2015 ANNUAL GROUNDWATER REPORT
FOR INSTALLATION RESTORATION
SITES 28 AND 26
FORMER NAVAL AIR STATION MOFFETT FIELD
MOFFETT FIELD, CALIFORNIA

CONTRACT NO. N62473-07-D-3220
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BASE REALIGNMENT AND CLOSURE
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EXECUTIVE SUMMARY

As part of the Installation Restoration (IR) Program, the 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 2015 Annual Groundwater Report is to document and evaluate the progress of remedial actions performed during the 2015 calendar year at NAS Moffett at IR Site 28, the West-Side Aquifers Treatment System (WATS), and at IR Site 26, the former East-Side Aquifer Treatment System (EATS).

Groundwater at NAS Moffett is impacted 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 at NAS Moffett serves as an approximate physiographic line separating the east side from west side. Impacted groundwater also occurs in the B2 aquifer in the Traffic Island Area of IR Site 28. Groundwater at 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 NAS Moffett. IR Site 26 is not part of the regional VOC plume.

The IR Site 28 WATS and IR Site 26 former EATS are discussed below, followed by a summary of recommendations developed based on the current 2015 and past historical analytical results for IR Site 28 and IR Site 26 and a discussion of planned future activities at each IR site.

IR Site 28 and West-Side Aquifers Treatment System

The WATS is a groundwater pump-and-treat system west of the runways at IR Site 28 near Hangar 1. The WATS began operating in November 1998 and 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. The requirements for remediating impacted groundwater at IR Site 28 are set forth in the MEW Record of Decision (ROD). The MEW ROD identifies the following as chemicals of concern (COC) at IR Site 28: chloroform; 1,2-dichlorobenzene; 1,1-dichloroethane (DCA); 1,1-dichloroethene (DCE); 1,2-DCE; Freon 113; phenol; tetrachloroethene (PCE); 1,1,1-trichloroethane; trichloroethene (TCE); and vinyl chloride (VC), although not all of these are present in the groundwater extracted by WATS. 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.

A September 1990 Explanation of Significant Differences (ESD) to the MEW ROD states 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 COCs would be remediated simultaneously. The April 1996 ESD clarifies that the groundwater remedy includes liquid-phase granular activated carbon (GAC) as a treatment option for extracted groundwater.

The WATS extracts groundwater from the upper portion of the A Aquifer using six shallow-screened extraction wells and from the lower portion of the A Aquifer using three deeper-screened extraction wells. The WATS uses an advanced oxidation process (AOP) and GAC to treat extracted groundwater.

During the 2015 reporting period, the WATS operated 99.2 percent of the time and extracted and treated approximately 19,685,062 gallons of water from the extraction wells and approximately 3,480,647 gallons of storm drain action (SDA) water (15.0 percent of the total WATS flow for the year of 23,165,709 gallons). During 2015, the WATS removed approximately 196.3 pounds of VOCs. The 2015 total operation and maintenance (O&M) costs for the WATS were approximately $351,600. The average cost per pound of contaminant removed in 2015 was $1,893.

Throughout 2015, the WATS effluent was in compliance with the NPDES permit limits for total petroleum hydrocarbons (TPH) and for all VOCs. The system's two lead GAC vessels were recharged with fresh carbon and moved to the lag position; the historical lag vessels were moved to the lead position in May 2015.

Most of the historical time-series plots show 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 downgradient of the target capture zone. The 2015 capture zone maps indicate that the WATS groundwater extraction system intercepted most of the VOC contamination in the target zone. Stable contaminant concentrations in downgradient wells combined with potentiometric evidence of hydraulic capture supports the conclusion that the WATS generally achieved hydraulic containment of the target contaminant capture zone in 2015.

Although the WATS is functioning as intended, 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 exceeding the cleanup standards. In addition, based on the sampling of additional monitoring wells by the Navy and MEW between 2008 and 2015 and by NASA in 2008, TCE concentrations exceeding the cleanup standard of 5 µg/L may extend beyond what was historically considered to be the leading edge of the plume. Furthermore, as long as groundwater containing contaminants at concentrations exceeding the cleanup standards flows from a continuing upgradient source (south of U.S. Highway 101) to IR Site 28, the remedial objective of restoring groundwater quality to the cleanup standards cannot be achieved.

IR Site 28 groundwater potentiometric and analytical data trends are discussed below.

IR Site 28 Groundwater Potentiometric Trends

Groundwater elevation trends in the WATS area for 2015 were similar to those observed during 2014. Most groundwater elevations continue to exhibit seasonal fluctuations. Semiannual groundwater gauging events were completed in March and September 2015. These months were chosen for gauging because they represent the high and low groundwater elevations, which typically occur toward the end of the wet season (March) and towards the end of the dry season (September). The hydraulic gradient in the Hangar 1 area is affected by the pumping of WATS extraction wells, which is evident by the increase in gradient toward the pumping wells. However, the overall flow remains north from Hangar 1 toward the NASA Ames Research Center at a gradient of approximately 0.005 foot per foot (ft/ft) in both March and September 2015.

IR Site 28 Groundwater Analytical Data Trends

In 2013 and 2014, the Navy installed 24 additional monitoring wells to further delineate Navy sources near the Former Building 88 Area and the Traffic Island Area. Seven of these wells were installed in the upper portion of the A Aquifer, 13 wells in the lower portion of the A Aquifer, and four wells in the B2 Aquifer. Data from these additional wells have been fully incorporated into this report, and the wells have been added to the Navy's annual groundwater monitoring program. In 2015, these 24 Navy monitoring wells were added to the IR Site 28 annual groundwater monitoring network.

In 2013, NASA resumed the sampling of NASA wells NASA-2A, 11M17A, 11M21A, 11N21A, and 11N22A. Before the 2014 annual groundwater sampling event, NASA added the following NASA wells to the sampling network: 11M24A, 14C60A, 14D28A, 14D33A, WSI-4, and WNB-8. Data from these additional NASA wells have allowed better definition of TCE concentrations in the upper portion of the A Aquifer downgradient of the WATS capture area. Additionally, in 2013, the following NASA wells installed in the upper portion of the A Aquifer downgradient of the WATS capture area were sampled: 11M16A, 14D37A, and 11N26A. NASA also added wells 14D25A2 and 14D31A2 to the lower portion of the A Aquifer. Only the analytical data from well 14D31A2 have been incorporated into the 2015 IR Site 28 plume maps.

Per United States Environment Protection Agency (EPA) conditional verbal approval (July 2015), semi-annual water level gauging was reduced to annual gauging and groundwater sampling was reduced to biennial trial basis for the Navy, MEW, and NASA well monitoring. Therefore, MEW and NASA wells were not gauged or sampled during the September 2015 monitoring event, although Navy wells were both gauged and sampled. The conditional approval of the reduced monitoring schedule was confirmed in writing by the EPA via letter on March 16, 2016 (EPA 2016).

Groundwater samples collected in 2015 from IR Site 28 monitoring wells in the upper portion of the A Aquifer indicate that the regional TCE and cis-1,2-DCE plumes extend downgradient (north) from south of U.S. Highway 101. These regional plumes have an axis that generally trends south to north. The plumes are similar in shape and extent to the TCE and cis-1,2-DCE plumes shown on maps prepared since 2003. However, data from monitoring wells added to the Navy, NASA, and MEW sampling programs since 2008 have allowed better definition, and suggest a separate plume downgradient of the WATS capture area. The eastern groundwater plume periphery has higher TCE and cis-1,2-DCE concentrations than the western periphery. TCE and cis-1,2-DCE concentrations from 2015 sampling suggest that the detached southern portions of the plume remains separate from the main body of the WATS plume. The PCE plume in the upper portion of the A Aquifer is located southwest of Hangar 1 and is limited in extent compared to the other groundwater VOC plumes. The PCE plume in the upper portion of the A Aquifer trends in a north-south direction and is similar to the 2014 PCE plume. The 2013 depiction of the PCE plume shows one continuous plume next to the southwest corner of Hangar 1, but the 2014 and 2015 depictions of the PCE plume shows two smaller PCE plume areas, both within the footprint of the 2013 PCE plume. The 2015 VC plume for the upper portion of the A Aquifer is a single plume that originates south of U.S. Highway 101, and is similar in shape an extent to the VC plume mapped in 2014.

The 2015 TCE and cis-1,2-DCE plumes in the lower portion of the A Aquifer at IR Site 28 are similar in shape and extent to the plumes contoured in 2014 and generally are similar in shape and extent to the 2014 TCE and cis-1,2-DCE plumes in the overlying upper portion of the A Aquifer. Similar to the TCE and cis-1,2-DCE plumes in the upper portion of the A Aquifer, the eastern groundwater plume periphery has higher concentrations than the western periphery. The PCE plume in the lower portion of the A Aquifer is elongated in shape and is similar in shape and extent to the 2014 PCE plume. The 2015 VC plume for the lower portion of the A Aquifer is similar in size and extent as the previously mapped VC plumes. VC concentrations south of the site likely are associated with a plume originating south of U.S. Highway 101.

TCE and cis-1,2-DCE made up approximately 96.8 percent of the mass removed by the WATS in 2015. Analytical data from monitoring wells around the WATS exhibit long-term trends of decreasing or stable TCE concentrations (96 percent of evaluated wells in the upper portion of the A Aquifer and 100 percent of evaluated wells in the lower portion of the A Aquifer). Analytical data from wells evaluated for long-term trends indicate that 96 percent of the monitoring wells in the upper portion of the A Aquifer and 90 percent of the wells in the lower portion of the A Aquifer have decreasing or stable cis-1,2-DCE concentrations.

Well W88-1, located in the Traffic Island Area and previously thought to be completed in the B2 aquifer, contained COCs exceeding their respective ROD cleanup standards (cis-1,2-DCE: 1,900 μg/L; and VC: 5,200 μg/L). The VC concentrations in well W88-1 have shown an overall increasing trend since the 2009 sampling event (4.1J μg/L), increasing three orders of magnitude over this time. The increase of VC in well W88-1 can likely be attributed to the effects of incomplete dechlorination related to the treatability study located within the Traffic Island Area. TCE, cis-1,2-DCE, and PCE concentrations in well W88-1 have shown an overall decreasing trend since 2011. The results of the Supplemental Investigation suggest that well W88-1 is screened across the deepest portion of the Lower A aquifer and the A/B aquitard, rather than the B2 aquifer.

Outside of the Traffic Island Area, TCE was detected in one of the six historic Navy wells installed in the B2 aquifer: W9-15 (0.40J μg/L). The other five historic Navy wells installed within the B2 aquifer and sampled for VOCs in 2015 (W9-39, W9-5, W9-40, W9-12, and 45B2) demonstrated concentrations of TCE, cis-1,2-DCE, PCE, and VC below laboratory reporting limits, which is consistent with historical results. Four new monitoring wells were installed in 2014 in the B2 aquifer during the Supplemental Investigation of the Traffic Island Area. Samples from three of the four new Navy wells contained cis-1,2-DCE and VC levels in exceedance of their respective ROD cleanup standards and two of the wells contained TCE and PCE levels in exceedance of their respective ROD cleanup standards.

IR Site 26 and East-Side Aquifer Treatment System

The former EATS is the IR Site 26 groundwater treatment system located on the east side of the runway, 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- DCA. The former EATS operated from January 1999 until July 2003. During that time, the former EATS processed 67,050,786 gallons of extracted groundwater and removed approximately 23.65 pounds of VOCs. The former EATS was taken off line in July 2003 and has remained off line throughout the 2015 reporting period.

The former EATS treated groundwater extracted from five wells completed in the upper portion of the A Aquifer using a combination of an air stripper and GAC. The former EATS was taken off line in July 2003 to evaluate plume stability, COC rebound, natural attenuation, and the efficiency of HRC® in remediating plume hot spots. Additionally, an abiotic/biotic treatability study using EHC® was initiated in May 2009 and completed in October 2011. The treatability study began in May 2009 and was completed in October 2011
(Shaw Environmental & Infrastructure, Inc. [Shaw] 2011). The treatability study found that treatment using EHC® reduced PCE and TCE concentrations. However, DCE and VC concentrations increased in downgradient wells. Shaw, prepared a technical memorandum describing the activities performed and the remediation results. This memorandum also evaluated groundwater extraction and treatment, and based on this evaluation, a Focused Feasibility Study (FS) was recommended to compare the current remedy with alternative remedial actions that could achieve the ROD cleanup standards more effectively and efficiently.

In July 2012, the Navy finalized the Focused FS to evaluate remedial alternatives that may be more efficient than pump-and-treat technologies to address the low VOC concentrations present at IR Site 26. On April 15, 2013, the Navy selected a remedial alternative and issued a Proposed Plan for IR Site 26. Subsequent to the Proposed Plan, the Navy prepared a ROD Amendment to document the change in remedy at IR Site 26 from the pump and treat remedy (using the former EATS) to *in situ* bioremediation treatment, monitored natural attenuation (MNA), and institutional controls. This amended remedy for IR Site 26 will achieve groundwater cleanup standards in a shorter timeframe than the former EATS, is a more sustainable remedial solution than the former EATS, and has a lower cost. The Navy prepared a pre-design groundwater investigation work plan (ECC-Insight 2015) and field work was completed in Summer 2015. Based on the results of the pre-design groundwater investigation, the Navy recommended and agencies have approved installation of 10 new groundwater monitoring wells scheduled for Spring 2016.

The former EATS remained off-line for the entire 2015 reporting period.

IR Site 26 groundwater potentiometric and analytical data trends are discussed below.

IR Site 26 Groundwater Potentiometric Trends

The groundwater elevation trends across IR Site 26 for 2015 were similar to those observed during 2014. Groundwater elevations generally appear to fluctuate with precipitation levels. Most groundwater elevations in the monitoring wells continue to exhibit seasonal fluctuations. Because the former EATS remained off line during 2015, the groundwater flow direction 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 drain. The groundwater flow direction in the southern portion of IR Site 26 is north. In the northern portion of IR Site 26, the groundwater flow direction is north-northwest toward the groundwater depression near Building 191. North of the intersection of Marriage and Macon Roads, the hydraulic gradient was approximately 0.0026 ft/ft in March 2015 and 0.0028 ft/ft in September 2015. South of this intersection, the hydraulic gradient was approximately 0.003 ft/ft in both March and September 2015.

IR Site 26 Groundwater Analytical Data Trends

Groundwater samples collected in 2015 from monitoring wells in the upper portion of the A Aquifer generally exhibited decreasing TCE and PCE concentration trends, and the plumes have decreased in area. However, cis-1,2-DCE concentrations in several wells screened in the upper portion of the A Aquifer have exhibited an overall increase over the last year, and VC concentrations in several wells screened in the upper portion of the A Aquifer have exhibited an overall increase over the last several years. These cis-1,2-DCE and VC increasing trends may be attributable to the natural attenuation of TCE and PCE. The decreases in TCE and PCE concentrations and increases in cis-1,2-DCE and VC concentrations appear to result from continued dechlorination effects associated with the treatability studies in the former EATS area.

Recommendations

It is recommended to continued annual groundwater monitoring at IR Site 28. Further recommendations for IR Site 28 will depend on the results and findings of the treatability study being performed to evaluate technologies for treating the chlorinated ethenes in the B2 Aquifer and residual dense nonaqueous-phase liquids (DNAPL) identified in the lower portion of the A Aquifer.

Continued monitoring is recommended for the IR Site 26 wells in the southern plume area to evaluate the effectiveness of the change in remedy at IR Site 26 from the pump-and-treat remedy using the former EATS, *in situ* bioremediation treatment, MNA, and institutional controls. The Navy implemented a pre-design groundwater investigation during the Summer 2015. Based on the results of the pre-design groundwater investigation, the Navy recommended and agencies have approved installation of 10 new groundwater monitoring wells at IR Site 26. Installation of the wells is scheduled for Spring 2016.

Planned Future Activities

At IR Site 28, O&M of the WATS will continue in 2016. The IR Site 28 semiannual groundwater gauging events have been reduced to only one annual event be completed in September 2016. Well gauging events are coordinated with the MEW companies and NASA as part of continued regional plume monitoring efforts. The 2016 annual groundwater sampling event will occur in September 2016. In addition, the Navy is currently implementing a treatability study in the Traffic Island Area as discussed under "Recommendations" above. The field work is on-going.

Activities planned for IR Site 26 include basewide water level gauging in September 2016 and annual groundwater sampling in September 2016. The former EATS has remained off line in standby mode since 2003 and is not expected to be operated in 2016. In 2014, the Navy finalized the ROD Amendment outlining the Navy's plan to amend the remedy at IR Site 26 to *in situ* bioremediation treatment, MNA, and institutional controls instead of the prior pump-and-treat (former EATS) remedy. Pre-design groundwater investigation began in 2015. Installation of 10 new groundwater monitoring wells is scheduled for Spring 2016.

