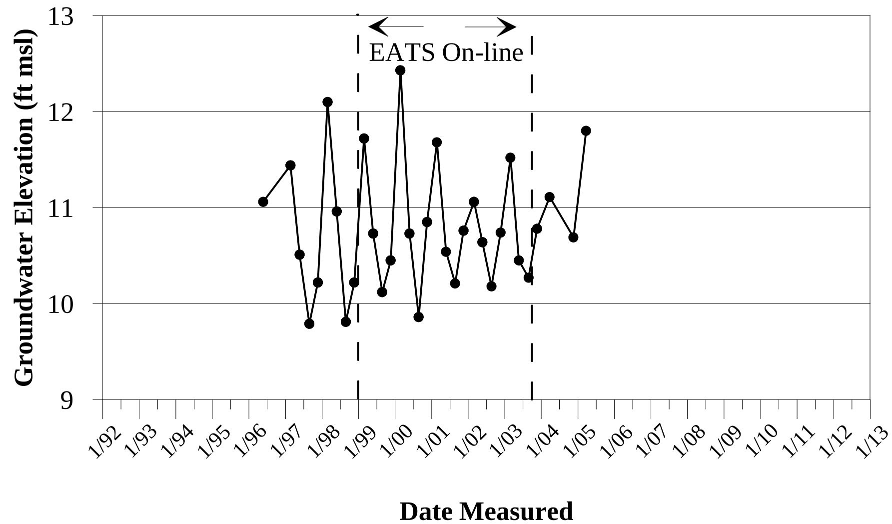


Figure 3-17 W10-3 (B Aquifer)



Notes:
ft msl - feet mean sea level

NAVY EXTRACTION WELL

NAVY MONITORING WELL

NAVY MONITORING WELL, NOT USED FOR GROUNDWATER ELEVATION CONTOURING

(5.5) GROUNDWATER ELEVATION

20 GROUNDWATER CONTOUR

GROUNDWATER FLOW DIRECTION

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

Notes:

1. Groundwater level measured on March 15, 2012
2. Groundwater elevation shown in feet amsl

AMSL - Above Mean Sea Level
IR - Installation Restoration
NAS - Naval Air Station
NM - Not Measured

SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

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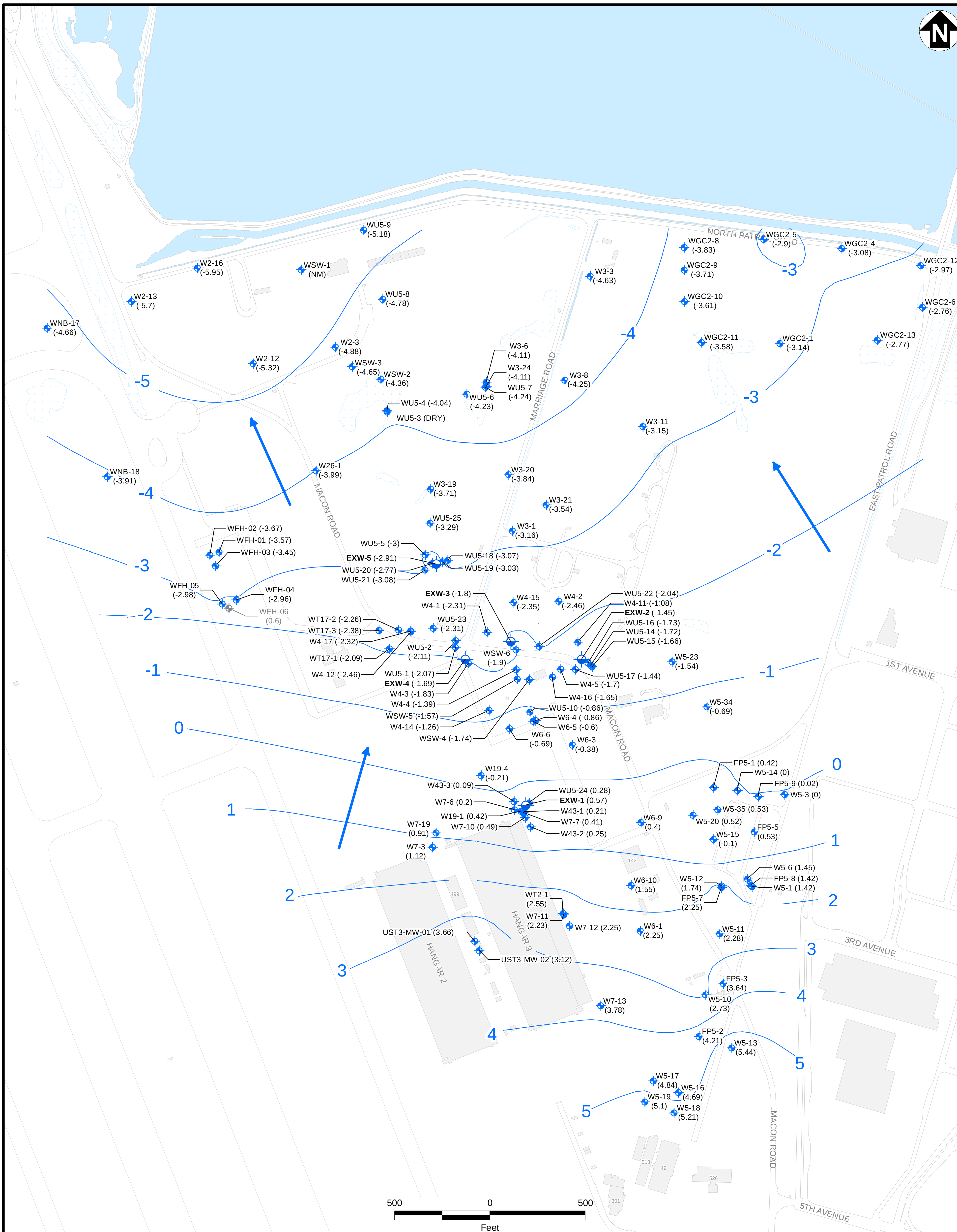
FIGURE 3-18
POTENTIOMETRIC SURFACE MAP, IR SITE 26, UPPER PORTION OF THE A AQUIFER - MARCH 15, 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



NAVY EXTRACTION WELL

NAVY MONITORING WELL

NAVY MONITORING WELL, NOT USED FOR GROUNDWATER ELEVATION CONTOURING

(5.5) GROUNDWATER ELEVATION

20 GROUNDWATER CONTOUR

GROUNDWATER FLOW DIRECTION

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

Notes:

Groundwater level measured on September 21, 2012
Groundwater elevation shown in feet amsl

AMSL - Above Mean Sea Level
DRY - Dry Well
IR - Installation Restoration
NM - Not Measured

SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

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FOR IR SITES 26 & 28

FIGURE 3-19

POTENTIOMETRIC SURFACE MAP, IR SITE 26, UPPER PORTION OF THE A AQUIFER - SEPTEMBER 21, 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA

FIGURES 3-20 THROUGH 3-23
TIME SERIES OF VOCs CONCENTRATION PLOTS
IR SITE 26

Figure 3-20 W4-3 (Upper Portion of the A Aquifer)

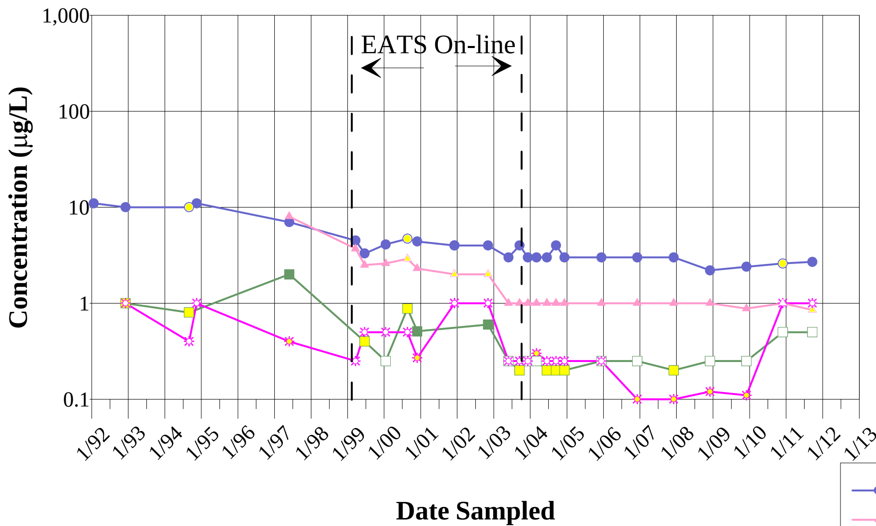
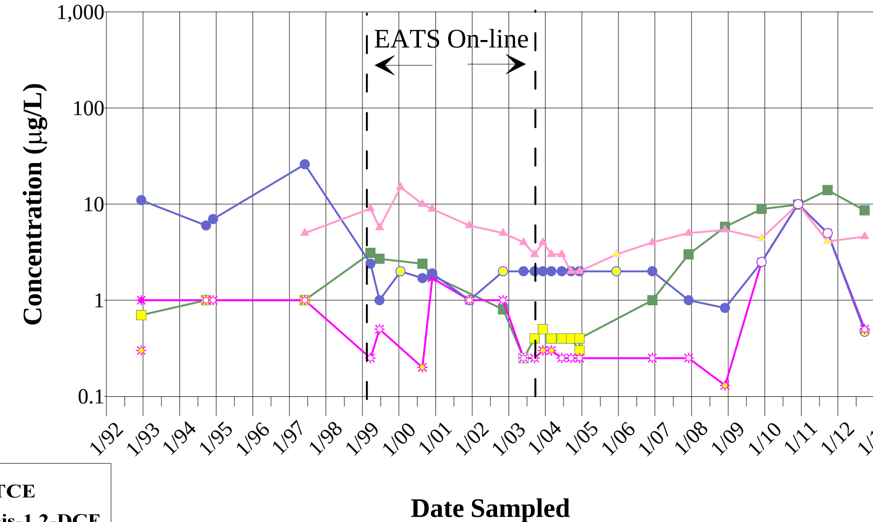


Figure 3-21 W4-14 (Upper Portion of the A Aquifer)



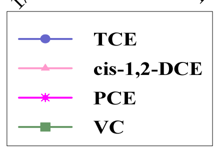


Figure 3-22 W4-15 (Upper Portion of the A Aquifer)

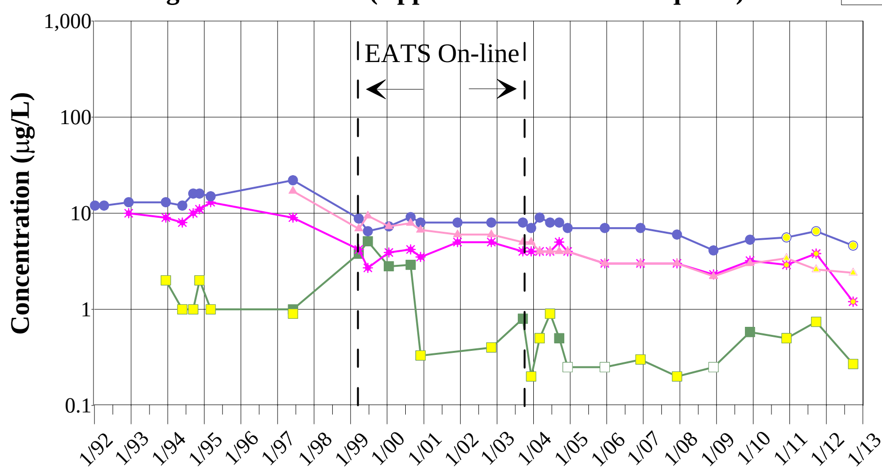
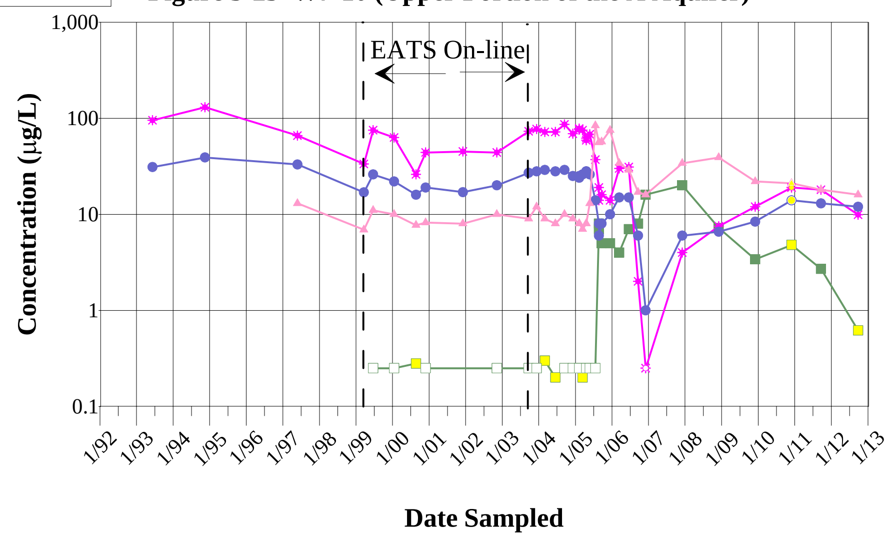


Figure 3-23 W7-10 (Upper Portion of the A Aquifer)



Notes:
VOCs - Volatile Organic Compounds
µg/L - micrograms per liter
TCE - trichloroethene; cis-1,2-DCE - cis-1,2,-dichloroethene; PCE - tetrachloroethene; VC - vinyl chloride
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limits.

FIGURES 3-24 THROUGH 3-27
TIME SERIES OF VOCs CONCENTRATION PLOTS
IR SITE 26

Figure 3-24 WSW-6 (Upper Portion of the A Aquifer)

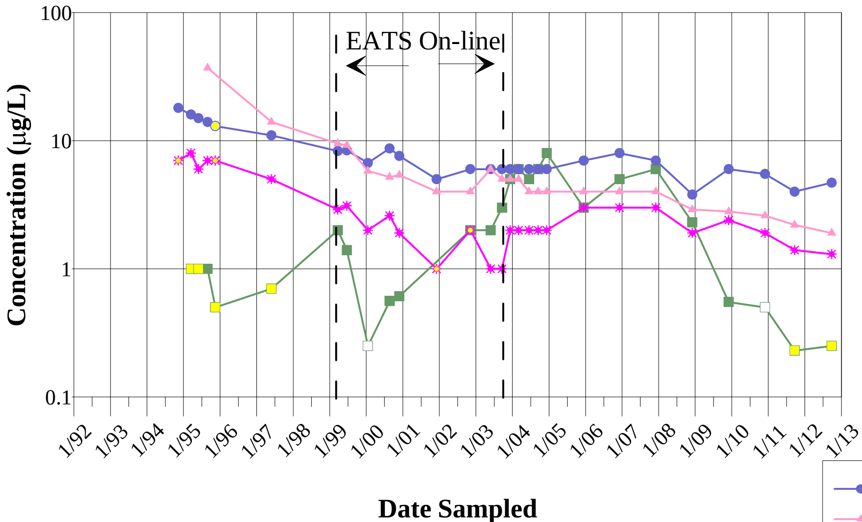
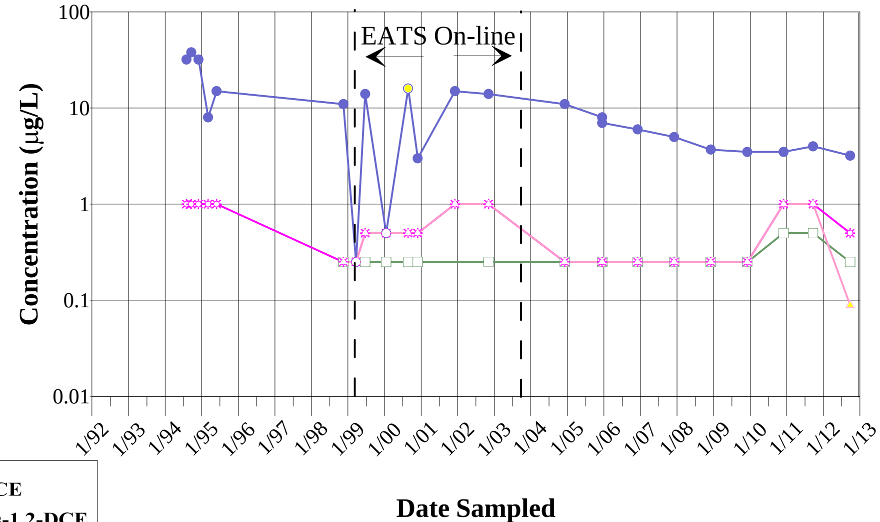


Figure 3-25 WU5-4 (Upper Portion of the A Aquifer)



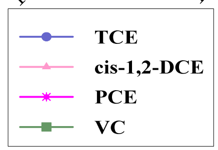


Figure 3-26 WU5-10 (Upper Portion of the A Aquifer)