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C	March and September 2015 Basewide Groundwater Gauging Field Logs (provided on compact disc only)
D	Sample Collection Field Forms, Chain-of-Custody Documentation, Data Validation Packets, Case Narratives, and Laboratory Analytical Summary Sheets (provided on compact disc only)
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ACRONYMS AND ABBREVIATIONS

µg/L	Microgram per liter
AOP	Advanced oxidation process
bgs	Below ground surface
BRAC	Base Realignment and Closure
CB&I	Chicago Bridge and Iron Company
COC	Chemical of concern
DCA	Dichloroethane
DCE	Dichloroethene
DNAPL	Dense nonaqueous-phase liquid
EATS	East-Side Aquifer Treatment System
EPA	U.S. Environmental Protection Agency
ERS-JV	ERS Joint Venture
ESD	Explanation of Significant Differences
FS	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	Milligram per liter
MNA	Monitored natural attenuation
Moffett	Moffett Field
msl	Mean sea level
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
Navy	U.S. Department of the Navy
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and maintenance
OU	Operable Unit
PCE	Tetrachloroethene (also known as perchloroethene)
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
SDA	Storm drain action
SES	Sealaska Environmental Services, LLC
SES-TECH	SES-TECH Remediation Services
Shaw	Shaw Environmental & Infrastructure, Inc.
TCE	Trichloroethene
TDS	Total dissolved solids
TN&A	TN & Associates, Inc.
TPH	Total petroleum hydrocarbons
TtEC	Tetra Tech EC, Inc.
TtFW	Tetra Tech FW, Inc.

ACRONYMS AND ABBREVIATIONS (Continued)

VC	Vinyl chloride
VOC	Volatile organic compound
Water Board	California Regional Water Quality Control Board
WATS	West-Side Aquifers Treatment System

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1.0 INTRODUCTION

As part of the Installation Restoration (IR) Program, the 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 2015 Annual Groundwater Report is to document and evaluate the progress of remedial actions performed during the 2015 calendar year at NAS Moffett at IR Site 28, the West-Side Aquifers Treatment System (WATS), and at IR Site 26, the former East-Side Aquifer Treatment System (EATS).

Under Contract Task Order No. 0012, issued under Contract No. N62473-07-D-3220, this report was prepared on behalf of the Navy's Base Realignment and Closure (BRAC) Program Management Office West by SES-TECH Remediation Services (SES-TECH), a joint venture between Sealaska Environmental Services, LLC (SES), and Tetra Tech EC, Inc. (TtEC).

The following sections discuss the site location, history, land use; local hydrogeology; remedy description and remedial actions; and 2015 activities and deliverables.

1.1 SITE LOCATION, HISTORY, AND LAND USE

NAS Moffett is located at the northern end of the Santa Clara Valley Basin approximately 1 mile south of San Francisco Bay and 5 miles east of the City of Mountain View (Figure 1-1). NAS Moffett originally was 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 renamed NAS Moffett Field. In 1994 under the U.S. Department of Defense's BRAC program, NAS Moffett Field was closed as an active Navy base. On July 1, 1994, the operational area of NAS Moffett Field was transferred to National Aeronautics and Space Administration (NASA) and the military housing portions were transferred to the U.S. Air Force.

Groundwater at NAS Moffett is impacted 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 at NAS Moffett serves as an approximate physiographic line separating the east side from west side (Figure 1-2). Impacted groundwater also occurs in the Traffic Island Area of the B2 Aquifer at IR Site 28. Groundwater at 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 NAS Moffett. IR Site 26 is not part of the regional VOC plume.

The WATS is a groundwater pump-and-treat system west of the runways at IR Site 28 (Figure 1-2). The 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. The former EATS is a groundwater pump-and-treat system at IR Site 26 northeast of Hangar 3 (Figure 1-2). The former EATS was installed to extract and remediate groundwater impacted by the VOCs tetrachloroethene (PCE) and possibly trichloroethene (TCE) believed to have been used at Hangars 2 and 3 and released at the northeast corner of Hangar 3. The EATS was taken off line in July 2003.

Current primary land uses near the WATS include airfield operations, administrative offices, and various storage buildings (NASA 1994). Hangar 1 and several surrounding buildings are part of the Historic District established in 1994. The WATS is located in NASA's redevelopment area. Future land use at NASA's redevelopment area is described in the *NASA Ames Development Plan Final Programmatic Environmental Impact Statement*. The redevelopment 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. Residential development is not planned in areas overlying the regional plume with high concentrations of contaminants. High-density office, research, and development space is planned for the Ames Campus (NASA 2002). Currently, there are no plans for the NASA redevelopment area to change ownership. However, NASA has recently leased a large portion of Moffett Field to Planetary Ventures, LLC.

Land use in the former EATS area at IR Site 26 is specified in the *Moffett Field Comprehensive Use Plan* (NASA 1994). The area east of the runways includes two planning areas: one occupying approximately 174 acres used for air operations and the other occupying approximately 248 acres used for ordnance and fuel storage facilities. The *Moffett Field Comprehensive Use Plan* (1) restricts access and development in the area east of the runways because of safety considerations related to munitions storage and runway and air operations and (2) indicates that no land use change is planned (NASA 1994).

1.2 LOCAL HYDROGEOLOGY

NAS Moffett is located at the northern end of the Santa Clara Valley Basin. Regionally, the northwest-trending Santa Clara Valley Basin contains interbedded alluvial, fluvial, and estuarine deposits to 1,500 feet below ground surface (bgs). 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 conducted at NAS Moffett.

Groundwater beneath NAS Moffett is present in the A, B, C, and Deep aquifers (Table 1-1). The WATS extracts and treats groundwater from the A Aquifer only. The A Aquifer is the uppermost aquifer in the NAS 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, thicknesses, depths, and interconnection of these permeable layers vary throughout NAS Moffett. The A Aquifer is divided into upper and lower portions. The upper portion extends from 0 to a maximum of approximately 35 feet bgs. The lower portion of the A Aquifer is present from approximately 15 to 77 feet bgs. No continuous aquitard separates the upper and lower portions of the A Aquifer.

Groundwater in the upper and lower portions of the A Aquifer at IR Site 28 generally flows north-northeast. Groundwater in the upper portion of the A Aquifer at IR Site 26 generally flows north.

At IR Sites 26 and 28, the A Aquifer currently is not used as a drinking water source. However, the California Regional Water Quality Control Board (Water Board) has determined that the Santa Clara Valley Basin's beneficial-use designation is as a municipal and domestic water source 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 in an area where the total dissolved solids (TDS) concentration of groundwater exceeds 3,000 milligrams per liter (mg/L). Groundwater having TDS concentrations exceeding 3,000 mg/L is not commonly considered a beneficial resource, 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 REMEDY DESCRIPTION AND REMEDIAL ACTIONS

The following sections describe the remedy and summarize remedial actions (including goals and objectives) at IR Sites 28 and 26.

1.3.1 IR Site 28

The requirements for remediating 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) (U.S. Environmental Protection Agency [EPA] 1989). The Navy adopted the MEW ROD in an amendment to the Federal Facilities Agreement (EPA 1990a). The MEW ROD identifies the following as chemicals of concern (COC) at IR Site 28: chloroform; 1,2-dichlorobenzene; 1,1-dichloroethane (DCA); 1,1-dichloroethene (DCE); 1,2-DCE; Freon 113; phenol; PCE; 1,1,1-trichloroethane; TCE; and vinyl chloride (VC) (EPA 1989). 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.

The MEW ROD has had two Explanations of Significant Differences (ESD) dated September 1990 and April 1996. The September 1990 ESD clarifies that the cleanup goals constitute final cleanup standards that the remedial activity must meet. The September 1990 ESD also states 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 COCs would be remediated simultaneously (EPA 1990b). The April 1996 ESD clarifies that the groundwater remedy includes liquid-phase granular activated carbon (GAC) as a treatment option for extracted groundwater (EPA 1996).

The WATS consists of nine groundwater extraction wells in the upper and lower portions of the A Aquifer. The wells extract VOC-impacted groundwater and treat the groundwater using an advanced oxidation process (AOP) and liquid-phase GAC units. The treated water then is discharged to the NAS Moffett storm drain system, which conveys the water to a settling basin and ultimately discharges it to NASA's Eastern Diked Marsh and Storm Water Retention Ponds.

The WATS began operating in November 1998. The WATS maintains a capture zone adequate to allow hydraulic control of affected groundwater downgradient of IR Site 28 and extracts and treat groundwater to meet the cleanup standards established by the MEW ROD and clarified in the September 1990 and April 1996 ESDs.

1.3.2 IR Site 26

Impacted groundwater at IR Site 26 is designated as Operable Unit (OU) 5. The OU5 ROD governs the cleanup of VOCs in OU5 groundwater (Navy 1996). The ROD was signed in June 1996 by the Navy, EPA Region 9, the California Department of Toxic Substances Control, and the Water Board. Groundwater at OU5 was contaminated in two separate VOC plumes, the northern and southern plumes. In the northern plume, the groundwater TDS concentration exceeded 3,000 mg/L. Groundwater having TDS concentrations exceeding 3,000 mg/L is not commonly considered a beneficial resource. Although TCE; cis-1,2- DCE; and VC concentrations exceeded the cleanup goals in the northern plume, based on the TDS criterion, no further action except groundwater monitoring was required for the northern plume. Additionally, PCE concentrations were below the cleanup goal in the northern plume area. In the southern plume, TCE; cis-1,2-DCE; PCE; and VC concentrations exceeded cleanup goals. The selected remedy for groundwater in the southern OU5 plume was extraction and *ex situ* treatment to restore groundwater quality to the cleanup goals (Navy 1996).

The OU5 ROD identifies six COCs. The groundwater cleanup goals for the OU5 southern plume specified in the OU5 ROD, are the more stringent of the federal or state Maximum Contaminant Levels (MCL) for each COC. The OU5 ROD identifies the following organic compounds and corresponding MCLs (Navy 1996):

- 1,2- DCA - 0.5 µg/L
- 1,2-DCE - 6 µg/L
- 1,1-DCE - 6 µg/L
- PCE - 5 µg/L
- TCE - 5 µg/L
- VC - 0.5 µg/L

The former EATS began operating in January 1999 to maintain a capture zone adequate for hydraulic control of impacted groundwater and to restore groundwater quality to the cleanup standards established in the OU5 ROD (Navy 1996). The EATS treated groundwater extracted from five wells completed in the upper A Aquifer using an air stripper and GAC. The treated water was discharged to the NAS Moffett storm drain system.

In July 2003, the former 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. Additionally, an abiotic/biotic treatability study using EHC® began in May 2009 and was completed in October 2011 (Shaw Environmental & Infrastructure, Inc. [Shaw] 2011). The EATS remained off line for the entire 2015 reporting period. Although the former EATS is not operating, groundwater monitoring still is required.

In July 2012, the Navy finalized a Focused Feasibility Study (FS) for IR Site 26 that incorporates the results of the combined abiotic/biotic treatment using EHC®. The Focused FS was completed in October 2011 (Shaw 2012a). On April 15, 2013, based on the Focused FS results, the Navy selected a remedial alternative and issued a Proposed Plan for IR Site 26. Subsequent to the Proposed Plan, the Navy prepared a ROD Amendment (Navy 2014) to document the change in remedy at IR Site 26 from the pump-and-treat remedy using the EATS to *in situ* bioremediation treatment, monitored natural attenuation (MNA), and institutional controls. This amended remedy for IR Site 26 will achieve groundwater cleanup standards in a shorter timeframe, is a more sustainable remedial solution, and costs less.

1.4 2015 ACTIVITIES AND DELIVERABLES

Table 1-2 summarizes monitoring activities and deliverables for the WATS and former EATS. Appendix A discusses progress toward completing 5-year review recommendations. Appendix B provides the 2015 annual remedy performance checklists. In 2015, all monitoring wells located at IR Sites 26 and 28 were sampled for VOCs with PDB samplers. MEW and NASA have recently adopted the HydraSleeve™ sampling method for the sampling of NASA Ames RGRP and MEW wells. The Navy may consider adopting the HydraSleeve™ sampling method for future sampling events. 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), Former Naval Air Station Moffett Field, Moffett Field, California* (SES-TECH 2012a).

2.0 WEST-SIDE AQUIFERS TREATMENT SYSTEM

This section discusses the system description and performance, and operation and maintenance (O&M) of the WATS located at IR Site 28. This section also provides an analysis of the capture zone and hydraulic control of the WATS and provides a summary and evaluation of the groundwater analytical results from the 2015 IR Site 28 annual sampling event.

2.1 SYSTEM DESCRIPTION AND PERFORMANCE

The WATS began operating on November 26, 1998, and completed its 17th year of operation in November 2015. Located west of the runways at NAS Moffett, the WATS remediates groundwater contaminants originating from Navy sources that have commingled with a regional VOC plume originating from off-site sources south of U.S. Highway 101. The WATS currently consists of an AOP and liquid-phase GAC units. The AOP destroys most of the influent VOCs, and the four liquid-phase GAC units remove the remaining VOCs. To prevent VOCs from discharging to air, the WATS air stripper was removed from the treatment train on May 8, 2003, and replaced with the four pre-existing GAC units.

The WATS pumps groundwater from extraction wells to maintain a capture zone adequate to allow hydraulic control of impacted groundwater downgradient of Navy sources at IR Site 28. The nine extraction wells include EA1-1, EA1-2, EA1-3, EA1-4, EA1-5, EA1-6, EA2-1, EA2-2, and EA2-3. Six groundwater extraction wells (EA1-1 through EA1-6) are completed in the upper portion of the A Aquifer, and three extraction wells (EA2-1 through EA2-3) are completed in the lower portion of the A Aquifer. Figure 2-1 shows the locations of extraction and monitoring wells in the upper portion of the A Aquifer. Figure 2-2 shows the locations of extraction and monitoring wells in the lower portion of the A Aquifer. Figure 2-1 also shows NASA and MEW extraction well and monitoring well locations and Figure 2-2 shows NASA and MEW monitoring well location but not NASA extraction well locations since none are completed in the lower portion of the A Aquifer. Figure 2-3 shows the locations of monitoring wells completed in the B and C Aquifers. Data from a selected set of wells were used to develop potentiometric surface maps, capture zone maps, and contaminant distribution maps for this 2015 Annual Groundwater Report.

The 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 collects condensate from steam lines underlying the base. The Hangar 1 sump is completed to a depth of 8 to 9 feet bgs 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 the water volume is recorded as a total volume from both sumps. Because the Hangar 1 sump is flush with the surrounding concrete floor and Hangar 1 currently is not sided, the entire Hangar 1 footprint (approximately 8 acres) is exposed to rainfall. To prevent or minimize the amount of stormwater sheet flow from entering the Hangar 1 sump, in November 2013, a temporary barrier of high-strength polyethylene mesh fabric sandbags was placed around the Hangar 1 sump grate and in the trenching that leads to the Hangar 1 sump (SES-TECH 2014b). This temporary barrier is intended to inhibit and reduce storm water from entering the WATS by reducing or eliminating large influxes of water, thereby minimizing downtime and reducing the frequency of change-out for the system's GAC units.

The following sections discuss influent and discharge information and WATS performance.

2.1.1 Influent and Discharge Information

The VOCs in the upper and lower portions of the A Aquifer predominantly include 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 the WATS. The system flow rate (system data) is measured at the influent of the WATS and includes groundwater from the extraction wells and SDA water.

Similar to previous years, TCE consisted of most of the VOC mass removed by the 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 Navy extraction well during the September 2015 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 masses from all extraction wells were summed to determine the total mass of each contaminant removed for the year. The percentage of the total mass for each contaminant then was calculated. The table below summarizes the percentage mass per constituent and percentage mass removed from the upper and lower portions of the A Aquifer.

VOC	Percentage of Total VOC Mass	Percentage Mass from Lower Portion of A Aquifer	Percentage Mass from Upper Portion of A Aquifer
TCE	63.3	66.0	48.7
cis-1,2-DCE	33.5	31.9	47.4
PCE	1.9	1.1	1.3
VC	1.2	1.0	2.6

On March 27, 2014, the Navy submitted a Notice of Intent to the Water Board to renew the National Pollutant Discharge Elimination System (NPDES) discharge permit for the WATS for coverage under the VOC and Fuel General Permit No. CAG912002. The WATS discharge previously was permitted under the VOC only General Permit No. CAG912003, Order No. R2-2009-0059. The Water Board determined that the WATS discharge was eligible for coverage under Permit No. CAG912002 at this time. Effective on August 25, 2014, under the 2009 VOC only General Permit No. CAG912003, Order No. R2-2009-0059, the WATS discharge was terminated and General Permit No. CAG912002, Order No. R2-2012-0012, was adopted to cover the WATS discharge. Therefore, WATS sampling was conducted from August 25, 2014 through December 2015 in accordance with the NPDES Self-Monitoring Program, NPDES Permit No. CAG912002, Order No. R2-2012-0012.

The WATS effluent and influent were sampled and analyzed monthly for VOCs using EPA Method 8260B and for total petroleum hydrocarbons (TPH) using EPA Method 8015B. In 2015, semiannual and annual sampling of the WATS also was conducted in accordance with the NPDES requirements. The 2015 semiannual sampling event included sampling WATS effluent for 1,4-dioxane. The 2015 annual sampling event included sampling WATS effluent for a fish bioassay. In compliance with the NPDES permit, selected influent and effluent samples also were analyzed quarterly for selenium (see Section 4.4).

Throughout 2015, the WATS effluent was in compliance with the NPDES permit limits for TPH and for all VOCs. The system's two lead GAC vessels were recharged during the 2nd quarter 2015 with fresh carbon and reconfigured to the lag position; the historical lag vessels were reconfigured to the lead position.

2.1.2 System Performance

Since startup through December 31, 2015, the WATS has treated approximately 524,492,566 gallons of water. During 2015, the WATS extracted and treated approximately 19,685,062 gallons of water from the extraction wells and approximately 3,480,647 gallons of SDA water (15.0 percent of the total WATS flow for the year of 23,165,709 gallons). Since startup, the WATS has removed approximately 6050.9 pounds of VOCs. During 2015, the WATS removed approximately 196.3 pounds of VOCs (SES-TECH 2016).