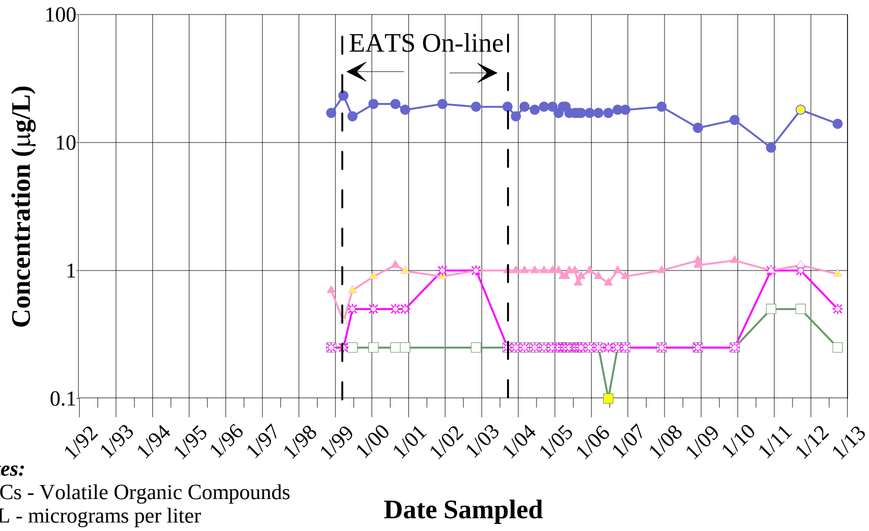
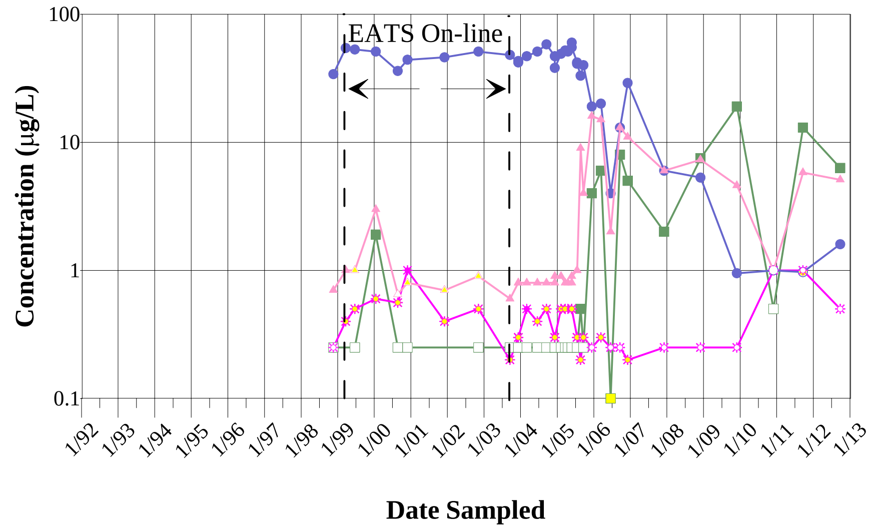


Figure 3-27 WU5-14 (Upper Portion of the A Aquifer)



Notes:
VOCs - Volatile Organic Compounds
µg/L - micrograms per liter
TCE - trichloroethene; cis-1,2-DCE - cis-1,2,-dichloroethene; PCE - tetrachloroethene; VC - vinyl chloride
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limits.

FIGURES 3-28 THROUGH 3-29
TIME SERIES OF VOCs CONCENTRATION PLOTS
IR SITE 26

Figure 3-28 WU5-21 (Upper Portion of the A Aquifer)

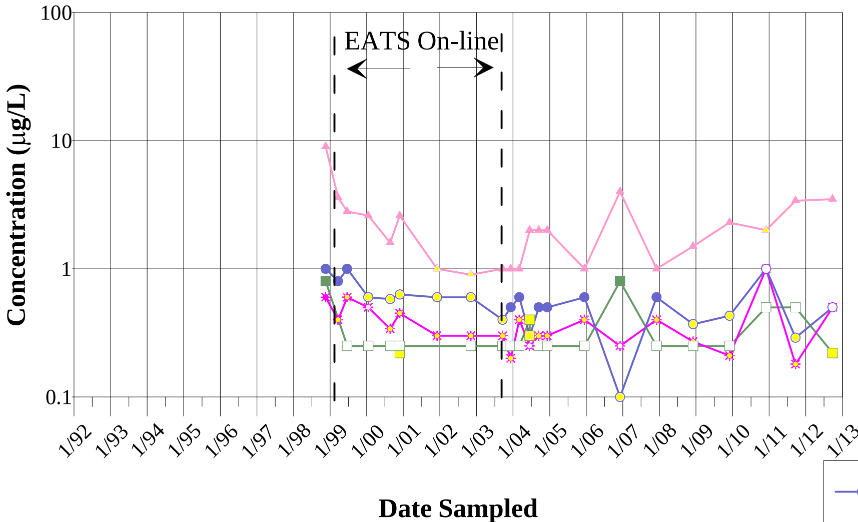
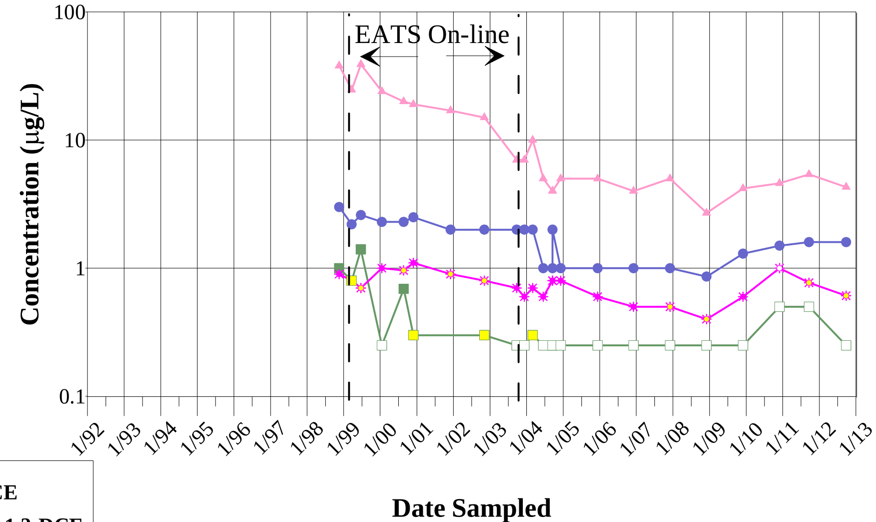
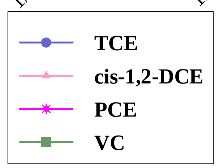
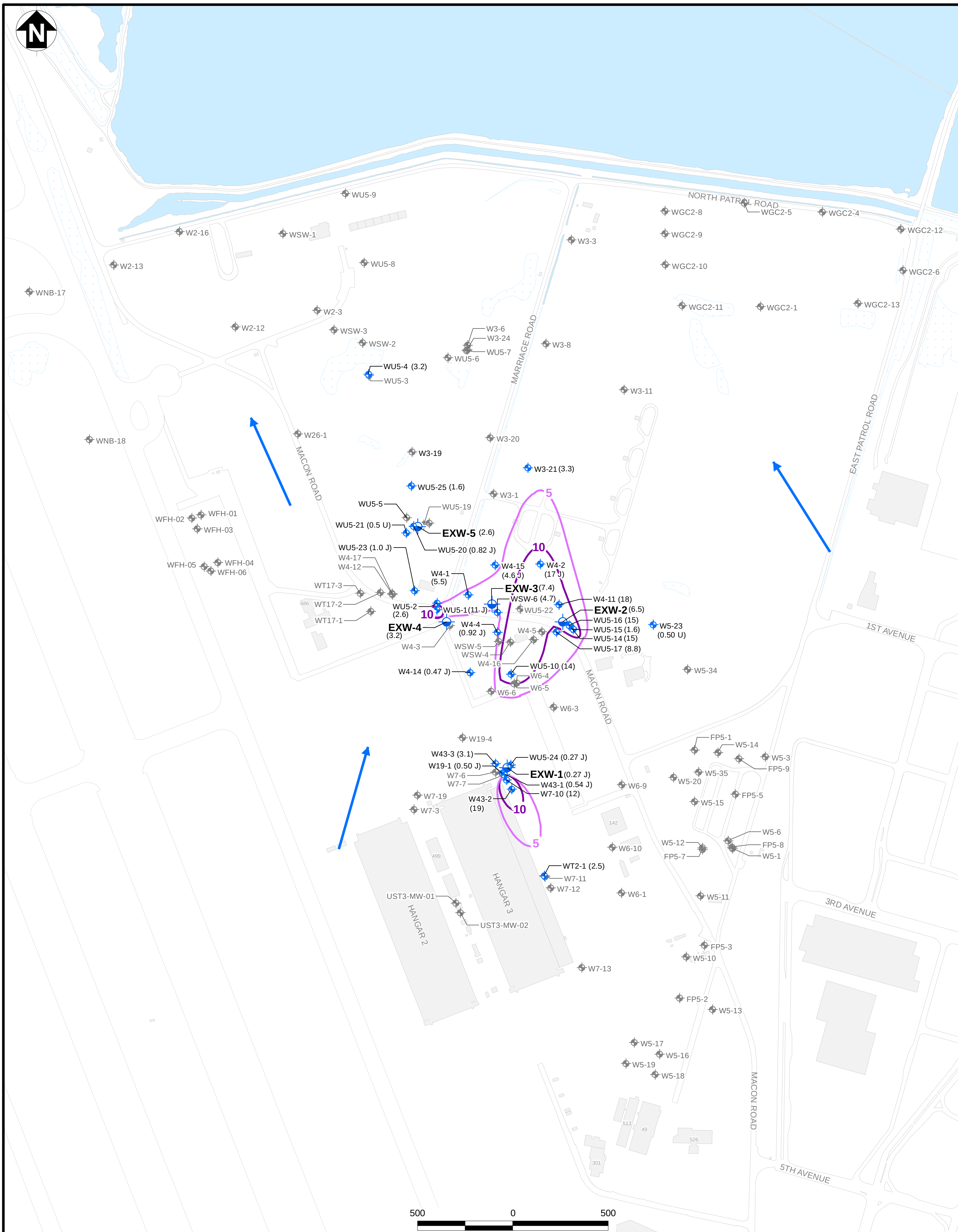


Figure 3-29 WU5-25 (Upper Portion of the A Aquifer)





Notes:
VOCs - Volatile Organic Compounds
µg/L - micrograms per liter
TCE - trichloroethene; cis-1,2-DCE - cis-1,2,-dichloroethene; PCE - tetrachloroethene; VC - vinyl chloride
Open symbols indicate non-detect values. Yellow symbols indicate estimated values. Closed-line colored symbols indicate concentrations detected.
Non-detects are plotted at the reporting limits.