Figure 2-4 shows cumulative volume of groundwater extracted and the contaminant mass removed by the WATS from 1998 through 2015. The figure shows that the rate of groundwater treatment and contaminant mass removed has remained relatively constant since the 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 2015 reporting period, indicating that the contaminant mass removal rate in 2015 was less than that of previous years prior to 2010. In 2015, the volume of water removed by the extraction wells was about 1.1 percent more than the 20,838,969 gallons removed by the extraction wells in 2014. All nine extraction wells remained in operation for the duration of the 2015 calendar year.

During 2015, an estimated 67 percent of the groundwater flow came from the lower portion of the A Aquifer, and 33 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 average monthly flow rates for the extraction wells and the total system. Table 2-2 shows monthly extraction totals for each well and the total system.

Figure 2-5 shows TCE; PCE; cis-1,2-DCE; and VC average influent concentrations and the sum of these average concentrations to the WATS from 1998 through 2015. 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 2014 and September 2015, the average influent of total VOC concentrations increased from 712.02 μg/L to 724.87 μg/L reflecting increases in average TCE, PCE, and VC concentrations.

Figure 2-6 shows the cumulative system costs and the cost per pound of contaminant mass removed by the WATS. System costs were calculated using WATS O&M costs, including all miscellaneous costs. System O&M costs before October 1999 are considered startup costs and are included in the system construction costs. Construction costs for the WATS were not used in this analysis in accordance with the Navy's *Guidance for Optimizing Remedial Action Operation (RAO)* (Navy 2001). The cumulative cost per pound of VOCs removed from startup through December 2015 was $1,278, a slight increase from cumulative cost per pound of $1,261 reported in 2014. The 2015 monthly cost per pound removed averaged $1,893, compared to an average of $1,895 in 2014. The total annual O&M costs slightly increased from $350,700 in 2014 to $351,600 in 2015.

The WATS experienced 73.0 hours of downtime during the 2015 calendar year, operating approximately 99.2 percent of the 2015 reporting period. This WATS operational percentage increased from 95.1 percent during the 2014 operating year. Table 2-1 lists the WATS run-time percentages by month. Regularly scheduled monthly maintenance, minor system repairs, power outages, system restarts and site walkthroughs or deliveries resulted in brief system downtimes ranging from 2 to 33 hours per event, with up to three events per month. Individual extraction wells were off line for up to 68 hours per event. The system downtime periods included the following:

- 4 Hours during the January 2015 reporting period for system repairs and monthly maintenance
- 2 Hours during the February 2015 reporting period monthly maintenance
- 0 Hours during the March 2015 reporting period although extraction well EA1-4 was off line 21 hours, EA1-5 for 190 hours, and EA1-6 for 22 hours
- 3 Hours during the April 2015 reporting period for monthly maintenance

- 10 Hours during the May 2015 reporting period due to power failures (9 hours) and for monthly maintenance
- 3 Hours during the June 2015 reporting period for monthly maintenance
- 3 Hours during the July 2015 reporting period for monthly maintenance
- 2 Hours during the August 2015 reporting period for monthly maintenance
- 40 Hours during the September 2015 reporting period for equipment repairs
- 2 Hours during the October 2015 reporting period for monthly maintenance; extraction well EA2-1 was off line 102 hours during the reporting period
- 4 Hours during the November 2015 reporting period for monthly maintenance; extraction well EA2-2 was off line 50 hours during the reporting period
- 0 Hours during the December 2015 reporting period

2.2 WATS Operation and Maintenance

During the 2015 reporting period, the WATS operated approximately 99.2 percent of the time. Unexpected O&M difficulties encountered in 2015 included power failures, equipment failures and extraction wells tripping off line.

2.3 Capture Zone Analysis and Hydraulic Control

The following sections discuss the estimated capture zones for 2015 and hydraulic control for the WATS.

2.3.1 Estimated Capture Zones for 2015

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 for Effective Management of Operating Pump & Treat Systems (EPA 2002). Current and historical analytical and water level data were used to evaluate the efficiency of the WATS to maintain adequate capture zones. The capture zone analysis was conducted using the steps discussed below (EPA 2004 and 2008).

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

Review Site Data

Site data required to evaluate capture zones include analytical results for groundwater samples and water level measurements collected from a network of extraction and monitoring wells installed throughout IR Site 28. Figures 2-1 and 2-2 show groundwater monitoring and extraction wells installed in the upper and lower portions of the A Aquifer, 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 TCE; PCE; cis-1,2-DCE; and VC were developed for the upper and lower portions of the A Aquifer to evaluate VOC distribution in three dimensions. The MEW ROD (EPA 1989) selects TCE as an indicator chemical because it was assumed that by remediating TCE, the other COCs would be remediated simultaneously.

Figures 2-7 and 2-8 provide TCE distribution maps for the upper and lower portions of the A Aquifer, respectively. TCE isoconcentration contours were generated by posting groundwater sample concentrations at each monitoring well and contouring them. The contours then were transferred into a geographic information system (GIS) to create the distribution maps. Since fewer wells were sampled in 2015, isoconcentration contours from 2014 data are dashed to show the previous extent of TCE distribution beyond the 2015 data for comparison.

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 to better define the areal extent of the TCE plume within the upper portion of the A Aquifer.

The TCE plume in the lower portion of the A Aquifer also is 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 has better defined the areal extent of the TCE plume in the lower portion of the A Aquifer. Portions of the leading edge of both the eastern and western borders of the TCE plume are shown as most recently inferred based on 2014 data on Figure 2-8 due to a lack of downgradient control.

Basewide groundwater elevation data were collected in March and September of 2015. Groundwater elevations were gauged across IR Sites 28 and 26 in coordination with the Regional Groundwater Remediation Program (RGRP), which includes the Navy, MEW companies, and NASA, so that all parties conduct gauging on the same day. Table 2-3 summarizes the Navy groundwater elevation data measured in 2015 for IR Site 28 wells, and Appendix C contains the field logs for both the March and September 2015 basewide groundwater elevation gauging events. These elevations were calculated by converting depth-to-water measurements to a common datum in feet above mean sea level (msl). Groundwater elevation data were used to create potentiometric surface maps as discussed under Step 3 below. Site hydrogeological information (such as potentiometric surface maps, hydraulic gradient values, extraction well pumping rates, and water loss calculations) as well as current and historical water quality data are considered adequate for performing the capture zone analysis.

Site Conceptual Model

IR Site 28 subsurface geology is fluvial and characterized by anastomosing coarse-grained channels and discontinuous finer-grained interchannel and overbank deposits. The channels generally trend northwest to southeast, becoming more northerly near the WATS. The primary groundwater flow direction is north-northeast. Thicker, more continuous channels of sands and gravels trending northwest to southeast are present south of the WATS and extend south of U.S. Highway 101. The sand and gravel intervals are thin, and the clay and silt intervals become thicker near the 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, no continuous aquitard separates these portions.

VOCs in the upper and lower portions of the A Aquifer are migrating onto NAS 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) (TtEC 2008a). The primary groundwater flow direction is north-northeast.

Environmental receptors for VOC contamination at IR Site 28 have not been identified. Contaminated groundwater does not reach any ecological receptors at IR Site 28 (TtEC 2008a). The A Aquifer currently is not used as a drinking water source. However, the aquifer meets the Water Board's criteria for beneficial use designation.

Remedial Objectives

The 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 1996).

Step 2 – Define Site-Specific Target Capture Zone

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

Step 3 – Interpret Water Levels

Water level interpretation required preparing hydrographs, preparing potentiometric surface maps, and evaluating water level pairs as discussed below.

Prepare Hydrographs

Hydrographs were prepared using groundwater elevation data to aid in the evaluation of site-specific trends. Figures 2-9 through 2-53 show the hydrographs for selected wells. Groundwater monitoring wells were selected for hydrograph preparation 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 distance from extraction wells), and period of record (1995 to present). The hydrographs in Figures 2-9 through 2-30 were prepared for monitoring wells close to extraction wells. The hydrographs in Figures 2-31 through 2-53 were prepared for monitoring wells far from extraction wells. Seasonal groundwater elevation trends for 2015 appear consistent with the trends described in the annual reports from 2001 through 2014.

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

During the November 2005 reporting period, groundwater levels in many monitoring wells were lower than during previous reporting periods. Since then, groundwater levels generally have fluctuated within historical bounds 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 basewide groundwater monitoring events.

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 well (SES-TECH 2009). The declines in groundwater elevation in the upper portion of the A Aquifer observed in monitoring well W9-43 (Figure 2-33) located near the lower portion of the A Aquifer represent the effect of extraction well EA2-3, indicating a hydraulic connection between the upper and lower portions of the A Aquifer.

Hydrographs for groundwater elevations in monitoring wells completed in the upper and lower portions of the A Aquifer far from the extraction wells also indicate declines in groundwater elevations, although less pronounced than in monitoring wells located near extraction wells. These declines may result from a general lowering of local potentiometric surfaces caused by the pumping of the extraction wells.

Prepare Potentiometric Surface Maps

Potentiometric surface maps were prepared to evaluate flow directions and hydraulic gradients using groundwater elevation data collected during the March and September 2015 basewide groundwater gauging events. Figures 2-54 through 2-57 show the potentiometric surface maps for the upper and lower portions of the A Aquifer at IR Site 28 in March and September 2015. Using pump test data from 2004, well water loss values were calculated for WATS extraction wells in 2015 to adjust the extraction well water level elevations for well water loss. Table 2-4 summarizes the well water loss calculations. The corrected values for WATS extraction wells were used on the potentiometric surface maps as discussed under Step 4–Perform Appropriate Calculations. The potentiometric surface maps were computer-generated using Surfer™. A California professional geologist reviewed and adjusted the maps based on best professional judgment and an understanding of the site hydrogeology.

The groundwater flow direction in the upper and lower portions of the A Aquifer generally is north-northeast. In March 2015, the upper A Aquifer showed approximate groundwater gradients of 0.005 foot per foot (ft/ft) north of Hangar 1 and 0.0045 ft/ft south of Hangar 1 (excluding extraction well cones of depression). In September 2015, the upper A Aquifer showed approximate groundwater gradients of 0.005 ft/ft north of Hangar 1 and 0.004 ft/ft south of Hangar 1 (excluding extraction well cones of depression). In March 2015, the lower A Aquifer showed approximate groundwater gradients of 0.009 ft/ft north of Hangar 1 and 0.01 ft/ft south of Hangar 1 (excluding extraction well cones of depression). In September 2015, the lower A Aquifer showed approximate groundwater gradients of 0.006 ft/ft north of Hangar 1 and 0.005 ft/ft south of Hangar 1(excluding extraction well cones of depression).

The groundwater flow direction in both the upper portion of the A Aquifer and the lower portion of the A Aquifer at IR Site 28 was influenced by the groundwater depression associated with pumping at Building 191 and its associated network of ditches and drains (Figures 2-54, 2-55, 2-56, and 2-57). The groundwater flow direction in the southern portion of IR Site 28 is generally north. In the northern portion of IR Site 28, the groundwater flow direction is generally north-northeast toward the groundwater depression near Building 191.

Extraction well EA2-3 north of Hangar 1 was completed in the lower portion of the A Aquifer in 2004 to increase capture along the eastern edge of the plumes. Based on data from 2005 through 2015, additional groundwater extraction from well EA2-3 has affected the potentiometric surface compared to previous years. The combined pumping of extraction wells EA2-2 and EA2-3 have created larger areas of radial flow toward these wells especially during the March 2015 monitoring event but to a lesser extent during the September monitoring event. The area near monitoring wells 90A and W9-43 (completed in the upper portion of the A Aquifer) demonstrates a water-level response to extraction well pumping in the lower portion of the A Aquifer. Groundwater monitoring wells 90A and W9-43 (completed in the upper portion of the A Aquifer) are located above the lower portion of A Aquifer extraction wells EA2-2 and EA2-3, respectively. The response in groundwater levels in monitoring wells completed in 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.

Evaluate Water Level Pairs

Individual well pairs were not evaluated because the location of and distance between 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 as discussed under Step 4 below.

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 horizontal, even under pumping conditions in the upper A Aquifer, remains mainly horizontal, with overall site gradients of 0.003 to 0.005 ft/ft in March 2015 and 0.003 to 0.005 ft/ft in September 2015.

The flow-net analysis method for capture zone estimation considers 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 NAS 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 were estimated to extend upgradient to the NAS Moffett boundary.

Figures 2-58 through 2-61 show the capture zone maps for the upper and lower portions of the A Aquifer at IR Site 28 in March and September 2015. These capture zones are considered conservative because the groundwater elevations from the WATS extraction wells were corrected for well water loss. Thus, the drawdown and extent of the capture zones associated with these WATS extraction wells may be underestimated. The groundwater elevations in the extraction wells are lower than elevations in the surrounding aquifers due to frictional head loss in the extraction wells. Using these actual groundwater elevation values would overestimate the drawdown and extent of capture zones. Pumping tests were performed in 2004 on WATS extraction wells EA1-2 through EA1-6 and EA2-1 through EA2-3. The pumping test results were used to calculate well water loss at each extraction well (Table 2-4). The well water loss values were applied to these extraction wells to correct the groundwater elevations (Tetra Tech FW, Inc. [TtFW] 2005a). It is assumed that the calculated well water losses remain relatively constant and therefore are useful for evaluating 2015 data and conditions. Consequently, the corrected elevations discussed above were used to construct the potentiometric surface and capture zone maps in accordance with published EPA guidance (EPA 2002). The pumping rate of WATS extraction well EA1-1 is insufficient to conduct a pumping test. Therefore, a well water loss was not calculated for this well (TtFW 2005a). The RGRP extraction well elevations were not corrected for well water 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 the RGRP extraction well capture zones in almost all capture zone areas associated with the WATS.

A qualitative review of the site conceptual model and potentiometric surface maps indicates that the 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).

Step 5 – Evaluate Concentration Trends at Monitoring Wells

As discussed below, historical data from the upper and lower portions of the A Aquifer were compiled to evaluate TCE concentration trends in groundwater samples collected from monitoring wells near the 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 wells sampled. These monitoring wells are located in the demarcated IR Site 28 TCE plume (Figures 2-7 and 2-59).

Figures 2-62 through 2-65 provide the time series concentration plots for TCE in monitoring wells W9-2, 14D12A, W9-10, and WU4-14. The time series plots for groundwater samples collected from monitoring wells W9-2, 14D12A, and WU4-14 show generally decreasing TCE concentration trends since startup of the WATS in 1998. Monitoring well W9-10 shows a generally decreasing trend until 2013 and then an increasing TCE concentration trend since 2013. 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 attributable to startup of the WATS in 1998 (Figure 2-65). These increasing TCE concentrations in monitoring well WU4-14 since 2000 likely are due to the proximity of 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 to under 1,000 µg/L since 2008 and have decreased markedly from 2010 through 2015. The zone of relatively high TCE concentrations (exceeding 100 µg/L) originates from the southern off-site border and terminates near extraction wells EA1-3, EA1-5, EA1-6, REG-6A, and REG-7A (Figure 2-7).

In 2015, two small areas in the upper portion of the A Aquifer contained the highest TCE concentrations (greater than 1,000 µg/L). These areas are located in the main body of the contaminant plume and are associated with monitoring well W9-2 (located south of Bushnell Road and east of McCord Avenue) and monitoring well WU4-3 (located north of Edquiba Road and east of McCord Avenue) (Figure 2-7). Based on historical data, the relatively high TCE concentrations (exceeding 100 µg/L) originated from beyond the southern site border. The time series plot for groundwater samples collected from monitoring well W9-2 shows a long-term, generally decreasing trend in TCE concentrations since 2001 (Figure 2-62). This decreasing TCE trend is likely due to the well's proximity to extraction well EA1-3 and continuous and effective removal of contaminated groundwater by the WATS (Figure 2-7). Similarly, TCE concentrations in monitoring well WU4-3 have decreased by roughly one order of magnitude since monitoring began in 1992 (4,700 µg/L) to 2011 (240 µg/L). This decrease likely is due to the well's proximity to extraction well REG-4A (Figure 2-7). However, the TCE concentration in this well increased in 2012 (1,200J µg/L), 2013 (1,100 µg/L), 2014 (1,600 µg/L), and 2015 (1,100 µg/L).

Historical data collected from wells 14D02A, 14D28A, WU4-16, and 14D24A (Figure 2-7) were used to assess the TCE concentration trend in the upper portion of the A Aquifer downgradient of the WATS. Figures 2-66 through 2-69 show the time series TCE concentration trends downgradient of the WATS for these four wells. Historically, the downgradient edge of the main body of the TCE plume was located approximately 50 feet south (upgradient) of monitoring well 14D02A. The time series plot for groundwater samples from monitoring well 14D02A indicates TCE concentrations similar to those reported since 1992, most samples 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 indicates a generally decreasing trend in TCE concentrations from WATS startup in 1998 through late 2002, followed by fluctuating TCE concentrations until late 2004 and a subsequently stable TCE concentration trend through 2010. Monitoring well 14D28A was optimized out of the Navy groundwater sampling network after the 2010 sampling event, and the well was not sampled in 2015 (ERS Joint Venture [ERS-JV] 2011a). However, because the trend plot for this well spans from January 1995 through November 2010, the data remain pertinent to the TCE concentration trend analysis for the upper portion of the A Aquifer downgradient of the WATS. The time series plot for groundwater samples collected from monitoring well WU4-16 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 indicates an overall decreasing TCE concentration trend since 2008. Monitoring well 14D24A was not sampled in 2015. TCE concentrations in the upper portion of the A Aquifer have decreased to below 1,000 μg/L along the leading edge of the plume.

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

Lower Portion of the A Aquifer

Groundwater monitoring wells 154B1, W9-25, W29-7, and WU4-15 were completed in the lower portion of the A Aquifer downgradient of the WATS extraction wells but within the estimated extraction well system capture zone (Figure 2-61). These four wells were selected for TCE concentration trend analysis because the wells represent varying concentrations and historically were located within the 5-μg/L TCE plume boundary (Figure 2-8).

Figures 2-70 through 2-73 show the time series TCE plots for groundwater samples collected from monitoring wells 154B1, W9-25, W29-7, and WU4-15, respectively. Time series plots for groundwater samples collected from monitoring wells 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 shows a fluctuating but generally decreasing trend since sampling of this well began in 2001. However, in 2013 and 2014, the TCE concentrations have increased by one order of magnitude in this well. Monitoring well 154B1 was not sampled in 2015. The time series TCE concentration plot for groundwater samples collected from monitoring well WU4-15 indicates a slightly increasing trend from 5.7 μg/L in 1999 to 7.7 μg/L in 2015. This increase likely is 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 in the lower portion of the A Aquifer, are located along the leading edge of the TCE plume in the lower portion of the A Aquifer and downgradient of the WATS extraction wells (Figure 2-8). In 2015, the downgradient edge of the TCE plume in the lower portion of the A Aquifer was located about 200 feet upgradient from monitoring well 139B1 (Figure 2-8). 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, and well WU4-19 is located in the lower portion of the A Aquifer TCE plume.

Figures 2-74 through 2-76 show time series TCE concentration plots for groundwater samples collected from monitoring wells 139B1, WNB-14, and WU4-19, respectively. Since 1992, the time series plot for groundwater samples collected from monitoring well 139B1 indicates consistent TCE concentrations below 1 μg/L. The time series plot for groundwater samples collected from monitoring well WNB-14 indicates an overall decrease in TCE concentrations since startup of the WATS in mid-1998. TCE concentrations decreased from 3.9 μg/L in 2010 to 0.22J μg/L in 2011 and finally to 0.50U μg/L in 2012 and 2013 and continue to demonstrate a below-detection-level trend. The time series plot for groundwater samples collected from monitoring well WU4-19 indicates a stable, minor cycling of TCE concentrations since startup of the WATS in mid-1999 through 2005. Although well 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.

Section 2.4.1 discusses the trend analyses for TCE; cis-1,2-DCE; PCE; and VC for groundwater samples collected from selected monitoring wells installed in the lower portion of the A Aquifer throughout IR Site 28.

Step 6 – Interpret Actual Capture

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

Based on the declining TCE concentration trends in groundwater samples collected from monitoring wells completed in the upper and lower portions of the A Aquifer (determined during Step 5 and discussed in Section 2.4.1.2), the efficiency of the WATS and its resulting capture zones will ultimately achieve remedial objectives (discussed under Step 1). For most monitoring wells, TCE concentration trends are asymptotic or decreasing in groundwater samples collected from wells completed in the upper and lower portions of the A Aquifer and located downgradient of the WATS extraction wells. Additionally, the concentration trend analysis conducted in the leading edge of the main portion of the TCE plume shows that TCE 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 2014 and by NASA in 2008, TCE concentrations exceeding the cleanup standard of 5 μg/L may extend beyond what was historically considered to be the leading edge of the plume. Furthermore, as long as groundwater containing contaminants at concentrations exceeding the cleanup standards flows from a continuing upgradient source (south of U.S. Highway 101) to IR Site 28, the remedial objective of restoring groundwater quality to the cleanup standards cannot be achieved.

2.3.2 Hydraulic Control

Groundwater in the upper and lower portions of the A Aquifer generally flows north-northeast (Figures 2-54 through 2-57). The average regional hydraulic gradient is approximately 0.0047 ft/ft in the upper portion of the A Aquifer immediately north of the localized groundwater depression, flattening to 0.0017 ft/ft towards the shoreline, and approximately 0.0055 ft/ft south of the depression. The change in groundwater gradient apparently results from natural conditions and not from pumping of the extraction wells. The change in gradient reflects the same general change in slope of the surface topography north of Hangar 1. A decrease in gradient indicates 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. An area with high transmissivity would have a thicker or more contiguous aquifer or higher hydraulic conductivity. It is believed that the surficial geology in this general area has been changed by flood basins and estuary deposits. This surficial geology would explain the change in hydraulic gradient because floodplain deposits are characterized by channels of limited areal extent containing sands and gravels with high hydraulic conductivity surrounded by silts and clays with lower hydraulic conductivity. Estuary deposits consist of contiguous layers of sand with possibly high transmissivity.

The potentiometric surface maps of the upper and lower portions of the A Aquifer for March and September 2015 in Figures 2-54 through 2-57 illustrate the effects from the WATS and RGRP extraction wells on the direction of groundwater flow. These effects are similar to those depicted in the annual groundwater monitoring reports from 1999 to 2003 (FWENC 2002, 2003a, and 2003b; TtFW 2004a).

However, beginning in 2004 (TtFW 2005b) and continuing throughout 2015, there is a notable change in groundwater flow direction in the upper and lower portions of the A Aquifer near extraction wells EA2-1,EA2-2, and to a lesser degree, EA2-3. Extraction well EA2-3 was installed in January 2004. The pumping of extraction wells EA2-1 and combined EA2-2 and EA2-3 has created larger areas of radial flow toward these wells. The area in the immediate vicinity of wells 90A and W9-43 completed in 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 of wells completed in the upper portion of the A Aquifer to extraction of 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 analytical results from the 2015 IR Site 28 annual sampling event. Contaminant groundwater plumes at IR Site 28 were evaluated to assess current conditions and changes from previous years. The groundwater samples were analyzed for the VOCs TCE; cis-1,2-DCE; PCE; and VC using EPA Method 8260B. Section 2.4.1 discusses the TCE; cis-1,2-DCE; PCE; and VC trends in the upper and lower portions of the A Aquifer.

Table 2-5 summarizes the analytical data for the 2015 IR Site 28 annual sampling event. Appendix D provides the sample collection field forms, chain-of-custody documentation, data validation packages, case narratives, and laboratory analytical summary sheets (on compact disc only). Appendix E provides the quality assurance/quality control (QA/QC) evaluation of the analytical data.

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 this report's tables but are shown on various figures. It is 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, wells NASA-2A and 14D26A were removed from the sampling program because they provided data duplicative of data from nearby wells that are sampled (11N22A and 14D24A). After 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 (ERS JV 2011a; SES-TECH 2012a). In 2013, the Navy added monitoring wells 28SI-01, 28SI-02, 28SI-03, 28SI-04, 28SI-05, 28SI-06, 28SI-07, 28SI-08, 28SI-09, 28SI-10, 28SI-11, 28SI-12, 28SI-13, 28SI-14, and 28SI-15 to the annual sampling program. In addition, three NASA monitoring wells (11M16A1, 14D37A, and 11N26A), all installed in the upper portion of the A Aquifer, were added to the sampling network in 2013 and sampled by NASA in 2014 to provide further plume resolution. Before the annual 2014 groundwater sampling event, NASA added the following monitoring wells to the sampling network for further plume resolution: 11M24A, 14C60A, 14D25A2, 14D28A, 14D31A2, 14D33A, WSI-4, and WNB-8. Analytical data from these NASA wells are incorporated into the IR Site 28 plume maps. In 2014, the Navy added wells 28OW-01 and 28OW-09 installed in the upper portion of the A Aquifer to the annual groundwater monitoring program and also the following wells installed in the lower portion of the A Aquifer to the annual groundwater monitoring program: 28OW-03, 28OW-04, 28OW-11, 28OW-19, 28OW-20, 28OW-23, and 28OW-24. Per EPA conditional approval, MEW and NASA did not participate in the annual groundwater sampling event in September 2015.

Data from the 15 Navy monitoring wells installed in 2013 along with the 9 Navy monitoring wells added to the monitoring well network in 2014 and 2015 (1) have been incorporated into this report, (2) are included on the IR Site 28 contaminant plume maps discussed in text below as part of the concentration evaluations, and (3) are included in Tables 2-5 and 2-6. However, because limited contaminant concentration data over time are available for these 24 monitoring wells, this additional data is not included in trend analyses discussions.

The following sections present the chemical data evaluations and trend analyses for the upper and lower portions of the A Aquifer and the chemical data evaluation for the B2, B3, and C Aquifers.

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

Table 2-5 summarizes analytical data for the 2015 IR Site 28 annual sampling event. This section discusses the analytical data evaluation and trends for TCE; cis-1,2-DCE; PCE; and VC. Section 2.3.1 discusses the TCE plume maps for the upper and lower portions of the A Aquifer. The following sections discuss the cis-1,2-DCE; PCE; and VC plume maps for the upper and lower portions of the A Aquifer. The VOC plume maps were developed using the method described in Section 2.3.

Table 2-6 summarizes historical groundwater analytical data for TCE; cis-1,2-DCE; PCE; and VC from 1992 through 2015 for samples collected from all IR Site 28 monitoring wells sampled by the Navy as part of the annual groundwater monitoring effort. A subset of 26 of these monitoring wells was selected to evaluate VOC concentration trends, four of which have not been sampled since 2011. Monitoring wells were selected in accordance with the *Final West-Side Aquifers Treatment System Long-Term Groundwater Monitoring Plan, Revision 2* (TtFW 2004b). The EPA approved the list of wells selected. Figures 2-77 through 2-112 present the time series graphs of VOC concentrations for the wells selected. Data evaluation and trend analysis were based on visual evaluation of the historical time series VOC concentration trend graphs.

For the upper portion of the A Aquifer, time series concentration plots were prepared for 26 wells within the Navy sampling network (Figures 2-77 through 2-102). Of these 26 wells, the following 4 wells were optimized out of the Navy groundwater sampling network after the 2010 sampling event and were not sampled in 2015: W9SC-7 (Figure 2-87), WU4-8 (Figure 2-95), WWR-1 (Figure 2-101), and WWR-2 (Figure 2-102) (ERS-JV 2011a). However, because the trend plots for these four wells begin before startup of the WATS and continue through 2010, the data remain pertinent to the concentration trend analyses for the upper portion of the A Aquifer. Therefore, figures for these wells are included in this report. The current trend analysis discussions include only 22 of the 26 wells completed in the upper portion of the A Aquifer for which time series concentration plots were created.

For the lower portion of the A Aquifer, time series concentration plots were prepared for 10 wells within the Navy sampling network (Figures 2-103 through 2-112). Of these 10 wells, 1 well (80B1 [Figure 2-103]) was optimized out of the Navy groundwater sampling network after the 2010 sampling event and was not sampled in 2015 (ERS-JV 2011a). However, because the trend plot for this well begins before startup of the WATS and continues through 2010, the data remain pertinent to the TCE concentration trend analysis for the lower portion of the A Aquifer. Therefore, the figure for this well is included in this report. The current trend analysis discussions include only 9 of the 10 wells completed in the lower portion of the A Aquifer for which time series concentration plots were created.

2.4.1.1 TCE Evaluation

Upper Portion of the A Aquifer – TCE Plume

The regional TCE plume in the upper portion of the A Aquifer extends downgradient (north) from south of U.S. Highway 101 (Figure 2-7). The regional plume has an axis that generally trends south to north. The plume is similar in shape and extent to the TCE plume shown on maps prepared since 2003. However, data from monitoring wells added to the Navy, NASA, and MEW sampling programs since 2008 have allowed better definition.

Data from monitoring wells 14D36A and 14D39A have allowed better definition of the leading edge of the eastern portion of the TCE plume in the upper portion of the A Aquifer. Although not sampled in 2015, 2014 analytical data collected from monitoring well 14D24A suggest a potential connection to TCE concentrations detected in monitoring well 95A, indicating a separate plume downgradient of the WATS capture area (Figure 2-7). Prior historical data from monitoring wells 11M16A1, 14D37A, WNB-8, and 11N26A allowed better definition of the eastern portion of the separate TCE plume downgradient of the WATS capture area, and historical data from monitoring wells 11M24A and 11M30A allowed better definition of the northern portion of the separate TCE plume downgradient of the WATS capture area (Figure 2-7).

Historical data from monitoring wells WT14-1 and W14-3 allowed better definition of the eastern edge of the TCE plume in the upper portion of the A Aquifer and historical data from monitoring wells W89-2, W89-03A-R, W89-04A-R, W89-5, W89-8, W89-9, and W9-16 allowed better definition of the area along the western portion of the plume. Additionally, historical TCE concentrations detected in well W89-9 suggest that the areal extent along the leading edge of the western portion of the plume have increased. In this area, groundwater may be drawn eastward by extraction well REG-7A to connect with the eastern portion of the plume. The eastern groundwater plume periphery has higher TCE concentrations than the western periphery. Based on historical data, increasing TCE concentrations since 2009 in MEW wells W89-1 and W89-2 suggest the reconnection of the eastern and western portions of the plume, indicating increased upgradient migration of impacted groundwater from the MEW Superfund Site study area.

The highest TCE concentration in 2015 samples collected from monitoring wells within the Navy network installed in the upper portion of the A Aquifer at IR Site 28 was detected in monitoring well W9-2 (1,900 μg/L). This concentration represents an increase from the 2014 TCE concentration in the well, up from 1,100 μg/L. In both 2012 and 2013, the highest TCE concentrations were detected in monitoring well W9-2 (1,800 and 1,800 μg/L, respectively), but in 2014, the highest TCE concentration was observed in WU4-3, at 1,600 μg/L. The reported TCE concentrations in both wells WU4-3 and W9-2 are within the historical TCE concentration ranges. Monitoring well WU4-3 is located approximately 900 feet southwest of Hangar 1 upgradient of the WATS treatment area, and monitoring well W9-2 is located approximately 750 feet west of Hangar 1.

Lower Portion of the A Aquifer – TCE Plume

The regional TCE plume in the lower portion of the A Aquifer extends downgradient (north) from south of U.S. Highway 101 (Figure 2-8). The 2015 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 2014 and generally is similar in shape and extent to the 2015 TCE plume in the overlying upper portion of the A Aquifer, although the TCE plume in the lower portion of the A Aquifer is shifted slightly to the west relative to the overlying TCE plume in the upper portion of the A Aquifer. Data from monitoring wells added to the RGRP sampling program in 2008 have allowed better definition of the extent of the plume.

The highest TCE concentration in 2015 samples collected from monitoring wells within the Navy network installed in the lower portion of the A Aquifer at IR Site 28 was detected in monitoring well 28SI-13 (12,000 μg/L) followed closely by concentrations in monitoring wells 28OW-03 and 28OW-04 (10,000 μg/L and 8,000 μg/L, respectively). These monitoring wells were installed as downgradient observation wells as part of a treatability study conducted in a high concentration, and only limited historical data are available for comparison. These wells will continue to be sampled during future monitoring events. Historically, well WU4-4, which is upgradient of the WATS treatment area, has contained the highest TCE concentrations in the lower portion of the A Aquifer at IR Site 28 but has demonstrated an overall decreasing trend since 1992, decreasing an order of magnitude from 31,000 μg/L in 1992 to 4,400 μg/L in 2015.

2.4.1.2 TCE Trends

Table 2-6 summarizes the historical TCE data, and Figures 2-77 through 2-112 present the time series concentration plots for TCE.

Upper Portion of the A Aquifer – TCE Trends

Figures 2-77 through 2-102 present the 26 selected historical time series considered to be representative of TCE concentration plots of which 22 include data collected from the 50 monitoring wells sampled in 2015 in the upper portion of the A Aquifer. TCE was not detected in groundwater samples from 17 out of the 50 monitoring wells sampled in 2015. An overall decreasing trend of TCE concentrations is apparent in the following 20 of the 22 wells sampled in 2015 and for which time-series plots were evaluated: 14C33A (Figure 2-77), 14D05A (Figure 2-78), W9-2 (Figure 2-79), W9-10 (Figure 2-80), W9-18 (Figure 2-81), 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), W29-1 (Figure 2-90), W29-3 (Figure 2-91), W56-2 (Figure 2-93), WIC-1 (Figure 2-94), WU4-10 (Figure 2-96), WU4-14 (Figure 2-97), WU4-17 (Figure 2-98), and WU4-25 (Figure 2-100). Overall stable TCE concentrations since at least the start of WATS operation are indicated in the following two out of the 22 monitoring wells sampled: W29-4 (Figure 2-92), WU4-10 (Figure 2-96), and WU4-21 (Figure 2-99). None of the 22 time-series plots indicate overall increasing long-term trends of TCE concentrations.

Lower Portion of the A Aquifer – TCE Trends

Figures 2-103 through 2-112 present the ten selected historical time series TCE concentration plots for groundwater samples collected from the 30 monitoring wells sampled in 2015 in the lower portion of the A Aquifer. Of the ten monitoring wells with historical time-series plots, nine were sampled in 2015. An overall decreasing trend of TCE concentrations is apparent in the following seven out of the nine wells sampled in 2015: W9-9 (Figure 2-104), 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 overall increasing long-term trend of TCE concentrations is apparent in monitoring well WU4-15 (Figure 2-112) in the lower portion of the A Aquifer. An overall stable long-term trend is apparent in well W9-14 (Figure 2-105) in the lower portion of the A Aquifer since startup of the WATS in 1999 except for a period of depressed TCE concentrations between 2005 and 2009.

2.4.1.3 Cis-1,2-DCE Evaluation

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

Similar to the TCE plume, the cis-1,2-DCE plume extends downgradient (north) from south of U.S. Highway 101. The regional plume has an axis that generally trends south to north, with the plume centered over the WATS capture area (Figure 2-113). The 2015 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 2014. In addition, monitoring wells added to the Navy and RGRP sampling programs since 2008 have allowed better definition of the extent of the cis-1,2-DCE plume.