NAVY EXTRACTION WELL

NAVY MONITORING WELL

NAVY MONITORING WELL (REMOVED FROM SAMPLING SCHEME ON APPROVED SCHEDULE IN THE SAP)

TCE ISOCONCENTRATION CONTOUR - 10 µg/L (DASHED WHERE INFERRED)

TCE ISOCONCENTRATION CONTOUR - 5 µg/L

GROUNDWATER FLOW DIRECTION

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

Notes:

1. Samples collected September 24-26, 2012
2. For wells within 20 ft of eachother, the highest concentration was contoured
3. TCE concentration shown in µg/L

µg/L - microgram per Liter
IR - Installation Restoration
J - Estimated Value
NAS - Naval Air Station
SAP - Sampling and Analysis Plan
U - Not Detected

SEALASKA ENVIRONMENTAL

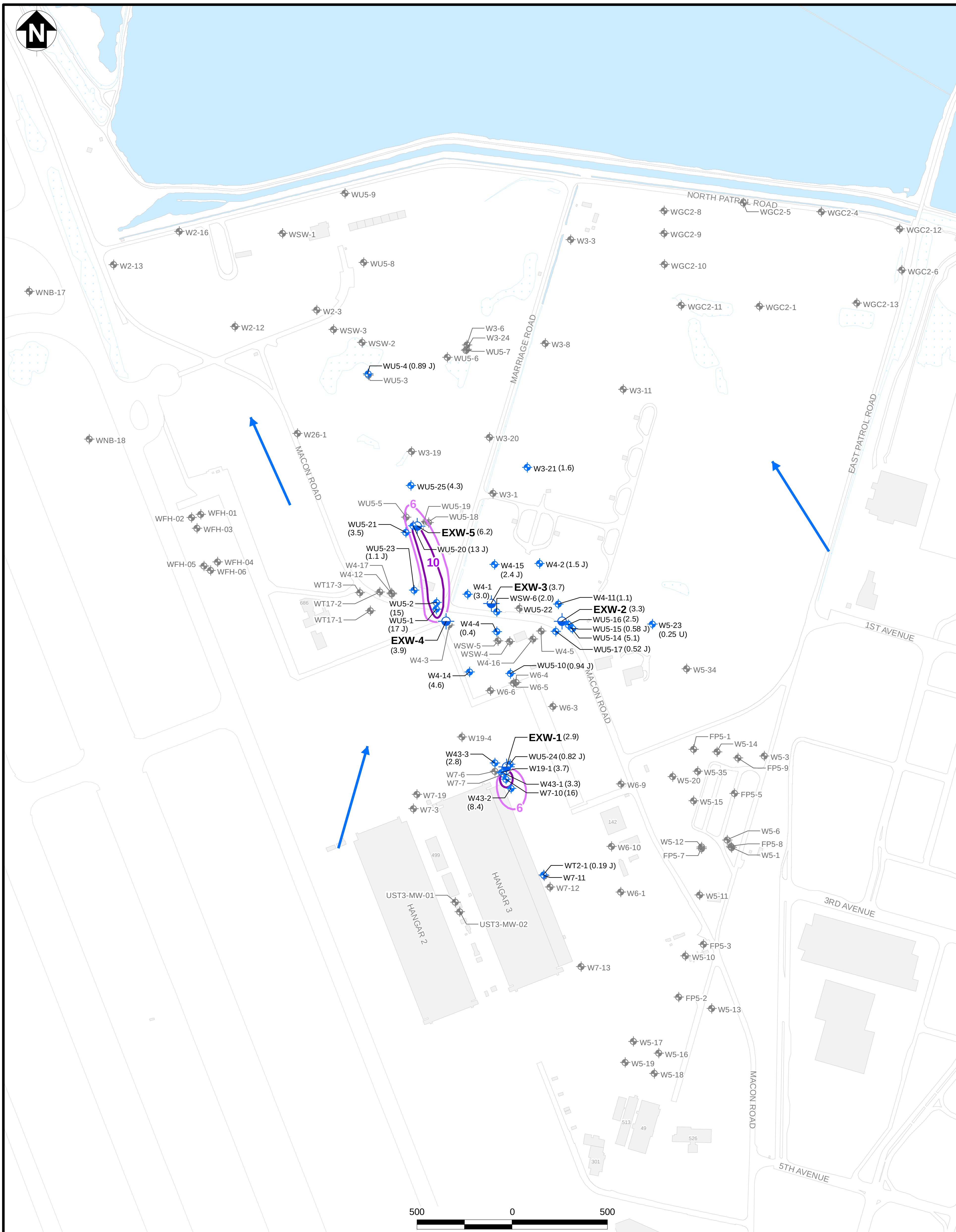
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

2012 ANNUAL GROUNDWATER REPORT
FOR IR SITES 26 & 28

FIGURE 3-30

TRICHLOROETHENE (TCE) DISTRIBUTION IR SITE 26, UPPER PORTION OF THE A AQUIFER - SEPTEMBER 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



NAVY EXTRACTION WELL

NAVY MONITORING WELL

NAVY MONITORING WELL (REMOVED FROM SAMPLING SCHEME ON APPROVED SCHEDULE IN THE SAP)

cis-1,2-DCE ISOCONCENTRATION CONTOUR - 10 µg/L

cis-1,2-DCE ISOCONCENTRATION CONTOUR - 6 µg/L

GROUNDWATER FLOW DIRECTION

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

Notes:

1. Samples collected September 24-26, 2012
2. For wells within 20 ft of eachother, the highest concentration was contoured
3. cis-1,2-DCE concentration shown in µg/L

µg/L - microgram per Liter
IR - Installation Restoration
J - Estimated Value
NAS - Naval Air Station
SAP - Sampling and Analysis Plan
U - Not Detected

SEALASKA ENVIRONMENTAL

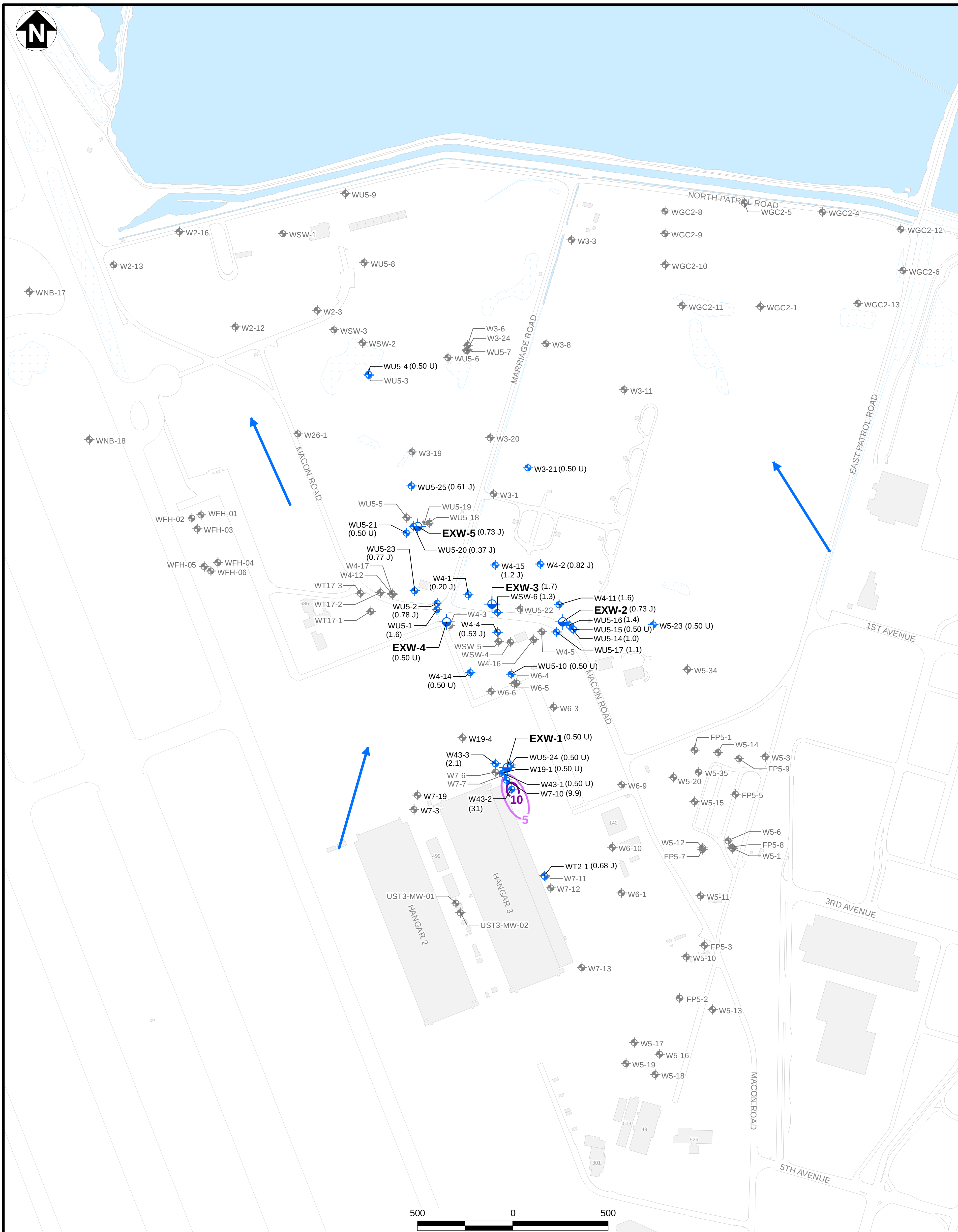
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