Data from monitoring wells 14D36A and 14D39A have allowed better definition of the leading edge of the cis-1,2-DCE plume. Historical analytical data from monitoring well 14D24A (not sampled 2015) suggest a potential connection to cis-1,2-DCE 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.

Historical data from monitoring wells WT14-1 and W14-3 allowed better definition of the eastern edge of the cis-1,2-DCE plume originating south of U.S. Highway 101. Historical data from monitoring wells W9-16, W89-2, W89-1, W89-03A-R, W89-04A-R, W89-5, W89-8, and W89-9 have allowed better definition of the southwestern portion of the cis-1,2-DCE plume. Historical data from monitoring wells 11M16A1, 14D37A, and 11N26A have allowed better definition of the separate cis-1,2-DCE plume downgradient of the WATS capture area. Data through 2015 from monitoring wells 28SI-01, 28SI-02, 28SI-03, 28SI-05, 28SI-08, 28OW-01, and 28OW-09 have allowed better definition of the area of the 1,2-DCE plume with the highest concentrations (Figure 2-113).

The highest cis-1,2-DCE concentration in 2015 samples collected from monitoring wells within the Navy network installed in the upper portion of the A Aquifer at IR Site 28 was detected in monitoring well 28SI-03 (5,900 µg/L). Monitoring well 28SI-08 was not accessible during the 2015 sampling event. This concentration is similar to the highest cis-1,2-DCE concentration detected in 2014 in monitoring well 28SI-08 of 6,300 µg/L. Both wells 28SI-03 and 28SI-08 were installed in 2013 in areas downgradient of previous treatability studies. The elevated cis-1,2-DCE concentrations in these wells is likely due to biological degradation of PCE and TCE. Both wells will continue to be sampled during future monitoring events. For wells within the historical Navy network, the highest cis-1,2-DCE concentration detected in 2015 was in well WNX-2 at 1,600 µg/L. Well WNX-2 also contained the highest cis-1,2-DCE concentration of the historical Navy network wells installed in the upper portion of the A Aquifer at IR Site 28 and sampled in 2014 (1,700 µg/L).

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

The shape and areal extent of the cis-1,2-DCE plume in the lower portion of the A Aquifer is characterized by a generally south-to-north trending axis (Figure 2-114). A continuous plume of groundwater containing cis-1,2-DCE at concentrations exceeding 100 µg/L extends from off site to the south through the WATS treatment area. Data from monitoring wells added to the RGRP sampling program in 2008 have allowed better definition of 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.

Historical data from monitoring wells W89-11, W89-12, W89-13B1-R, W89-14, WU4-12, and WU4-13 have allowed better definition of the western portion of the cis-1,2-DCE plume. Data from monitoring wells 28SI-04, 28SI-11, 28SI-12, 28SI-13, 28SI-14, and 28SI-15 have allowed better definition of the central portion of the cis-1,2-DCE plume (Figure 2-114).

The highest cis-1,2-DCE concentration in 2015 samples collected from monitoring wells within the Navy network installed in the lower portion of the A Aquifer was detected in well 28SI-13 (180,000 µg/L). In 2014, the highest cis-1,2-DCE concentration also was detected in well 28SI-13 (330,000 µg/L). Well 28SI-13 was installed in 2013 in close proximity to a previous biotic/abiotic treatability study and was screened at a depth to monitor DNAPL. This well will continue to be sampled during future monitoring events. Within the historical Navy network, the highest cis-1,2-DCE concentration detected in 2015 was in well W9-8 (2,100 µg/L). This concentration is consistent with historical cis-1,2-DCE data for this well.

2.4.1.4 Cis-1,2-DCE Trends

Table 2-6 summarizes the historical cis-1,2-DCE data, and Figures 2-77 through 2-112 present the time series concentration plots for cis-1,2-DCE.

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

Figures 2-77 through 2-102 present the 26 selected historical time series cis-1,2-DCE concentration plots considered to be representative for groundwater samples of which 22 include data collected from the 50 monitoring wells sampled in 2015 in the upper portion of the A Aquifer. An overall decreasing trend of cis-1,2-DCE concentrations is apparent in the following 7 out of the 22 monitoring wells sampled: 14C33A (Figure 2-77), W9-18 (Figure 2-81), W9SC-1 (Figure 2-83), W9-31 (Figure 2-84), W29-1 (Figure 2-90), WU4-14 (Figure 2-97), and WU4-17 (Figure 2-98). Overall stable cis-1,2-DCE concentration trends since at least the start of WATS operation are indicated in the following 13 out of the 22 monitoring wells sampled: 14D05A (Figure 2-78), W9-10 (Figure 2-80), W9-19 (Figure 2-82), 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), and WU4-25 (Figure 2-100). An overall increasing long-term trend of cis-1,2-DCE concentrations is apparent in 2 out of the 22 monitoring wells sampled: W9-2 and WU4-21 (Figures 2-79 and 2-99). Although the long-term trend is increasing for well W9-2, which is located in the center of the plume and contained a relatively high concentration of cis-1,2-DCE (690 μg/L), this well has shown a stable to decreasing cis-1,2-DCE trend since the 2008 sampling event. Well WU4-21 is located on the leading eastern edge of the plume and contained a relatively low concentration of cis-1,2-DCE (26 μg/L). This well has shown a relatively stable trend since the 2004 sampling event. The cis-1,2-DCE trend at well WU4-21 will continue to be assessed because the well represents the leading eastern edge of the plume.

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

Figures 2-103 through 2-112 present the ten selected historical time series cis-1,2-DCE concentration plots for groundwater samples collected from the 30 monitoring wells sampled in 2015 in the lower portion of the A Aquifer. Of the ten monitoring wells with historical time-series plots, nine were sampled in 2015. An overall decreasing trend of cis-1,2-DCE concentrations is apparent in two out of the nine monitoring wells completed in the lower portion of the A Aquifer: well W9-9 (Figure 2-104) and well WU4-9 (Figure 2-110). Overall stable cis-1,2-DCE concentrations since at least the start of WATS operation are indicated in the following three out of the nine monitoring wells sampled: W9-21 (Figure 2-107), W9-34 (Figure 2-108), and W29-7 (Figure 2-109). An overall increasing long-term trend of cis-1,2-DCE concentrations is indicated in the following four out of the nine monitoring wells sampled: 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 PCE plume is located southwest of Hangar 1 and is limited in extent compared to the other components of the groundwater VOC plume (Figure 2-115). Data from Navy wells installed in 2013 have allowed better definition of the southern portion of the plume. The PCE plume in the upper portion of the A Aquifer trends in a north-south direction and is smaller than the 2013 PCE plume. The 2013 depiction of the PCE plume shows one continuous plume next to the southwest corner of Hangar 1, but the 2014 and 2015 depiction of the PCE plume shows two smaller PCE plume areas, both within the footprint of the 2013 PCE plume. The highest PCE concentration in 2015 samples collected from monitoring wells within the Navy network installed in the upper portion of the A Aquifer at IR Site 28 was detected in monitoring well EA1-1 (140 μg/L). This PCE concentration is lower than the 2014 value recorded for this well (180 μg/L) and higher than the 2013 value recorded for the well (64 μg/L) but is one order of magnitude lower than the 2008 value of 1,300 μg/L. In 2013, the highest PCE concentration was detected in monitoring well 28SI-08 (170 μg/L). In 2014, the highest PCE concentration was detected in monitoring well EA1-1 (180 μg/L). Well 28SI-08 was installed in 2013. Therefore, only limited historical data are available for comparison. Well 28SI-08 will continue to be sampled during future monitoring events.

Although not sampled in 2015, PCE was detected in a sample collected in 2014 from MEW monitoring well 72A at 5.3 μg/L, indicating the presence of PCE at concentrations exceeding the cleanup standard near Highway 101 and Ellis Street in the southeastern corner of NAS Moffett. Before the 2013 detection of 5.2 μg/L of PCE in well 72A, PCE concentrations in the well had remained below the cleanup standard of 5.0 μg/L since 2008 (when a PCE of 5.4 μg/L was detected). PCE analytical data for this monitoring well from 2004 (7.9 μg/L) to 2014 indicate an overall decreasing trend (Weiss and Associates 2009). Beginning in 2014, MEW and NASA monitoring data is reported and combined with Navy data biennially. Monitoring well 72A data for 2015 is not presented in this report.

Lower Portion of the A Aquifer – PCE Plume

The elongated shape of the 2015 PCE plume (Figure 2-116) in the lower portion of the A Aquifer is similar in shape and extent to the 2013 PCE plume. Data from Navy wells installed in 2013 have allowed better definition of the southern portion of the plume. Four wells (28OW-3, 28OW-4. 28OW-11, and 28SI-13) were located within an area undergoing an active treatability study and were not sampled by SES-Tech in 2015 but were sampled by CB&I and the data provided for this report. The highest PCE concentration in 2015 samples collected from monitoring wells within the Navy network installed in the lower portion of the A Aquifer at IR Site 28 was detected in monitoring well 28SI-13 (28,000 μg/L) compared to monitoring well 28OW-04 (20,000 μg/L) in 2014. Wells 28OW-04 and 28SI-13 recently were added to the Navy well network. Therefore, only limited historical data are available for comparison. Wells 28OW-04 and 28SI-13 will continue to be sampled during future monitoring events. Within the historical Navy well network, the highest PCE concentrations in 2015 samples were detected in monitoring wells W9-20 (94 μg/L) and W9SC-15 (89 μg/L). The 2015 PCE concentration in well W9-20 is a decrease from the 2014 concentration of 100 μg/L. The 2015 PCE concentration in well W9SC-15 is a decrease from the 2014 PCE concentration of 100 μg/L and is lower than the average historical PCE concentrations recorded for this well.

2.4.1.6 PCE Trends

Table 2-6 summarizes the historical PCE data, and Figures 2-77 through 2-112 present the time series concentration plots for PCE.

Upper Portion of the A Aquifer – PCE Trends

Figures 2-77 through 2-102 present the 26 selected historical time series PCE concentration plots considered to be representative for groundwater samples of which 22 include data collected from the 50 monitoring wells sampled in 2015 in the upper portion of the A Aquifer. Of these 22 wells, the following 7 are located within 100 feet of the PCE plume footprint and historically have been used for long-term evaluation of concentration trends for the upper portion of the A Aquifer (Figure 2-115): W9SC-1, W9-31, W9-37, W9-45, W9SC-14, W29-4, and WIC-1. An overall decreasing trend of PCE concentrations is apparent in three out of the seven evaluated monitoring wells completed in the upper portion of the A Aquifer: monitoring wells W9-31 (Figure 2-84), W9SC-14 (Figure 2-89), and WIC-1 (Figure 2-94). A variable but overall stable PCE concentration trend is apparent in W9-45 (Figure 2-86). Increasing trends of PCE concentrations are indicated in three out of the seven evaluated: W9SC-1 (Figure 2-83), W9-37 (Figure 2-85) , and W29-4 (Figure 2-92).

Lower Portion of the A Aquifer – PCE Trends

Figures 2-103 through 2-112 present the ten selected historical time series PCE concentration plots for groundwater samples collected from the 30 monitoring wells sampled in 2015 in the lower portion of the A Aquifer. Of the ten monitoring wells with historical time-series plots, nine were sampled in 2015. Of these nine wells, the following 3 are located within 100 feet of the PCE plume footprint and historically have been used for long-term evaluation of concentration trends for the upper portion of the A Aquifer (Figure 2-116): W9-14, W9-20, and W9-21. Overall stable PCE concentrations are indicated in two of the three monitoring wells: W9-21 (Figure 2-107) and W9-20 (Figure 2-106). Between 1993 and 2004, an overall decreasing trend was indicated in well W9-14 (Figure 2-105). Since 2005, the PCE concentrations in well W9-14 have been below detection levels. The 2015 PCE result for well W9-14 was non-detect (100U μg/L).

2.4.1.7 VC Evaluation

Upper Portion of the A Aquifer - VC Plume

Figure 2-117 shows the areal extent of the VC plume in wells completed in the upper portion of the A Aquifer at IR Site 28. The 2015 VC plume is similar in shape to the VC plume mapped in 2014. Data from Navy wells installed in the upper portion of the A Aquifer in 2013 have allowed better definition of the center of the VC plume. The 2015 VC plume for the upper portion of the A Aquifer is a single plume that originates south of U.S. Highway 101 and terminates near well 14D39A.

In 2014, the groundwater sample collected from well W89-2 near the southern site border contained VC at a concentration of 74 μg/L. Well W89-2 was not sampled for 2015. VC concentrations in well W89-2 have shown an overall increasing trend since 2011 as follows: 2.8 μg/L in 2011, 45 μg/L in 2012, 30 μg/L in 2013, and 74 μg/L in 2014. VC concentrations detected in well W89-2 likely are associated with a plume originating south of U.S. Highway 101 (Figure 2-117).

The highest VC concentration in groundwater samples collected in 2015 from wells in the Navy network installed in the upper portion of the A Aquifer at IR Site 28 was detected in the sample from monitoring well W9-37 (540 μg/L). Well W9-37 is near Former Building 88. The 2015 VC detection in well W9-37 is within the historical range of VC concentrations for this well from 2008 to present. In 2014, the highest VC concentration was detected in well W9-18 (680 μg/L). Well W9-18 is located downgradient of Former Building 88. Previously, the highest VC concentration detected in the upper portion of the A Aquifer was 5,800 μg/L in a sample collected from well W9-18 during the June 2010 sampling event to support a treatability study. In June 2011, the VC concentration in well W9-18 decreased to 15 μg/L. In September 2012, the VC concentration in well W9-18 increased to 530 μg/L but in 2015, the VC concentration in W9-18 is 1.7 μg/L.

Lower Portion of the A Aquifer – VC Plume

Figure 2-118 shows the areal extent of the VC plume in wells completed in the lower portion of the A Aquifer at IR Site 28. Data from Navy wells installed in the lower portion of the A Aquifer in 2013 have allowed better definition of the center of the VC plume. The 2015 VC plume for the lower portion of the A Aquifer is similar in size and extent as the previously mapped VC plumes. VC concentrations (2014 data) south of the site likely are associated with a plume originating south of U.S. Highway 101.

The highest VC concentration in the 2015 samples collected from groundwater monitoring wells within the Navy network was detected in well 28SI-13 (44,000 μg/L). In 2014, the highest VC concentration also was detected in well 28SI-13 (80,000 μg/L). Well 28SI-13 was installed in 2013. Therefore, only limited historical data are available for comparison. Well 28SI-13 will continue to be sampled during future monitoring events. For wells within the historical Navy network, the highest VC concentration in 2015 was detected in well W9-21 (240 μg/L). This concentration is lower than 2011 (at well W29-7 of 510 μg/L) and lower than the highest recorded concentrations in 2012 (at well W29-7 of 330J μg/L) and 2013 (at well W9-9 of 340 μg/L).

2.4.1.8 VC Trends

Table 2-6 summarizes the historical VC data, and Figures 2-77 through 2-112 present the time series concentration plots for VC.

Upper Portion of the A Aquifer – VC Trends

Figures 2-77 through 2-102 present the 26 selected historical time series VC concentration plots of which 22 include data for groundwater samples collected from the 50 monitoring wells sampled in 2015 in the upper portion of the A Aquifer. Of these 22 time series plots, an overall decreasing trend of VC concentrations is apparent in four wells since commencement of WATS operation in 1999: wells 14C33A (Figure 2-77), W9-10 (Figure 2-80), W29-1 (Figure 2-90), and WU4-14 (Figure 2-97). Additionally, well W9-18 (Figure 2-81), which had been rising in VC concentrations until 2011, has indicated a precipitous decline in VC concentrations since 2010 by nearly four orders of magnitude. VC concentrations in this well have decreased from 2010 (5,800 μg/L) to 2015 (1.7 μg/L) and is the lowest VC concentration recorded since 1994 (when the VC concentration was 4 μg/L), and is likely the result of the treatability test conducted around this well in 2010. Of the 22 wells sampled, overall stable VC concentrations since the start of WATS operation are indicated in the following nine wells: W9SC-1 (Figure 2-83), W9-45 (Figure 2-86), W9SC-13 although highly variable (Figure 2-88), W29-4 (Figure 2-92), W56-2 (Figure 2-93), WU4-10 (Figure 2-96), WU4-17 (Figure 2-98), WU4-21 (Figure 2-99), and WU4-25 (Figure 2-100). An overall increasing long-term trend of VC concentrations is indicated in the following eight out of the 22 wells sampled: 14D05A (Figure 2-78), W9-2 (Figure 2-79), W9-19 (Figure 2-82), W9-31 (Figure 2-84), W9-37 (Figure 2-85), W9SC-14 (Figure 2-89), W29-3 (Figure 2-91), and WIC-1 (Figure 2-94). The long-term increasing VC concentration trends observed in many of the wells evaluated in the upper portion of the A Aquifer may result from TCE and PCE degradation. All monitoring wells with an increasing VC concentration trend also have stable or decreasing TCE and PCE concentrations since the start of WATS operation.