2012 ANNUAL GROUNDWATER REPORT
FOR IR SITES 26 & 28

FIGURE 3-31

cis-1,2-DICHLOROETHENE (cis-1,2-DCE) DISTRIBUTION, IR SITE 26, UPPER PORTION OF THE A AQUIFER - SEPTEMBER 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



NAVY EXTRACTION WELL

NAVY MONITORING WELL

NAVY MONITORING WELL (REMOVED FROM SAMPLING SCHEME ON APPROVED SCHEDULE IN THE SAP)

PCE ISOCONCENTRATION CONTOUR - 10 µg/L

PCE ISOCONCENTRATION CONTOUR - 5 µg/L

GROUNDWATER FLOW DIRECTION

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

Notes:

1. Samples collected September 24-26, 2012
2. For wells within 20 ft of eachother, the highest concentration was contoured
3. PCE concentration shown in µg/L

µg/L - microgram per Liter
IR - Installation Restoration
J - Estimated Value
NAS - Naval Air Station
SAP - Sampling and Analysis Plan
U - Not Detected

SEALASKA ENVIRONMENTAL

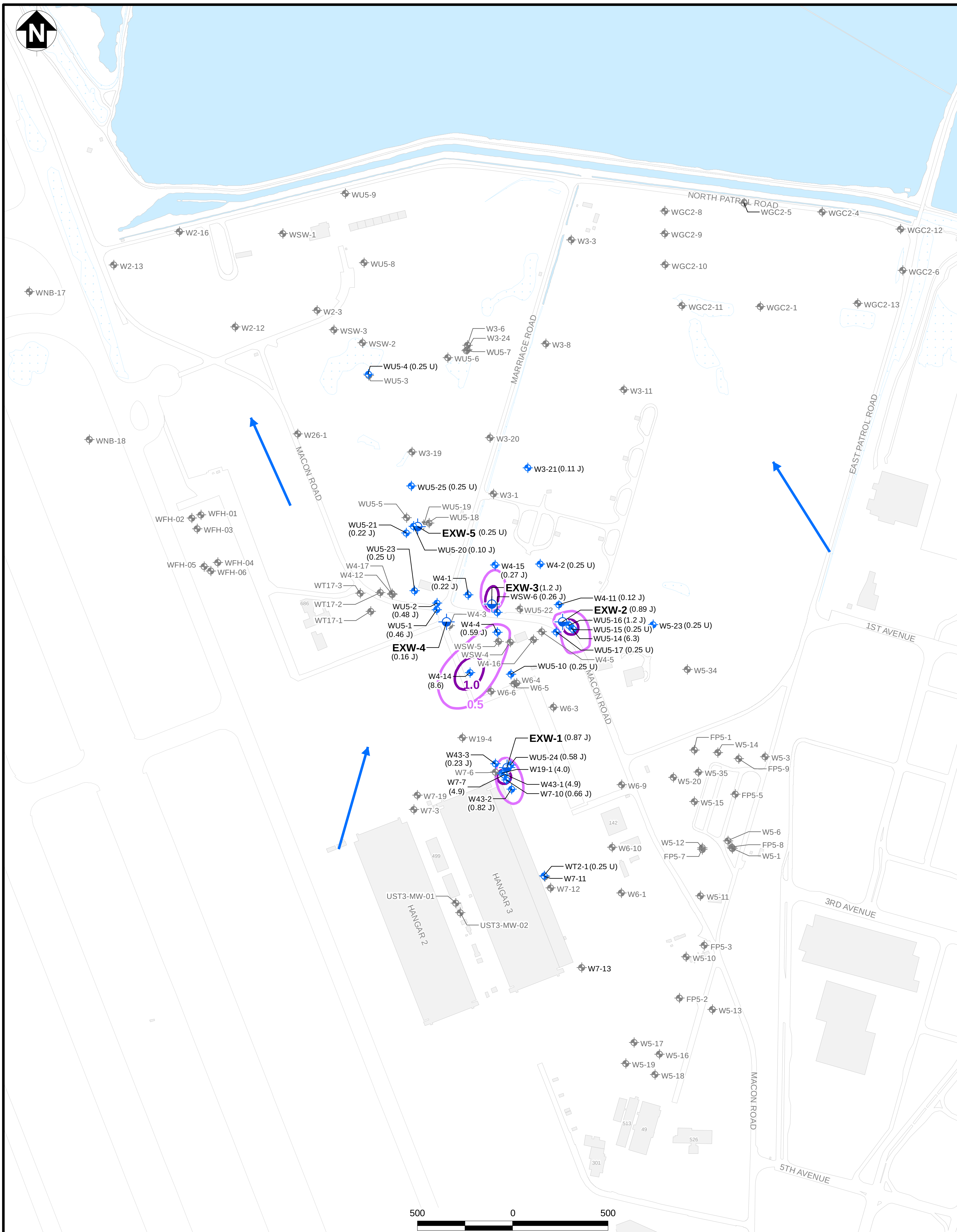
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

2012 ANNUAL GROUNDWATER REPORT
FOR IR SITES 26 & 28

FIGURE 3-32

TETRACHLOROETHENE (PCE) DISTRIBUTION IR SITE 26, UPPER PORTION OF THE A AQUIFER - SEPTEMBER 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA



NAVY EXTRACTION WELL

NAVY MONITORING WELL

NAVY MONITORING WELL (REMOVED FROM SAMPLING SCHEME ON APPROVED SCHEDULE IN THE SAP)

VC ISOCONCENTRATION CONTOUR - 1.0 µg/L

VC ISOCONCENTRATION CONTOUR - 0.5 µg/L

GROUNDWATER FLOW DIRECTION

ROAD

FACILITY INFRASTRUCTURE

WATER

WETLAND

Notes:

1. Samples collected September 24-26, 2012
2. For wells within 20 ft of eachother, the highest concentration was contoured
3. VC concentration shown in µg/L

µg/L - microgram per Liter
IR - Installation Restoration
J - Estimated Value
NAS - Naval Air Station
SAP - Sampling and Analysis Plan
U - Not Detected

SEALASKA ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

2012 ANNUAL GROUNDWATER REPORT
FOR IR SITES 26 & 28

FIGURE 3-33

VINYL CHLORIDE (VC) DISTRIBUTION, IR SITE 26, UPPER PORTION OF THE A AQUIFER - SEPTEMBER 2012

FORMER NAS MOFFETT FIELD, MOFFETT FIELD, CALIFORNIA

APPENDIX A

PROGRESS TOWARD COMPLETING FIVE-YEAR REVIEW RECOMMENDATIONS

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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 results for 2012.
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 2012.
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 2012.
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 was completed for the former Building 88 area and continues in the Traffic Island Area. A supplemental investigation began in Fall 2012 to further characterize these source areas.	Ongoing.
The mass removal efficiency is decreasing due to decreasing influent treatment system VOC concentrations. Based on concentrations trends, the existing remedy is	The Navy disagrees with the statement "The mass removal efficiency of the current groundwater remedy is ineffective" for IR Site 28.	In March 2013, the EPA announced that they will not finalize the Sitewide Groundwater Feasibility Study. The Navy will be working with the EPA to develop a	Ongoing.

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

Issue [a]	Recommendation and Follow-up Action [a]	Action Taken or Planned	Timeframe
not expected to achieve Site cleanup levels for many more decades. (EPA 2009)	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."	plan to optimize groundwater treatment and remove contaminant mass in the WATS area.	
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."	In March 2013, the EPA announced that they will not finalize the Sitewide Groundwater Feasibility Study. The Navy will be working with the EPA to develop a plan to optimize groundwater treatment and remove contaminant mass in the WATS area.	Ongoing.
No institutional controls for groundwater remedy. (EPA, Navy)	Evaluate need for institutional controls in Sitewide Groundwater Feasibility Study.	In March 2013, the EPA announced that they will not finalize the Sitewide Groundwater Feasibility Study. The Navy will be working with the EPA and NASA to address institutional controls for groundwater at IR Site 28.	Ongoing.
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.	In March 2013, the EPA announced that they will not finalize the Sitewide Groundwater Feasibility Study. The Navy will be working with the EPA to develop a plan to optimize groundwater treatment and remove contaminant mass in the WATS area.	Ongoing.
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	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	According to the current Moffett Field Federal Facility Agreement schedule, the final long-

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

Issue [a]	Recommendation and Follow-up Action [a]	Action Taken or Planned	Timeframe
	program.	2010 MEW Record of Decision amendment for the vapor intrusion pathway in areas impacted by Navy sources. The Navy prepared a Work Plan for air sampling [Final Air Sampling Work Plan for Vapor Intrusion Tier Response Evaluation (Accord MACTEC; May 17, 2012)]. Air sampling was conducted in May and June 2012. The air sampling results are reported in the Draft Air Sampling and Vapor Intrusion Tier Response Evaluation Report (Accord MACTEC; October 23, 2012). The next milestones are the Remedial Design/Remedial Action followed by the Remedial Action Completion Report, then the long-term monitoring plan.	term monitoring plan is scheduled for July 21, 2016.
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 was submitted in December 2012
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 prepared a Work Plan	Air sampling was conducted in May and June 2012. The air sampling results are reported in the Draft Air Sampling and Vapor Intrusion Tier Response Evaluation Report (Accord MACTEC;

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

Issue [a]	Recommendation and Follow-up Action [a]	Action Taken or Planned	Timeframe
		for air sampling [Final Air Sampling Work Plan for Vapor Intrusion Tier Response Evaluation (Accord MACTEC; May 17, 2012)].	October 23, 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 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.	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

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 FFS (Shaw 2012) 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. A proposed plan is being prepared to present the Navy's preferred remedial alternative for groundwater cleanup.	2009-2013
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
Navy – U.S. Department of the Navy
TtEC – Tetra Tech EC, Inc.

FWENC – Foster Wheeler Environmental Corporation
NASA – National Aeronautics and Space Administration
VOC – volatile organic compound

APPENDIX B
2012 ANNUAL REMEDY
PERFORMANCE CHECKLISTS

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2012 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: February 19, 2013 | 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 2003reporting period as part of the *Final East-Side Aquifer Treatment System Evaluation Work Plan* (Foster Wheeler Environmental Corporation [FWENC] 2003) implementation.

II. CONTACTS

<u>List important personnel associated with the Site</u>: 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.d.anderson@navy.mil
PRP Contractor/ Consultant	Scott K. Lowe, PM SES-TECH Joint Venture	619.752.1012	Scott.lowe@sealaska.com
O&M Contractor	Duane Harrison, Site Supervisor SES-TECH	650-564-9868	duane.harrison@tetratech.com
Other			

2012 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST
(Continued)

III. O&M COSTS (OPTIONAL)

What is your annual O&M cost total for the reporting year? $10,000
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): 80%
- 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): 0%
- Other (e.g., capital improvements): 5%

Describe unanticipated/unusually high or low O&M costs (go to section [fill in] to recommend optimization methods):
2012 operation and maintenance (O&M) costs were appropriate for work performed at EATS, which has remained off-line since the 2003 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.

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 2012 reporting period to evaluate the treatability study that was implemented in 2009. EATS was turned off in 2003 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 Navy finalized the FFS to evaluate remedial alternatives that may be more efficient than pump and treat to address the low VOC concentrations (Shaw 2012) currently present at Site 26. A recommended alternative for Site 26 will be presented in the Proposed Plan and, if needed, the Record of Decision will be amended. EATS has remained off-line for the entire 2012 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

2012 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?

2012 Data Table,
Historical Data Table Plume Maps,
Long-Term VOC Time Series Plots

2012 Annual Groundwater Report for WATS and EATS (SES-TECH JV 2013)

☑ 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 2012 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 2012 reporting 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 2012 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 Navy finalized the FFS to evaluate remedial alternatives that may be more efficient than pump and treat to address the low VOC concentrations (Shaw 2012) currently present at Site 26. A recommended alternative for Site 26 will be presented in the Proposed Plan and, if needed, the Record of Decision will be amended. EATS remained off-line for the entire 2012 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 2012 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)

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 2012 compared to previous years, which is significant since EATS was turned off in July 2003 and remained off through 2012. 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 2012 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 2013 base wide water gauging; September 2013 Annual Groundwater sampling; 2013 Annual Report for IR Sites 26 and 28 due April 2014.

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

Remedy Projections for **the upcoming year (2013)**
☐ 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: 2013
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 Navy finalized the FFS to evaluate remedial alternatives that may be more efficient than pump and treat to address the low VOC concentrations (Shaw 2012) currently present at IR Site 26. A recommended alternative for Site 26 will be presented in the Proposed Plan and, if needed, the Record of Decision will be amended
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: 2013
Elaborate on Remedy Projections: EATS remained off-line for the 2004 reporting period to evaluate plume stability, COC rebound, natural attenuation, and the efficiency of Hydrogen Release Compound® in remediating plume hot spots. 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. EATS has continued to remain off through 2012 during implementation of the treatability study and preparation of a FFS Report. The Navy finalized the FFS to evaluate remedial alternatives that may be more efficient than pump and treat to address the low VOC concentrations (Shaw 2012) currently present at Site 26. A recommended alternative for Site 26 will be presented in the Proposed Plan and, if needed, the Record of Decision will be amended.
B. Projections – Slurry Walls (Check all that apply) – Not Applicable
Remedy Projections for **the upcoming year (2013)** ☐ 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 Navy finalized the FFS to evaluate remedial alternatives that may be more efficient than pump and treat to address the low VOC concentrations (Shaw 2012) currently present at IR Site 26. A recommended alternative for Site 26 that includes in situ biotic/abiotic treatment in target areas, monitored natural attenuation in other areas and ICs will be presented in the Proposed Plan and, if needed, the Record of Decision will be amended.

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

Based on the selected remedial alternative for Site 26 that will be presented in the Proposed Plan, either an Explanation of Significant Differences or a ROD Amendment will be initiated in 2013.

XIII. RECOMMENDATIONS

Continue to monitor EATS area wells as scheduled. Revise remedy for Site 26 in accordance with the upcoming PP and subsequent decision document.

2012 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: February 19, 2013	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. Wells EA1-1 and EA1-2 were restarted on April 3, 2012. 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

<u>List important personnel associated with the Site</u>: 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.d.anderson@navy.mil
PRP Contractor/ Consultant	Scott K. Lowe, PM SES-TECH Joint Venture	619-752-1012	Scott.lowe@sealaska.com
O&M Contractor	Duane Harrison, Site Supervisor SES-TECH	650-564-9868	duane.harrison@tetratech.com
Other			

2012 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST
(Continued)

III. O&M COSTS (OPTIONAL)

What is your annual O&M cost total for the reporting year? $355,500
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 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 following the CERCLA process for collecting air samples and assessing vapor intrusion for Moffett Field buildings in the Navy's area of responsibility. Sampling, operation, maintenance, monitoring, and evaluation is ongoing. Institutional control requirements are yet to be determined.

- NASA is responsible for adopting similar requirements to those of the EIMP for new construction within the Moffett Field vapor intrusion area. Similar requirements to those in the March 2005 NASA Environmental Issues Management Plan (EIMP) plan to be adopted for ongoing implementation and monitoring of the remedies. The remedies are yet to be determined.

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

At this time, the ICs are not currently documented. However, the Navy is following the CERCLA process for collecting air samples and assessing vapor intrusion for Moffett Field buildings in the Navy's area of responsibility. Sampling, operation, maintenance, monitoring, and evaluation is ongoing. NASA is responsible for adopting similar requirements to those of the EIMP for new construction within the Moffett Field Area. Similar requirements to those in the March 2005 NASA Environmental Issues Management Plan (EIMP) plan to be adopted for ongoing implementation and monitoring of the remedies. The remedies are yet to be determined.
ICs are adequate for site protection? ☐ Yes ☑ No, elaborate below

At this time, the ICs are not currently documented. However, the Navy is following the CERCLA process for collecting air samples and assessing vapor intrusion for Moffett Field buildings in the Navy's area of responsibility. Sampling, operation, maintenance, monitoring, and evaluation is going. Institutional control requirements are yet to be determined. NASA is responsible for adopting similar requirements to those of the EIMP for new construction within the Moffett Field Area. Similar requirements to those in the March 2005 NASA Environmental Issues Management Plan (EIMP) plan to be adopted for ongoing implementation and monitoring of the remedies. The remedies are yet to be determined.