Lower Portion of the A Aquifer – VC Trends

Figures 2-103 through 2-112 present the ten selected historical time series VC concentration plots for groundwater samples collected from the 30 monitoring wells sampled in 2015 in the lower portion of the A Aquifer. Of the ten monitoring wells with historical time-series plots, nine were sampled in 2015. An overall decreasing trend of VC concentrations is indicated in one of the nine monitoring wells sampled: well WU4-9 (Figure 2-110). Overall stable VC concentrations are indicated in the following four out of the nine wells sampled: W9-9 (Figure 2-104), W9-21 (Figure 2-107), WU4-11 (Figure 2-111), and WU4-15 (Figure 2-112). An overall increasing long-term trend of VC concentrations is indicated in the following four out of the nine wells sampled: W9-14 (Figure 2-105), W9-20 (Figure 2-106), W9-34 (Figure 2-108), and W29-7 (Figure 2-109). The increasing VC concentrations may be due to TCE and PCE degradation.

2.4.2 Chemical Data Evaluation in B2 Aquifer

In 2015, groundwater samples were collected from five Navy monitoring wells (45B2, W9-12, W9-15, W9-39, W9-40) completed in the B2 Aquifer (Figure 2-3) and analyzed for VOCs, all of which are part of the historical Navy monitoring well network for the B2 Aquifer. Four other B2 Aquifer wells (28SI-06, 28SI-07, 28SI-09, and 28SI-10) installed in 2013 in the Traffic Island Area were not sampled in 2015. The Supplemental Investigation performed in the Traffic Island Area determined that well W88-1 is not screened in the B2 Aquifer. Based on the data collected during this investigation, well W88-1 appears to be screened across the lower A Aquifer and A/B Aquitard (CB&I 2014). This section evaluates the analytical data for TCE; cis-1,2-DCE; PCE; and VC for samples collected from the B2 Aquifer. Table 2-5 summarizes the analytical data for the 2015 annual sampling event. Table 2-6 summarizes the historical groundwater analytical data for TCE; cis-1,2-DCE; PCE; and VC.

In 2015, no TCE, VC, cis-1,2-DCE, or PCE concentrations were detected above the laboratory reporting limit in any B2 Aquifer wells sampled.

2.4.3 Chemical Data Evaluation in B3 Aquifer

In 2015, a groundwater sample was collected from one Navy monitoring well (W9-5) completed in the B3 Aquifer (Figure 2-3) and analyzed for VOCs. This section evaluates the analytical data for TCE; cis-1,2-DCE; PCE; and VC for the sample collected from the B3 Aquifer. Table 2-5 summarizes the analytical data for the 2015 annual sampling event. Table 2-6 summarizes the historical groundwater analytical data for TCE; cis-1,2-DCE; PCE; and VC.

In 2015, no TCE, VC, cis-1,2-DCE, or PCE concentrations were detected above the laboratory reporting limit in the B3 Aquifer well sampled.

2.4.4 Chemical Data Evaluation in C Aquifer

In 2015, a groundwater sample was collected from one Navy monitoring well (W9-3) completed in the C Aquifer (Figure 2-3) and analyzed for VOCs. This section evaluates the analytical data for TCE; cis-1,2-DCE; PCE; and VC for the sample collected from the C Aquifer. Table 2-5 summarizes the analytical data for the 2015 annual sampling event. Table 2-6 summarizes the historical groundwater analytical data for TCE; cis-1,2-DCE; PCE; and VC.

In 2015, no TCE, VC, cis-1,2-DCE, or PCE concentrations were detected above the laboratory reporting limit in the C Aquifer well sampled.

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3.0 FORMER EAST-SIDE AQUIFER TREATMENT SYSTEM

The former EATS was taken off line in July 2003 to implement 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. Since 2003, the Navy has been evaluating technologies and alternative remedial actions that could be used to attain the ROD cleanup goals in a more effective and efficient manner. In 2014, the Navy prepared a ROD Amendment (Navy 2014) to document the change in remedy at IR Site 26 from the pump and treat remedy (using the EATS) to *in situ* bioremediation treatment, MNA, and institutional controls.

This section discusses the system description and performance of the former EATS located at IR Site 26, discusses groundwater elevation data at IR Site 26, and provides a summary and evaluation of the groundwater analytical results from the 2015 IR Site 26 annual sampling event. The EATS remained off line throughout the 2015 reporting period. Therefore, O&M and the capture zone analysis and hydraulic control of the former EATS are not discussed in this section.

3.1 SYSTEM DESCRIPTION AND PERFORMANCE

The former EATS began operating on January 26, 1999. The EATS consisted of five extraction wells (EXW-1 through EXW-5) piped to a treatment system north of Hangar 3. All the extraction wells are completed in the upper portion of the A Aquifer. Figure 3-1 shows the locations of the former EATS monitoring and extraction wells completed in the upper portion of the A Aquifer. Contaminated groundwater was pumped from the extraction wells and treated to remove contaminants before discharge to the NAS Moffett storm drain system. The former EATS had two major components designed to remove influent VOCs from groundwater: an air stripper and a liquid-phase GAC unit in series.

The EATS operated from January 1999 until July 2003. During that time, the former EATS processed 67,050,786 gallons of extracted groundwater and removed approximately 23.65 pounds of VOCs. Because the new remedy for IR Site 26 does not include groundwater extraction (Navy 2014), there are no plans to resume operation of the former EATS.

3.2 GROUNDWATER ELEVATION DATA

Basewide groundwater elevation data were collected in March and September 2015. Groundwater elevation gauging is coordinated with MEW companies and NASA so that all gauging is conducted on a single day. Table 3-1 summarizes the Navy groundwater elevation data measured in 2015 at IR Site 26 wells. These elevations were calculated by converting depth-to-water measurements to a common datum in feet above msl. Water level interpretation required preparing hydrographs and preparing potentiometric surface maps as discussed below.

Prepare Hydrographs

Hydrographs were prepared using groundwater elevation data to aid in the evaluation of site-specific trends. Figures 3-2 through 3-17 show the hydrographs for selected wells. Groundwater monitoring wells were selected for hydrograph presentation based on the methodology described in Section 2.3.2 under 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. Therefore, hydrographs for these wells are included in this report. Seasonal groundwater elevation trends for 2015 appear consistent with the trends described in previous reports showing an annual wet and dry season (FWENC 2002 and 2003a; TtFW 2004a, 2005a, and 2005b; TtEC 2006; TN & Associates, Inc. [TN&A] 2007 and 2008; SES-TECH 2009 and 2010; ERS-JV 2011b and 2012; SES-TECH 2013a, 2014c, and 2015).

Historically, groundwater levels in monitoring wells completed in the upper portion of the A Aquifer have not shown a well-defined response when the former EATS was pumping (TtEC 2006). Similarly, groundwater levels in the lower portion of the A Aquifer and in the B2 Aquifer have not shown a response to the pumping of extraction wells in the upper portion of the A Aquifer. Groundwater levels in most wells completed in the upper and lower portions of the A Aquifer and in the B2 Aquifer appear to have remained generally stable or to have initially increased slightly since the former EATS was taken off line on July 2, 2003 (Figures 3-2 through 3-17) but have been generally declining slightly since 2011 potentially as the result of diminished rain fall. In 2015, groundwater levels generally were within the historical range for most wells with the exception of wells W5-7 and W5-8, which exhibited historical low water measurements for the September 2015 monitoring event.

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

Prepare Potentiometric Surface Maps

Potentiometric surface maps were prepared to evaluate flow directions and hydraulic gradients in the upper portion of the A Aquifer using groundwater elevation data collected during the March and September 2015 basewide groundwater gauging events using the same method described in Section 2.3.1 under Step 3. Figures 3-18 and 3-19 show the potentiometric surface maps for the upper portion of the A Aquifer at IR Site 26 in March and September 2015, respectively.

Because the former EATS remained off line during 2015, the groundwater flow direction 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 groundwater flow direction in the southern portion of IR Site 26 is north. In the northern portion of IR Site 26, the groundwater flow direction is north-northwest toward the groundwater depression near Building 191.

North of the intersection of Marriage and Macon Roads, the hydraulic gradient in the upper portion of the A Aquifer was approximately 0.0026 ft/ft in March 2015 and 0.0028 ft/ft in September 2015. South of this intersection, the hydraulic gradient was approximately 0.003 ft/ft in both March and September 2015. 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 hydraulic gradient indicates 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. An area with high transmissivity would have a thicker or more contiguous aquifer or higher hydraulic conductivity. It is believed that the surficial geology in this general area has been changed by flood basins and estuary deposits. This surficial geology would explain the change in hydraulic gradient because floodplain deposits are characterized by channels of limited areal extent containing sands and gravels with high hydraulic conductivity surrounded by silts and clays with lower hydraulic conductivity. Estuary deposits consist of contiguous layers of sand with possibly high transmissivity.

3.3 ANALYTICAL RESULTS

TCE in the upper portion of the A Aquifer at IR Site 26 (Figure 3-30) has been historically depicted as two distinct plumes: a southern and a northern plume. This section summarizes and evaluates analytical results from the 2015 IR Site 26 annual sampling event at both the southern and northern plumes. Table 3-2 summarizes the analytical data for the 2015 IR Site 26 annual sampling event. In 2015, 38 wells at IR Site

26 were sampled. Table 3-3 summarizes available historical and current analytical data from 1992 through 2015 for IR Site 26 area wells sampled by the Navy. A subset of the IR Site 26 monitoring wells sampled by the Navy as part of the annual groundwater monitoring effort was selected to evaluate VOC concentration trends. Nine monitoring wells in the northern plume and one well in the southern plume were selected for evaluation using the method discussed in Section 2.4.1. The EPA approved the list of wells selected. Figures 3-20 through 3-29 present the time series graphs of VOC concentrations for the wells selected. Data evaluation and trend analysis were based on visual evaluation of the historical time series VOC concentration trend graphs.

In accordance with Final Addendum 1 to the Final SAP (SES-TECH 2012a), wells W4-3 and W19-4 were removed from the IR Site 26 sampling network and were not sampled in 2015. However, because the trend plot for well W4-3 begins before the startup of the former EATS and continues through 2011, data for this well remain pertinent to the concentration trend analyses for IR Site 26. Therefore, a time series graph was prepared for this well (Figure 3-20). The four wells completed in the lower portion of the A Aquifer, wells W6-2, WU5-11, WU5-12, and WU5-13, are sampled on a biennial basis. In addition, in accordance with Final Addendum 1 to the Final SAP (SES-TECH 2012a), wells WU5-8 and WU5-9 in the northern plume were moved to the IR Site 26 biennial sampling schedule. All IR Site 26 wells on the biennial cycle were sampled in 2013 and again in 2015.

Contaminant groundwater plumes at IR Site 26 were evaluated to assess current conditions and changes from previous years. The 2015 groundwater sample concentrations for the southern plume at IR Site 26 were evaluated against the COC cleanup standards stated in the OU5 ROD (Navy 1996). According to the ROD, the COCs for IR Site 26 are TCE; 1,2-DCE; PCE; VC; 1,1-DCE; and 1,2-DCA. The VOC 1,2-DCE is composed of two isomers: cis-1,2-DCE and trans-1,2-DCE. The laboratory reports the results for cis-1,2-DCE and trans-1,2-DCE separately. The vast majority of 1,2-DCE at the former EATS is composed of
cis-1,2-DCE. Therefore, the evaluation focuses on cis-1,2-DCE.

Sections 3.3.1 and 3.3.2 discuss the chemical evaluation and trend analysis for the southern and northern plumes, respectively, at IR Site 26. Appendix D provides the sample collection field forms, chain-of-custody documentation, data validation packages, case narratives, and laboratory analytical summary sheets (on compact disc only). Appendix E provides the QA/QC evaluation of the analytical data.

3.3.1 Chemical Data Evaluation and Trend Analysis in Southern Plume

As discussed in Section 3.3, well W4-3 was removed from the IR Site 26 sampling network and was not sampled in 2015. However, because the trend plot for well W4-3 begins before the startup of the former EATS and continues through 2011, data for this well remain pertinent to the concentration trend analyses for IR Site 26. Therefore, a time series graph was prepared for this well (Figure 3-20). However, the trend analysis discussions below do not include this well because it was not sampled in 2015.

The following sections discuss the analytical data evaluation and trends for TCE; cis-1,2-DCE; PCE; and VC. In addition, analytical data evaluations are presented for 1,1-DCE; 1,2-DCA, and trans-1,2-DCE, however, trends for these chemicals were not evaluated.

3.3.1.1 TCE Evaluation

Figure 3-30 shows the 2015 TCE distribution in the southern plume in the upper portion of the A Aquifer at IR Site 26. The general location of the plume had remained approximately the same since 1998, the baseline year, through 2008. In 2009 and 2010, TCE concentrations decreased significantly around extraction well EXW-1, likely due to the treatability study (Shaw 2011). In 2015, VOC concentrations remained relatively stable compared to 2014. The southern plume originates along the eastern side of Hangar 3 and extends approximately 300 feet north to the northeast corner of Hanger 3. The northern plume originates 400 feet north of the northeast corner of Hangar 3 and extends approximately 1,200 feet northward to monitoring well W3-21. The TCE plumes are contoured on Figure 3-30 as two areas with concentrations above the cleanup standards. Additionally, it appears that the southern plume may no longer be contiguous downgradient between the northeast corner of Hangar 3 to the southern edge of the northern plume. Although the former EATS extraction wells have been off line since July 2003, the general shape and location of the plume in 2015 appears to have either decreased in area or remained stable, depending upon the year of comparison between 2005 and 2015 but not increased in size. The 2009 and 2010 plume depictions differ slightly probably because of the treatability study discussed above.

In 2015, the highest TCE concentration in the upper portion of the A Aquifer was 20 μg/L in the southern plume in the sample collected from monitoring well W43-2 and 19 μg/L in the northern plume in the sample collected from monitoring well WU5-16. In 2014, the highest reported TCE concentration was 21 μg/L, in the sample collected from well W43-2. TCE concentrations for the groundwater samples collected in 2015 generally are consistent with the TCE concentrations for 2014.

3.3.1.2 TCE Trends

Of the nine upper A Aquifer wells in the northern plume area at IR Site 26 with historical time-series plots that were sampled in 2015, eight wells show an overall decreasing trend of TCE concentrations: W4-14 (Figure 3-21), W4-15 (Figure 3-22), W7-10 (Figure 3-23), WSW-6 (Figure 3-24), WU5-4 (Figure 3-25), (Figure 3-26), and WU5-14 (Figure 3-27), and WU5-25 (Figure 3-29). Stable overall TCE concentrations are indicated in the remaining one well sampled: WU5-10 WU5-21 (Figure 3-28). These long-term trends are generally consistent with previous interpretations from 2002 through 2014 except that the trend for W4-15 which is now interpreted to be declining instead of remaining stable. The EATS TCE plume has remained stable and decreased in area since July 2003, when the former EATS was taken off line.

3.3.1.3 Cis-1,2-DCE Evaluation

Figure 3-31 shows the 2015 cis-1,2-DCE distribution in the southern plume in the upper portion of the A Aquifer at IR Site 26. The shapes, sizes, number, and locations of the cis-1,2-DCE plume areas have decreased compared to the 2014 depictions of the plume. In 2014, five separate areas of the plume exceeded the regulator action level (6.0 μg/L). In 2015, only three areas of the plume exceeded the regulator action level. The largest of the separate elevated portions of the plume in 2015 is next to the intersection of Marriage and Macon Roads and extends between extraction wells EXW-4 and WU5-25 with a maximum cis-1,2-DCE concentration of 16 μg/L in well WU5-2. The highest cis-1,2-DCE concentration in 2015 was 16 μg/L in both wells WU5-2 and W7-10 in another portion of the plume near the northeastern corner of Hangar 3 in the area of extraction well EXW-1. This smaller southern portion of the plume has decreased in area, likely due to the treatability study (Shaw 2011).

Unlike the 2014 depictions, the 2015 depictions shown in Figure 3-31 of the cis-1,2-DCE plume areas show no areas where cis-1,2-DCE concentrations exceed the cleanup standard of 6 μg/L around extraction well EXW-3 and monitoring well W3-21. In 2015, all wells within the cis-1,2-DCE plume area around extraction well EXW-2 showed cis-1,2-DCE decreases compared to the 2014 data at concentrations exceeding the cleanup standard. All 2015 cis-1,2-DCE concentrations are within historical ranges. Since 2005, cis-1,2-DCE concentrations in well WU5-14 have fluctuated above and below the cleanup standard. The 2015 cis-1,2-DCE concentration in well W4-15, located downgradient of well EXW-3, declined from 6.7 μg/L in 2014 to 2.1 μg/L in 2015. In well W3-21, cis-1,2-DCE concentrations decreased from 8.7 μg/L in 2014 to 1.8 μg/L in 2015.

In 2015, the highest cis-1,2-DCE concentration in the upper portion of the A Aquifer was 16 μg/L in extraction wells WU5-2 and W7-10. In 2010 through 2014, the highest cis-1,2-DCE concentrations in the upper portion of the A Aquifer were detected in well WU5-2 (21 μg/L in 2010, 26 μg/L in 2011, 17 μg/L in 2013, and 33 μg/L in 2014). In 2012, the highest cis-1,2-DCE concentration in the upper portion of the A Aquifer was 17J μg/L in monitoring well WU5-1. Generally, cis-1,2-DCE concentrations for groundwater samples collected in 2015 were lower than for those collected in 2014.

3.3.1.4 Cis-1,2-DCE Trends

Of the nine upper A Aquifer wells in the northern plume area at IR Site 26 with historical time-series plots that were sampled in 2015, two wells show an overall decreasing trend of cis-1,2-DCE concentrations: W4-15 (Figure 3-22) and WSW-6 (Figure 3-24). Stable overall cis-1,2-DCE concentrations are indicated in the following four of the nine wells sampled: W4-14 (Figure 3-21), WU5-5 (Figure 3-25), WU5-10 (Figure 3-26), and WU5-21 (Figure 3-28). Overall increasing trends are indicated in wells W7-10 (Figure 3-23), WU5-14 (Figure 3-27), and WU5-25 (Figure 3-29) in 2015.