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. The wells were restarted on April 3, 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

2012 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?
2012 Data Table, Historical Data Table Plume Maps, Estimated and Simulated Capture Zone Maps, Long-Term VOC Time Series Plots	*2012 Annual Groundwater Report for IR Sites 26 and 28* (SES-TECH JV 2013)

☑ 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?

2012 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST

(Continued)

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:

The Navy prepared a Final Air Sampling Work Plan for Vapor Intrusion Tier Response Evaluation (Accord MACTEC; May 17, 2012). Building walk-throughs/surveys were conducted in November 2011 and April 2012. Air sampling was conducted in May and June 2012.

Summary of Results:

The building walk-through and survey results are reported in the Draft Air Sampling and Vapor Intrusion Tier Response Evaluation Report (Accord MACTEC; October 23, 2012).**Problems Encountered:**

Some air sample results were above cleanup goals.

Recommendations/Next Steps:

Conduct additional air sampling for those locations where the sample results were above cleanup goals.

Schedule:

Additional air sampling Spring/Summer 2013

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 2012, VOCs were captured by nine Navy extraction wells, and treated by WATS; however, dissolved VOCs at concentrations greater than remedial objective goals from the regional plume continue to commingle with the Navy site sources at Installation Restoration (IR) Site 28 (SES-TECH JV 2013).

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. In the upper portion of the A aquifer, the capture zone appears to encompass the VOC plumes except for potentially minor sections of the eastern portion of the TCE and cis-1,2-DCE plumes east and southeast of Hangar 1. However, the general analytical trends along this eastern and southeastern border indicate a relatively stable to decreasing trend for these two compounds over time, which is indicative of effective plume capture. In the lower portion of the A aquifer, the capture zone appears to encompass the VOC plumes except for potentially minor portions of the TCE and cis-1,2-DCE plumes' furthest downgradient reach and potentially minor sections of the eastern portion east and southeast of Hangar 1. However, TCE and 1,2-DCE concentrations within this eastern and southeastern border area are near cleanup goals and the general analytical trends along this eastern and southeastern border area indicate a relatively stable to decreasing trend for these two compounds over time. This data indicates that effective plume capture within this area is likely occurring. Additionally, 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)

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 2012 show contaminant plumes are fairly 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 Building 126 was implemented in 2011 and completed in 2012. Additionally, the Navy is currently conducting a supplemental investigation in the Former Building 88 and Traffic Island Area.

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

XI. PROJECTIONS

<u>Administrative Issues</u>

2012 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST
(Continued)

Dates of next monitoring and sampling events for next annual reporting period: Monthly NPDES sampling and Quarterly NPDES reporting in 2013; March and September 2013 basewide water gauging; September 2013 Annual Groundwater sampling; 2013 Annual Report for IR Sites 26 and 28 due April 2014.

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

Remedy Projections for **the upcoming year (2013)**

☑ 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 Supplemental Investigation Elaborate below. Target date:

Elaborate on Remedy Projections:

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: 2014
☐ 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. The EPA is planning to work with the Navy to develop an approach to optimize the current remedy or implement an alternative remedial technology with the goal of removing more mass in a shorter period of time.

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

Remedy Projections for **the upcoming year (2013)**

☐ 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:

2012 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST

(Continued)

Elaborate on Remedy Projections:

<u>Remedy Projections for **the long-term**</u>

☐ 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 *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 currently taking place. In March 2013, the EPA announced that it will not be finalizing the Supplemental FS at this time. The Navy will be working with the EPA to develop a plan to optimize groundwater treatment and remove contaminant mass in the WATS area.

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 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.

APPENDIX D

QUALITY ASSURANCE/QUALITY CONTROL

EVALUATION OF ANALYTICAL DATA

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QUALITY ASSURANCE/QUALITY CONTROL EVALUATION OF ANALYTICAL DATA
April 2013

FOR 2012 ANNUAL GROUNDWATER REPORT FOR WATS AND EATS

FORMER NAVAL AIR STATION MOFFETT FIELD
MOFFETT FIELD, CALIFORNIA

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

CONTRACT NO. N62473-07-D-3220
CTO NO. 0012

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ABBREVIATIONS AND ACRONYMS

%D	percent difference
%R	percent recovery
CLP	Contract Laboratory Program
DQO	data quality objective
EATS	East-Side Aquifer Treatment System
EPA	U.S. Environmental Protection Agency
FWENC	Foster Wheeler Environmental Corporation
IR	Installation Restoration
LTGMP	Long-Term Groundwater Monitoring Plan
MEW	Middlefield-Ellis-Whisman
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
ND	not detected
PRQL	project-required quantitation limit
QC	quality control
RPD	relative percent difference
RRF	relative response factor
SAP	Sampling and Analysis Plan
SES-TECH	Sealaska Environmental Services, LLC and Tetra Tech EC, Inc
VOC	volatile organic compound
WATS	West-Side Aquifers Treatment System

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1.0 INTRODUCTION

This appendix summarizes the fulfillment of data quality objectives (DQOs) for the 2012 annual West-Side Aquifers Treatment System (WATS) and East-Side Aquifer Treatment System (EATS) groundwater monitoring event. Data for periods prior to 2007 were obtained from the National Aeronautics and Space Administration (NASA), the Middlefield-Ellis-Whisman (MEW) companies, and the Navy's previous consultants. All samples from 2012 WATS and EATS annual sampling events were collected and handled in accordance with the procedures detailed in the *Final Addendum 1 to the Final Sampling and Analysis Plan (SAP) Groundwater Monitoring Plan, Installation Restoration Sites 26 and 28, Former Naval Air Station Moffett Field, Moffett Field, California* (SES-TECH, 2012) and the *Final Sampling and Analysis Plan for Groundwater Sampling at IR Sites 26 and 28, Former Naval Air Station Moffett Field, Moffett Field, California* (ERS JV, 2011). The chain-of-custody records and data validation reports are included in Appendix C of the 2012 Annual Groundwater Report for WATS and EATS. In addition, laboratory data are included on the CD submitted along with this report.

Groundwater was collected from 106 monitoring wells during the WATS and EATS annual sampling event. All samples were analyzed for volatile organic compounds (VOCs) and samples from selected wells were analyzed for total petroleum hydrocarbons (TPH) as purgeable and dissolved metals. All samples were analyzed by TestAmerica, a state of California-certified and Navy-evaluated laboratory. A third-party validation company, Laboratory Data Consultants, Inc., performed U.S. Environmental Protection Agency (EPA) Level III-equivalent or Level IV-equivalent data validation of all samples. Twenty percent of the analytical data were validated according to EPA Level IV-equivalent protocols, the remainder 80 percent were validated according to the EPA Level III-equivalent protocols. The validation was conducted in accordance with the *U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 4.2* (DoD, 2010), the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Data Review* (EPA, 2008), the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (EPA, 2010),* and the criteria specified in the Final SAP Addendum 1 (SES-TECH, 2012) and the Final SAP (ERS JV, 2011).

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2.0 DATA EVALUATION

Groundwater samples were collected from 73 selected WATS monitoring wells and 33 selected EATS monitoring wells. All groundwater samples were analyzed for volatile organic compounds (VOCs), the primary chemicals of concern. VOCs were analyzed by following procedures detailed in EPA Method 8260B. In addition, groundwater samples from selected wells were also analyzed for TPH as purgeable and dissolved metals per the 5-yr monitoring plan. TPH as purgeable and dissolved metals were analyzed by following procedures detailed in EPA Methods 8015 and 6020 respectively.

2.1 QUALITY CONTROL SAMPLING

Quality control (QC) samples were collected and used in conjunction with laboratory QC samples to evaluate the precision, accuracy, representativeness, completeness, and comparability. All field QC samples such as field duplicates, matrix spike/ matrix spike duplicates (MS/MSD), equipment blanks, and a source blank were collected in accordance with the Final SAP and met the required sampling frequency. The following sections describe findings of the field and laboratory QC samples for the WATS and EATS annual sampling event.

2.1.1 Field Duplicates

Field duplicates consist of two samples (an original and a duplicate) of the same matrix collected at the same time and location, to the extent possible, using the same sampling technique. The purpose of the field duplicate is to evaluate the precision of the overall sample collection and analysis process through the calculation of the relative percent difference (RPD) for duplicate pairs. Field duplicates were collected at a frequency of 1 per every 10 samples for VOC analysis. Fourteen field duplicates were collected and are identified in Table D.2-1.

The QC limit for RPD is 30 percent for field duplicate pairs with concentrations reported at or above the project reporting limits. Samples with reported analyte concentrations above the method detection limit (MDL) but below the reporting limit can produce greater variability, leading to greater RPDs. RPD values are non-representative when the following conditions exist:

- Both the original and duplicate results are less than five times the reporting limit.
- One or both results are qualified as estimated or rejected or are suspected of blank contamination.
- Both results are not detected at the reporting limit (not detected [ND] pairs).

Except for duplicate samples collected from monitoring well WU4-4, the RPD values for other wells were either 30 percent or less or had concentrations reported at less than five times the reporting limit, which produced large RPD value. The RPD for trichloroethene in sample WU4-4 was qualified “J” for estimated. No other samples were qualified as a result of field duplicate RPDs being outside of QC limits.

2.1.2 Matrix Spike and Matrix Spike Duplicate Samples

Matrix spike and matrix spike duplicate (MS/MSD) samples are prepared by spiking the sample with a known amount of a target analyte. Once the spike is added to the MS/MSD sample, the sample is carried through the complete sample preparation process along with the other samples in the batch. The percent recoveries (%R) for the MS/MSD samples are calculated to measure the accuracy of the analytical method. RPD values of the %R of the MS/MSD samples are calculated to evaluate the analytical precision of the method. The acceptance criteria for MS/MSD percent recoveries and RPDs are discussed in the Final SAP Addendum 1 (SES-TECH, 2012). The frequency requirement per the SAP is to collect one MS/MSD pair per every 20 samples. Eight MS/MSD samples were collected as identified in Table D.2-1. All the MS/MSD samples met the QC limits for %R and RPD, with the exceptions of: copper in sample W9SC-13, acetone in sample WU5-20, and cis-1,2-DCE and TCE in sample WU5-1. These analytes where %R and RPDs exceeded the QC limits were detected in parent samples at concentrations greater than the reporting limit which caused matrix interference. Copper, acetone, cis-1,2-DCE and TCE results were qualified “J” for the affected samples.

2.1.3 Trip Blanks

Trip blanks are prepared by the laboratory, carried into the field, and stored with water samples for VOC analysis. Trip blanks are used to determine if samples have been cross-contaminated with VOCs during sample collection and transportation to the laboratory. One trip blank was provided in each cooler that contained water samples for VOC analysis. Four trip blanks were required and transported with the samples to the laboratory. The trip blank samples are identified in Table D.2-1. No analytes concentrations were detected above the reporting limit.

2.1.4 Equipment Rinsates

Field samples were collected using passive diffusion bags (PDB) and bladder pumps. Most of the wells were collected using the PDBs except where dissolved metals and TPH as purgeable analysis were required, a bladder pump was used instead. PDBs are one time use equipment and are applicable to only groundwater with VOCs only analysis. Between each well, the bladder pump was decontaminated by following the decontamination procedures detailed in the Final SAP Addendum 1 and the Final SAP. A total of six equipment blanks and one source blank were sampled. The source water for equipment decontamination were provided by BlainTech Incorporated, the subcontractor. The source water has gone through a deionized system maintained by BlainTech and the water was sampled on the first day of the annual event. No analytes concentrations were detected above the reporting limit.

2.2 ANALYTICAL DATA QUALITY OBJECTIVES

The following sections describe the fulfillment of the analytical data quality objectives for the 2012 annual sampling event in terms of precision, accuracy, representativeness, completeness, and comparability parameters, as described in the Final SAP (ERS JV, 2011).

2.3 PRECISION AND ACCURACY

In accordance with the analytical methods and the Final SAP, the following parameters were evaluated during the validation process for precision and accuracy:

- Surrogates percent recovery
- Initial and continuing calibration criteria, including percent relative standard deviations, percent difference, and relative response factors

- Holding times, sample container, and preservative criteria for each analytical method

Associated samples were flagged “J/UJ” (i.e., estimated), if any of these parameters were outside of QC limits.

2.3.1 Technical Holding Times

All samples were analyzed within the technical holding times.

2.3.2 Initial and Continuing Calibration Verifications

Initial and continuing calibrations were performed in accordance with laboratory SOPs. All QC criteria were met.

2.3.3 Method Blanks

The acceptable method blank QC limit is all analytes cannot exceed half of the reporting limit. All method blanks for VOC, TPH-purgeable, and dissolved metals analyses did not contain analytes above half the reporting limit.

2.3.4 Surrogate Percent Recovery

The percent recoveries of surrogates for all samples were within QC limits, except for TPH-gasoline analysis from monitoring wells 02WU4-17 and 02W9SC-1 where surrogate recovery was high. High surrogate recovery is most likely due to detected TPH-gasoline concentrations in samples.

Bromofluorobenzene surrogate recovery of VOC analysis from monitoring wells 02W29-3, 02W29-3D, 02W29-4, 02W56-2, 02W9SC-3, 02WU4-9, 02W9-40, 02W9-8, 02W9-37, 02W9SC-15, 02W9-7, 02W9-12, 02WU4-3, 02WU4-3D, 02WU4-4, 02WU4-4D, 02W9-19, and 02W9-44 exceeded the acceptable limit. TCE, VC, and DCE were often detected in these groundwater samples at greater than 100 times the reporting limit. Matrix interference often causes surrogate recoveries to be outside the recovery limit. These sample results were qualified as estimated concentrations “J” for all detected target compounds.

2.4 REPRESENTATIVENESS

Representative data were obtained through systematic selection of sampling sites and analytical parameters to meet the data quality objectives of this project. Proper collection and handling of samples and use of established field and laboratory procedures were performed, as described in the Final SAP Addendum 1 and the Final SAP.

2.5 COMPLETENESS

The percent completeness is defined as the percentage of measurements that are judged to be valid. The completeness goal is to generate a sufficient amount of valid data to meet project objectives. Completeness is calculated and reported for each method, matrix, and analyte combination. The number of valid results divided by the number of possible individual analyte results, expressed as percentages, determines the completeness of the data set. For completeness requirements, valid results are all results not qualified with an “R” flag for rejected. The data completeness goal is 95 percent for water samples. No results were rejected for the 2012 annual event.

2.6 COMPARABILITY

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. Sample data should be comparable with other measurements for similar samples and sample conditions. The objective for the Quality Assurance/QC program is to produce data with the greatest possible degree of comparability. The number of matrices that are sampled and the range of field conditions encountered are considered in determining comparability. Comparability is achieved by using standard methods for sampling and analysis, reporting data in standard units, normalizing results to standard conditions, and using standard and comprehensive reporting formats. Analytical techniques used for the 2012 annual event are comparable to those used for previous investigations at Moffett.

2.7 OVERALL ASSESSMENT OF DATA

The data collected from the 2012 annual groundwater monitoring event are valid and usable.

All samples were collected in accordance to the criteria listed in the Final SAP Addendum 1 and the Final SAP. A total of 33 QC samples, including 4 trip blanks, 4 equipment blanks, 1 source blank, 8 field duplicates, and 8 MS/MSD samples were collected. All the samples were collected in containers listed in the SAPs and met technical holding times.

Some of the groundwater samples have high concentrations of cis-1,2-dichloroethene, trichloroethene, and tetrachloroethene, which require dilution in order to be within calibration range. For this report, compounds that were within calibration range are reported from the undiluted analysis and compounds that did not meet the calibration range were reported from the dilution runs. All data were found to be of appropriate quality to support the data evaluation detailed in the 2012 Annual Groundwater Monitoring Report for WATS and EATS.

3.0 REFERENCES

Department of Defense. 2010. DoD Quality Systems Manual For Environmental Laboratories, Version 4.2. Based on NELAC Voted Version, 5 June 2003. October.

ERS JV, 2011. Final Sampling and Analysis Plan Groundwater Monitoring at Installation Restoration Sites 26 and 28, Former Naval Air Station, Moffett Field, Moffett Field, California. February.

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U.S. Environmental Protection Agency. 2008. USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Method Data Review. June.

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TABLES

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2012 ANNUAL GROUNDWATER REPORT
FOR WATS AND EATS
TABLE D.2-1
FIELD QUALITY CONTROL SAMPLES

Field Duplicate Location	Blanks	MS/MSD Location
W7-10	12-2012IR26_28-02SB01	12-2012IR2602WU5-20
W29-2	12-2012IR2602_28-02FB01	12-2012IR2602WU5-23
W4-11	12-2012IR26_28-02TB01(1)	12-2012IR2602WU5-1
WU4-15	12-2012IR26_28-02TB01(2)	12-2012IR2802W9SC-13
WU5-15	12-2012IR26_28-02TB02	12-2012IR2802W20-01
WU5-16	12-2012IR26_28-02TB03	12-2012IR280214C33A
WSW-6	12-2012IR26_28-02EB01(1)	12-2012IR2802W9-12
WU4-10	12-2012IR26_28-02EB01(2)	12-2012IR2802W9-15
W29-3	2012IR26_28-02EB01(3)	--
WWR-3	12-2012IR26_28-02EB02(1)	--
165A	12-2012IR26_28-02EB02(2)	--
WU4-3	--	--
WU4-4	--	--
W29-7	--	--

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