A treatability study was performed in the IR Site 26 area around wells EXW-1 and WU5-24 (Shaw 2011). As part of this treatability study, five observation wells were installed and screened at different depth intervals, with the deepest 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, cis-1,2-DCE and VC concentrations have been increasing in some of the observation wells as a result of the injections.

3.3.1.5 PCE Evaluation

Figure 3-32 shows the 2015 PCE distribution in the southern plume in the upper portion of the A Aquifer at IR Site 26. The shape and location of the 2015 PCE plume have remained relatively stable compared to the 2014 plume. The extent of PCE at concentrations exceeding the cleanup standard of 5 μg/L is limited to the northeast corner of Hangar 3 near extraction well EXW-1.

In 2015, the highest PCE concentration in the upper portion of the A Aquifer was 33 μg/L in the sample collected from monitoring well W43-2. The PCE concentration in this well was lower than last year (46 μg/L in 2014). PCE concentrations in this well have fluctuated since 2010 (52 μg/L in 2010, 50 μg/L in 2011, and 31 μg/L in 2012, 41 μg/L in 2013, and 46 μg/L in 2014). This well is located upgradient of the treatability study area and was not affected by the application of EHC®.

3.3.1.6 PCE Trends

Of the nine upper A Aquifer wells in the northern plume area at IR Site 26 with historical time-series plots that were sampled in 2015, three wells show an overall decreasing trend of PCE concentrations to below the 5-μg/L cleanup standard or to non-detect levels: W4-15 (Figure 3-22), W7-10 (Figure 3-23), and WSW-6 (Figure 3-24). Stable overall PCE concentrations are indicated in the following four out of the nine wells sampled: 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 W4-14 (Figure 3-21) and WU5-4 (Figure 3-25) have been below laboratory reporting limits since the mid-1990s,therefore, trends cannot be established for these wells. The long-term PCE trends are consistent with previous interpretations from 2002 through 2014. The EATS PCE plume has decreased in area since July 2003, when the former EATS was taken off line.

3.3.1.7 VC Evaluation

Figure 3-33 shows the 2015 VC distribution in the southern plume in the upper portion of the A Aquifer at IR Site 26. The shape and location of the upper portion of the A Aquifer VC plume areas have decreased compared to the 2014 depictions of the plume. The 2014 depiction of the VC plume shows seven VC plume areas centered on extraction wells EXW-1, EXW-2, EXW-3, and EXW-5, and monitoring wells W3-21, WU5-2, and W4-14. These 2014 VC plume areas represented an increase in PCE concentrations exceeding the cleanup level over recent historic depictions of the VC plume areas. The 2015 depiction of the VC plume shows four VC areas similar to the 2013 occurrences with concentrations above 0.5 μg/L.

VC concentrations in the area of extraction wells EXW-1, EXW-2, and EXW-3 and monitoring well W4-14 show decreases compared to the 2014 data. Additionally, the VC concentration occurrences exceeding the reporting limit that were observed in 2014 in the vicinity of wells EXW-5, WU5-2, and W3-21 were below the cleanup standard (0.5 μg/L) in 2015. The VC plume area inclusive of extraction well EXW-2 includes two wells (WU5-14 and W4-11) where VC concentrations increased to above the cleanup standard in 2005. Monitoring well WU5-14 has generally remained elevated through 2015 (13 μg/L in 2011, 6.3 μg/L in 2012, 3.7 μg/L in 2013, 8.1 μg/L in 2014, and 7.8 μg/L in 2015). VC concentrations in monitoring well W4-11 have been declining since 2007 but generally remain near or above the cleanup standard (0.51 μg/L in 2011, 0.12J μg/L in 2012, 0.25U μg/L in 2013, 1.0 μg/L in 2014, and 1.2 μg/L in 2015). VC concentrations in extraction well EXW-5 and monitoring well W3-21 increased from below the cleanup standard in 2013 to above the cleanup standard in 2014 but declined back below the cleanup standard in 2015: EXW-5 (0.25U μg/L in 2013, 1.8 μg/L in 2014, and 1U μg/L in 2015) and W3-21 (0.15J μg/L in 2013, 1.5 μg/L in 2014, and 1U μg/L in 2015). In 2013, VC concentrations in well WU5-2 were reported just above the cleanup standard at 0.61J μg/L; in 2014, the VC concentration in well WU5-2 remained just above the cleanup standard at 0.72J μg/L. In 2015, the VC concentration in WU5-2 declined to 0.48J μg/L.

In 2015, the highest concentration of VC in the upper portion of the A Aquifer was 10 μg/L in monitoring well W4-14. VC in W4-14 has recently fluctuated from 14 μg/L in 2011 to 8.6 μg/L in 2012, 9.6J μg/L in 2013, and 12 μg/L in 2014, to 10 μg/L in 2015. This VC concentration in well W4-14 indicates an increase since the 2012 sampling event (8.6 μg/L) and 2013 sampling event (9.6J μg/L) but indicates a decrease since the 2011 sampling event (14 μg/L). Overall, VC concentrations in groundwater samples collected in 2015 were similar to or lower than those in samples collected in 2014.

3.3.1.8 VC Trends

Of the nine upper A Aquifer wells in the northern plume area at IR Site 26 with historical time-series plots that were sampled in 2015, three wells show an overall decreasing trend of VC concentrations since operation of the former EATS, W4-15 (Figure 3-22), WSW-6 (Figure 3-24), and WU5-25 (Figure 3-29), and relatively stable overall VC concentrations in one of the nine wells sampled in well WU5-21 (Figure 3-28). Two wells WU5-4 (Figure 3-25) and WU5-10 (Figure 3-26) have always indicated non-detect VC sample results, therefore, no trends are indicated. Groundwater samples from two of the nine wells sampled in 2015 showed a long-term trend of increasing VC concentrations: W4-14 (Figure 3-21) and WU5-14 (Figure 3-27). TCE concentrations for these same two wells exhibit a decreasing trend. This decrease and stability in the TCE concentrations, along with the increase in VC concentrations, apparently results from continued dechlorination effects associated with the treatability studies in the former EATS area. The VC concentrations in well W7-10 (Figure 3-23) showed an increasing trend from 2005 when the former EATS operation was terminated to 2007. Since 2007, the VC concentrations in this well have demonstrated an overall decreasing trend.

A treatability study was performed in the IR Site 26 area around wells EXW-1 and WU5-24 (Shaw 2011). As part of this treatability study, five observation wells were installed and screened at different depth intervals, with the deepest 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, cis-1,2-DCE and VC concentrations have been increasing in some of the observation wells as a result of the injections.

3.3.1.9 1,1-DCE Evaluation

During the 2015 annual sampling event, 1,1-DCE was detected in seven of the 38 groundwater samples collected from wells completed in the upper portion of the A Aquifer in the IR Site 26 VOC plume. Concentrations of 1,1-DCE ranged from 0.53J µg/L in well W4-1 to 1.6 µg/L in well EXW-4 (Table 3-2). None of these 1,1-DCE concentrations exceeds the cleanup standard of 6 µg/L. These values are similar to or lower than the 2014 1,1-DCE results.

3.3.1.10 1,2-DCA Evaluation

During the 2015 annual sampling event, 1,2-DCA was detected in 5 of the 38 groundwater samples collected from wells completed in the upper portion of the A Aquifer in the IR Site 26 VOC plume. Concentrations of 1,2-DCA ranged from 0.24J µg/L in well WU5-1 to 0.85J µg/L in well WU5-20 (Table 3-2). Two of these 1,2-DCA concentrations exceed the California MCL of 0.5 µg/L. These results are lower than the 2014 1,2-DCA detections.

3.3.1.11 Trans-1,2-DCE Evaluation

During the 2015 annual sampling event, trans-1,2-DCE was detected in 11 of the 38 groundwater samples collected from wells completed in the upper portion of the A Aquifer in the IR Site 26 VOC plume. Concentrations ranged from 0.34J µg/L in well WU5-2 to 3.0 µg/L in well EXW-2. No trans-1,2-DCE concentrations exceeded the cleanup standard of 6.0 µg/L. These results are similar to the 2014 results.

3.3.2 Chemical Data Evaluation and Trend Analysis in Northern Plume

The northern plume is located near the northern end of Macon Road. Groundwater monitoring wells WU5-4, WU5-8, and WU5-9 are identified in the *EATS Long-Term Groundwater Monitoring Plan* for the monitoring of COCs in the northern plume (PRC Environmental Management, Inc. [PRC] 1997). However, as discussed in Section 3.3, in accordance with 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. All IR Site 26 wells on the biennial cycle were sampled in 2013 and again in 2015.

In well WU5-4 (Figure 3-25), TCE and cis-1,2-DCE were the only chemical detected in September 2015. TCE was detected in WU5-4 at 1.1 µg/L and in WU5-8 at 0.24J µg/L, which are below the cleanup standard. Cis-1,2-DCE was detected in well WU5-8 at a concentration of 0.41J µg/L, which is below the cleanup standard. No samples from wells in the northern plume have contained COCs at concentrations exceeding their respective cleanup standards during since 2008. Therefore, VOC concentrations in the northern plume are not depicted on Figure 3-30. Well WU5-4 shows an overall decreasing trend of TCE concentrations and stable overall cis-1,2-DCE, PCE, and VC concentrations.

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4.0 OTHER 2015 ACTIVITIES

This section describes activities related to IR Sites 28 and 26 besides 2015 annual groundwater sampling that were conducted in 2015.

4.1 IR Site 28 Supplemental Investigation

To optimize groundwater treatment, the Navy conducted a Supplemental Investigation of the Former Building 88 Area and Traffic Island Area to better define the sources of groundwater contamination in these areas. The results of the Supplemental Investigation and recommendations for further action are presented in the *Technical Memorandum for the Supplemental Investigation* (CB&I 2014). Based on the investigation, the Navy recommended the following:

1. Add 15 new wells to the annual groundwater monitoring program to determine chlorinated solvent concentration trends at these locations
2. Perform a treatability study to evaluate technologies for treating the chlorinated ethenes identified in the B2 Aquifer and residual dense nonaqueous- phase liquid (DNAPL) identified in the lower portion of the A Aquifer
3. Further investigate chlorinated ethenes in shallow groundwater at the northeast corner of Building 126 that may be contributing to indoor air concerns
4. Install additional wells immediately upgradient of the Former Building 88 and Traffic Island Areas to further evaluate the flow of chlorinated ethenes from upgradient sources in the A Aquifer and B2 Aquifer
5. Install additional wells immediately downgradient (north-northeast) of the Traffic Island Area to further evaluate chlorinated ethenes in the B2 Aquifer

In 2013, the recommended 15 new monitoring wells ("28SI" series wells) were installed in the upper A Aquifer, lower A Aquifer, and B2 Aquifer. In 2014, nine additional observation wells ("28OW" series wells) were installed, one in the upper A Aquifer and eight in the lower A Aquifer. In 2014, these 24 new monitoring wells were fully incorporated into the Navy's groundwater monitoring well sampling and gauging network. Analytical data collected from these 24 monitoring wells, as accessible, are fully incorporated into this report. Some wells were not accessible in 2015 due to the ongoing treatability study in the Traffic Island Area.

4.2 ROD Amendment to Document Change in Remedy at IR Site 26

In July 2012, the Navy finalized a Focused FS for IR Site 26 that incorporates the results of the combined abiotic/biotic treatment using EHC®. The Focused FS was completed in October 2011 (Shaw 2012a). On April 15, 2013, based on the Focused FS results, the Navy selected a remedial alternative and issued a Proposed Plan for IR Site 26. Subsequent to the Proposed Plan, in 2014, the Navy prepared a ROD Amendment (Navy 2014) to document the change in remedy at IR Site 26 from the pump-and-treat remedy using the former EATS to *in situ* bioremediation treatment, MNA, and institutional controls. This amended remedy for IR Site 26 will achieve groundwater cleanup standards in a shorter timeframe, is a more sustainable remedial solution, and costs less. The Navy has begun planning for a groundwater investigation to collect the data necessary to complete the remedial design for the upcoming remedial action.

4.3 Additional WATS NPDES Analysis

In addition to sampling required under the WATS NPDES Self-Monitoring Program, several NPDES-related samples were collected in 2015 due to prior trigger level exceedances. The following sections summarize the trigger level exceedances and associated samples collected in 2015.

4.3.1 2010 Copper Trigger Level Exceedance and Associated Sampling

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 for copper three times during the first quarter of 2011.

In addition, receiving water also was sampled during the first quarter of 2011 for salinity and hardness in accordance with the NPDES permit. Although below the trigger concentration of 4.7 μg/L, copper was detected in the January 2011 effluent sample at 4.1 μg/L. Effluent concentrations for copper exceeded the trigger concentration in February and March 2011. 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 quarters 2011. 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" for subsequent sampling events. The letter also provides reasons to support the removal of copper from the analyte list. The Water Board rejected the request to halt quarterly copper sampling. Therefore, 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 10 WATS extraction wells were sampled for copper directly from the extraction wellhead sampling ports. Results for all 10 samples exceeded the trigger concentration. In July 2012, 6 of the 10 extraction wells were sampled for copper using a peristaltic pump. Results for all six of these samples also exceeded the trigger concentration. In September 2012, 4 of the 10 extraction wells were sampled directly from the extraction wellhead sampling ports. The result for only one sample collected in September 2012 exceeded the trigger level.

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

On November 21, 2012 a Technical Memorandum submitted to the Water Board outlining the copper findings and copper source investigations conducted to date. The 2012 Technical Memorandum conclusions are summarized below (SES-TECH 2012b).

- Between December 2010 to July 2012, copper effluent results only slightly exceed the trigger level, and copper concentrations have been relatively stable over this time, with values ranging from 4.1 το 12.1 μg/L.
- The mean copper concentrations in WATS effluent since December 2010 (6.9 μg/L) is several magnitudes of order below the Federal MCL for copper in drinking water of 1,300 μg/L.

- WATS copper effluent sample results are well below (1) the copper concentration in the City of Mountain View drinking water system (148 µg/L in March 2011) and (2) the mean background groundwater copper concentration in WATS extraction wells (49.0 µg/L over April, July, and September 2012).

Based on the conclusions outlined above, the 2012 Technical Memorandum requests that the Executive Officer concur that the "triggered pollutants" investigation for copper is complete and that no additional sampling of WATS effluent for copper be required until the next routine triennial sampling event for Title 22 metals (December 2013).

On January 25, 2013, concurrence was received by e-mail from the Executive Officer stating that the "triggered pollutants" investigation for copper is considered complete on the condition that WATS influent and effluent copper samples are collected annually for 2 years (SES-TECH 2013b). Routine reporting and additional sampling (if required) will continue in accordance with the trigger limits as specified in the NPDES permit. However, if copper concentrations exceed the trigger limit during either of the annual sampling events but are within the WATS' established historical range (background concentrations) as outlined in the 2012 Technical Memorandum, no additional sampling associated with copper trigger level exceedance is necessary (SES-TECH 2012b and 2013b).

The first annual system influent and effluent follow-up copper sampling event occurred during routine triennial sampling event for Title 22 metals in December 2013 (SES-TECH 2014a). The December 2013 WATS effluent copper concentration (20 µg/L) exceeded the 4.7-µg/L trigger level for copper and was outside the established historical system effluent range for copper (4.7 to 12.1 µg/L) as outlined in the 2012 Technical Memorandum. However, the 20-µg/L detection is within the WATS' established historical background mean copper concentration of 49.0 µg/L detected in groundwater extracted for treatment (SES-TECH 2012b and 2014a). Therefore, result falls within the WATS' established historical range for copper (background concentration as described in the 2012 Technical Memorandum).

The second annual WATS influent and effluent follow-up copper sampling event occurred in December 2014. The December 2014 WATS effluent copper concentration of 5.6 µg/L exceeds the 4.7-µg/L trigger level but is within the established historical system effluent range of 4.7 to 12.1 µg/L.

Based on the annual December 2013 and December 2014 system effluent copper results and in accordance with the Executive Officer's guidance received in January 2013, routine reporting and additional sampling pertaining to copper trigger limit exceedances were not required in 2015. Also, because both the December 2013 and December 2014 system effluent copper concentrations fell within the WATS' established historical range for copper, the *Annual 2014 National Pollutant Discharge Elimination System Self-Monitoring Report for the West-Side Aquifers Treatment System* requests that the Executive Officer (1) deem the "triggered pollutants" investigation for copper complete and (2) require no additional sampling of WATS effluent for copper until the next routine triennial sampling event for Title 22 metals currently scheduled for December 2016 (SES-TECH 2015).

4.3.2 2013 Selenium Trigger Level Exceedance and Associated Sampling

Triennial testing for Title 22 metals in WATS effluent was performed during the fourth quarter of 2013. Samples were collected on December 16, 2013, and analytical testing indicated the presence of one NPDES trigger compound, selenium, in the effluent stream. Selenium is not a constituent of concern at NAS Moffett but is listed as a concentration-based trigger compound in Table 3 of the NPDES Permit. The trigger concentration for selenium is 5.0 µg/L. The December 2013 WATS effluent sample result for selenium was 5.7 µg/L. In accordance with Provisions VI.C.7 and VI.C.8 of the NPDES Permit, both the WATS influent and effluent streams were sampled and analyzed for selenium using EPA Method 6020B three times during the first quarter of 2014. Selenium in the WATS effluent samples was detected at the trigger concentration in January 2014 (5.0 μg/L) and above the trigger concentration in February (6.6 μg/L) and March 2014 (5.8 μg/L).

In accordance with Provision VI.C.8, monitoring of the system effluent for selenium was accelerated to a quarterly basis. Quarterly selenium samples were collected from the WATS effluent stream in April 2014, July 2014, and October 2014 and reported in the *Annual 2014 National Pollutant Discharge Elimination System Self-Monitoring Report for the West-Side Aquifers Treatment System* (SES-TECH 2015). Quarterly selenium samples were collected from the WATS effluent stream for the remainder of 2014 and all of 2015 (January 2015, April 2015, July 2015, and October 2015) and are presented in the *Annual 2015 National Pollutant Discharge Elimination System Self-Monitoring Report for the West-Side Aquifers Treatment System* (SES-TECH 2016). The selenium results for the effluent samples since December 2013, along with the calculated median, mean, and maximum selenium concentrations, are presented in the 2015 *NPDES annual report* (SES-TECH 2016).

Inclusive of selenium results from December 2013 through October 2015, the median WATS effluent selenium concentration is 5.7 μg/L, which exceeds the selenium trigger concentration of 5.0 μg/L listed in Table 3 of the NPDES Permit. The mean system effluent selenium concentration for the same period is 5.84 μg/L, which also exceeds the selenium trigger concentration. The maximum detected WATS effluent selenium concentration since December 2013 has been 9.2 μg/L (January 2015).

The selenium concentrations of the eleven system effluent samples collected between December 2013 and October 2015 fluctuate above and below the selenium trigger concentration but on average have been relatively stable over this time, with values ranging from 3.6 to 9.2 μg/L. Both the historical high and low selenium concentration detected in the WATS effluent were detected during the 2015 monitoring period. The mean selenium concentration in the WATS effluent since December 2013 of 5.84 μg/L is approximately one magnitude of order below the Federal MCL for selenium in drinking water of 50 μg/L.

Based on the findings discussed above, the *Annual 2015 National Pollutant Discharge Elimination System Self-Monitoring Report for the West-Side Aquifers Treatment System* requests that the Executive Officer concur that the "triggered pollutants" investigation for selenium is complete and that no additional sampling of the system effluent for selenium be required until the next routine triennial sampling event for Title 22 metals currently scheduled for December 2016. Routine reporting and additional sampling (if required) will continue in accordance with the trigger limits specified in the NPDES permit. However, if selenium concentrations exceed the trigger limit but are within the WATS's established historic range (background concentrations as described above), it is requested that no additional sampling associated with a selenium trigger concentration exceedance is necessary (SES-TECH 2015).

Until correspondence from the Executive Officer regarding the selenium trigger level exceedance investigation is received, the WATS effluent will continue to be sampled for selenium on a quarterly basis in 2016 (January, April, July, and October 2016).

4.4 IR SITE 28 VAPOR INTRUSION ASSESSMENT

Concentrations of TCE in indoor air at Building 10 exceeded the TCE cleanup goal established by the EPA in the *Record of Decision Amendment for the Vapor Intrusion Pathway Middlefield-Ellis-Whisman (MEW) Superfund Study Area* (EPA 2010). Building 10 has an underground utility corridor that can act as a conduit for VOC vapors. In July 2012, the Navy installed a ventilation system (including a blower) inside the utility corridor as an interim measure for reducing indoor air VOC concentrations at Building 10. The utility corridor ventilation system was optimized in May 2013, and further characterization of the tunnel was completed in April 2013. The results of the characterization and evaluation of the tunnel are reported in the *Draft Technical Memorandum, Building 10 Utility Tunnel Closure/Sealing Evaluation* (Accord MACTEC 2014c). In June 2013, the Navy collected soil gas and shallow groundwater samples to assess vapor intrusion within the Navy's area of responsibility. The results are reported in the 2014 *Draft Vapor Pathway, Soil Gas, and Groundwater Sampling Report to Support Vapor Intrusion Tier Response Evaluation* (Accord MACTEC 2014a). In February 2014, the Navy collected indoor and outdoor air samples for assessing potential vapor intrusion in buildings within the Navy's area of responsibility. The air sampling results are reported in the *Draft 2014 Air Sampling and Vapor Intrusion Tier Response Evaluation Report* (Accord MACTEC 2014d). In 2015, continuing quarterly air monitoring was performed at Building 10.

The utility corridor ventilation system continues to operate, and indoor air samples are collected quarterly from Building 10 for monitoring.

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5.0 PROBLEMS ENCOUNTERED

The 2015 NPDES monthly sampling results indicate that the WATS effluent was in compliance with the NPDES permit limits for all VOCs and for TPH for the entire year. The WATS's two lead GAC vessels were recharged with fresh carbon and moved to the lag position in May 2015; the historic lag vessels were moved to the lead position. No other unexpected O&M difficulties, cost exceedances, or non-compliance notices occurred for the WATS during the 2015 reporting period.

The former EATS remained off line during 2015. Therefore, no unexpected O&M difficulties, cost exceedances, or violation notices occurred for the former EATS during the 2015 reporting period.

In IR Site 28, seven monitoring wells in the Traffic Island Area were not sampled by SES-TECH during the September 2015 monitoring event due to on-going activities and obstruction to access. In conjunction with on-going treatability activities, CB&I sampled four of the wells (28OW-03, 28OW-04, 28OW-11, and 28SI-13) and provided the analytical results for those wells. The laboratory reports for those four wells were not provided and are not included in Appendix D. Access to four wells was obstructed and no samples were collected from them during the September 2015 sampling event (28OW-01, 28OW-09, 28SI-08, and 14D24A).

In IR Site 26, two monitoring wells were not accessible (WSW-1 and WU5-9) and one well was dry (WU5-3).

Monitoring results presented in this 2015 report presents only Navy-collected data. Per EPA conditional approval, MEW and NASA did not participate in the annual groundwater sampling event in September 2015.

Wells WFH-06 and FP5-7 at IR Site 26 yielded groundwater elevation data anomalous to the elevation data shown on the potentiometric maps for both March and September 2015. Therefore, the groundwater elevation data from wells WFH-06 and FP5-7 were not used to prepare the March and September 2015 potentiometric map for IR Site 26. Well WFH-06 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 Site 26.

Wells W9-42, W88-1, and W9SC-15 at IR Site 28 in the lower portion of the A Aquifer yielded groundwater elevation data anomalous to the elevation data shown on the potentiometric maps for March 2015. Therefore, the groundwater elevation data from wells W9-42, W88-1, and W9SC-15 were not used to prepare the March 2015 potentiometric map for IR Site 28. Wells PIC-23, PIC-24, PIC-25, WIC-12, and W9SC-15 at IR Site 28 in the lower portion of the A Aquifer yielded groundwater elevation data anomalous to the elevation data shown on the potentiometric maps for September 2015. Therefore, the groundwater elevation data from wells PIC-23, PIC-24, PIC-25, WIC-12, and W9SC-15 were not used to prepare the September 2015 potentiometric map for IR Site 28. No other problems were encountered during groundwater monitoring or well gauging activities at IR Site 28.The QA/QC evaluation of 2015 analytical data (Appendix E) did not reveal any significant issues requiring explanation or attention during future sampling events.

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6.0 TECHNICAL ASSESSMENT

This section provides the technical assessment developed based on the current 2015 and past historical analytical results for IR Site 28 and IR Site 26.

6.1 IR SITE 28

The WATS is functioning as intended. Since startup through December 31, 2015, the WATS has treated approximately 524,492,566 gallons of water. During 2015, the WATS extracted and treated approximately 19,685,062 gallons of water from the extraction wells and treated an additional approximate 3,480,647 gallons of SDA water (15.0 percent of the total WATS flow for the year of 23,165,709 gallons). Since startup, the WATS has removed approximately 6050.9 pounds of VOCs. During 2015, the WATS removed approximately 196.3 pounds of VOCs (SES-TECH 2015).

All 2015 WATS effluent sample results were in compliance with NPDES discharge requirements (SES-TECH 2016).

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 2-113 through 2-118). The potentiometric surface maps for the upper and lower portions of the A Aquifer were prepared using the March and September 2015 water level data (Figures 2-54 through 2-57). Most of the historical time series plots (Figures 2-62 through 2-112) show 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 downgradient of the target capture zone except for VC which is increasing in certain locations where treatment strategies have been applied, suggesting reductive dechlorination of TCE and DCE to VC. A comparison of 2014 and 2015 data indicates that the contaminant plumes are relatively stable, with minor changes in the shape 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 exceeding the cleanup standards. In addition, based on the sampling of additional monitoring wells by the Navy and MEW between 2008 and 2014 and by NASA in 2008, TCE concentrations exceeding the cleanup standard of 5 µg/L may extend beyond what was historically considered to be the leading edge of the plume. VOC concentrations in wells (14D24A, 14D36A, and 14D36A) at the leading edge of the main body of the plume indicate the extent of downgradient VOC migration appears stable in extent but declining in strength. Since 2008, most VOC concentrations have declined in these wells. However, as long as groundwater containing contaminants at concentrations exceeding the cleanup standards flows from a continuing upgradient source (south of U.S. Highway 101) to IR Site 28, the remedial objective of restoring groundwater quality to the cleanup standards cannot be achieved.

The 2015 capture zone maps (Figures 2-58, 2-59, 2-60, and 2-61) indicate that the WATS groundwater extraction system intercepted most of the VOC contamination in the target zone. The WATS extraction well data have been corrected for well water loss. Therefore, the associated capture zones shown 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 TCE and cis-1,2-DCE plumes downgradient of the capture zone, and within the eastern portion of the TCE and cis-1,2-DCE plumes east and southeast of Hangar 1. However, analytical data for the eastern and southeastern border area and downgradient of the capture zone demonstrate relatively stable to decreasing trends for these two compounds over time, indicating effective plume capture. Additionally, due to the conservative nature of the capture zones for the WATS extraction wells, it is likely that more of the TCE and cis-1,2-DCE plumes are being captured than shown 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 (1) TCE; cis-1,2-DCE; and VC plumes' furthest downgradient reach and (2) TCE and cis-1,2-DCE plumes' eastern portion east and southeast of Hangar 1. However, analytical data for TCE; cis-1,2-DCE; and VC in the furthest downgradient area demonstrate overall stable to decreasing trends over time. TCE and 1,2-DCE concentrations in the eastern and southeastern border area are near the cleanup standards, and analytical data along this eastern and southeastern border area indicate relatively stable to decreasing trends for these two compounds over time. The data indicate that effective plume capture likely is occurring in this area. Additionally, due to the conservative nature of the capture zones for the WATS extraction wells, it is likely that more of the TCE and cis-1,2-DCE plumes are being captured than shown in the associated capture zone figures.

Optimization efforts for regional plume capture were to have been evaluated in the preliminary draft report for the supplemental sitewide groundwater FS for the MEW Superfund Site study area. In March 2013, the EPA announced that it would not be finalizing the supplemental FS report at that time. The Navy has been working with the EPA to develop a plan to optimize groundwater treatment and remove contaminant mass in the WATS area.

To optimize groundwater treatment, the Navy conducted a Supplemental Investigation of the Former Building 88 Area and Traffic Island Area to better define the sources of groundwater contamination in these areas. The results of the Supplemental Investigation and recommendations for further action are presented in the *Technical Memorandum for the Supplemental Investigation* (CB&I 2014). As part of the Supplemental Investigation, in 2013, 15 monitoring wells ("28SI" series wells)were installed in the upper A Aquifer, lower A Aquifer, and B2 Aquifer. In 2014, nine additional wells ("28OW" series wells) were installed, one in the upper A Aquifer and eight in the lower A Aquifer. Analytical data collected from these 24 monitoring wells are fully incorporated into this report, and the Navy will continue to monitor these wells, as they are accessible, and report the results in future reports. Additionally, based on the analytical results, these 24 newly installed wells contain some of the highest COC concentrations within the IR Site 28. Therefore, data from these wells may provide insight into possible Navy sources within the subject area. As additional analytical data are collected from these wells, the data will be analyzed and, if warranted, a subset of these wells will be selected to create time series graphs for future annual groundwater reports.

6.2 IR SITE 26

The former EATS operated from January 1999 until July 2003. During that time, the EATS processed 67,050,786 gallons of extracted groundwater and removed approximately 23.65 pounds of VOCs. The former EATS was taken off line in 2003 and has remained off line throughout the 2015 reporting period.

A technical memorandum was prepared summarizing the results to date of the treatability study at IR Site 26 (Shaw 2011). The technical memorandum evaluates groundwater extraction and treatment (former EATS) and recommends a Focused FS to compare the current remedy with alternative remedial actions. This memorandum also evaluated groundwater extraction and treatment, and based on this evaluation, a Focused FS was recommended to compare the current remedy with alternative remedial actions that could achieve the ROD cleanup standards more effectively and efficiently. In July 2012, the Navy finalized the Focused FS to evaluate remedial alternatives that may be more efficient than pump-and-treat technologies to address the low VOC concentrations present at IR Site 26 (Shaw 2012a). On April 15, 2013, the Navy selected a remedial alternative and issued a Proposed Plan for IR Site 26. Subsequent to the Proposed Plan, the Navy prepared a ROD Amendment (Navy 2014) to document the change in remedy at IR Site 26 from the pump and treat remedy (using the former EATS) to *in situ* bioremediation treatment, MNA, and institutional controls. This amended remedy for IR Site 26 will achieve groundwater cleanup standards in a shorter timeframe than the former EATS, is a more sustainable remedial solution than the former EATS, and has a lower cost.

7.0 OPTIMIZATION PROCESS

This section discusses the optimization process for the IR Sites 28 and 26.

7.1 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 recommends pilot tests of alternative groundwater cleanup technologies as well as WATS modifications. To date, no formal comments on 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 indicates 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. The Navy subsequently completed the planning and implementation of *in situ* anaerobic biotic/abiotic treatability studies in three areas of IR Site 28 known as the Former Building 88 Area, Well W9-18 Area, and Traffic Island Area (Shaw 2012b).

In October 2010, the EPA announced a meeting to discuss the path forward for EPA's completion of a sitewide groundwater FS to evaluate optimization efforts for regional plume capture for the MEW Superfund Site study area. This report previously was to be prepared by the MEW RGRP in cooperation with the Consent Decree parties and 106 Order respondents (MEW companies), the Navy, and NASA. The Navy, NASA, and the MEW companies previously had prepared draft optimization evaluations for each of their facilities for submittal to the regulatory agencies. The Navy participated in All Parties meetings and technical workgroup meetings held by the EPA. Additionally, the Navy provided comments on the preliminary draft supplemental sitewide groundwater FS report developed by the EPA for the MEW Superfund Site study Area. In March 2013, the EPA announced that it would not be finalizing the supplemental FS report at this time. The Navy has been working with the EPA to develop a plan to optimize groundwater treatment and remove contaminant mass in the WATS area.

To optimize groundwater treatment, the Navy conducted a Supplemental Investigation of the Former Building 88 Area and Traffic Island Area to better define the sources of groundwater contamination in these areas. The results of the Supplemental Investigation and recommendations for further action are presented in the *Technical Memorandum for the Supplemental Investigation* (CB&I 2014). Based on the investigation, the Navy recommended the following:

1. Add 15 new wells to the annual groundwater monitoring program to determine chlorinated solvent concentration trends at these locations
2. Perform a treatability study to evaluate technologies for treating the chlorinated ethenes identified in the B2 Aquifer and residual DNAPL identified in the lower portion of the A Aquifer
3. Further investigate chlorinated ethenes in shallow groundwater at the northeast corner of Building 126 that may be contributing to indoor air concerns
4. Install additional wells immediately upgradient of the Former Building 88 and Traffic Island Areas to further evaluate the flow of chlorinated ethenes from upgradient sources in the A Aquifer and B2 Aquifer
5. Install additional wells immediately downgradient (north-northeast) of the Traffic Island Area to further evaluate chlorinated ethenes in the B2 Aquifer

In 2014, the Navy incorporated the 15 new site investigation wells into the annual groundwater monitoring program, as outlined in item 1 above. In 2014, to supplement the Building 88/Traffic Island Area study, nine additional observation wells ("28OW" series wells) were installed, one in the upper A Aquifer and eight in the lower A Aquifer. The Navy currently is performing a treatability study in the Traffic Island Area to address item 2 above. The field work began during the Summer of 2015 and is on-going.

7.2 EATS TREATABILITY STUDY AND FOCUSED FEASIBILITY STUDY

The Navy completed its optimization evaluation of IR Site 26 in August 2008. The *Final Site 26 Technical Memorandum (Optimization Evaluation)* (TtEC 2008b) evaluates remedial technologies that could allow groundwater at IR Site 26 to attain the cleanup standards in the OU5 ROD (Navy 1996) within a reasonable time. The report recommends field testing of combined abiotic/biotic treatment using EHC® and phytoremediation at IR Site 26.

As recommended in the optimization evaluation, an abiotic/biotic treatability study using EHC® was conducted in the area of highest VOC concentrations in the southern area of the VOC plume in the upper portion of the A Aquifer at IR Site 26 next to the northeast corner of Hangar 3. The abiotic/biotic treatability study began in May 2009 and was completed in October 2011 (Shaw 2011). The treatability study found that treatment using EHC® reduced PCE and TCE concentrations. However, DCE and VC concentrations increased in downgradient wells. Shaw prepared a technical memorandum describing the activities performed and the remediation results (Shaw 2012b). This memorandum also evaluated groundwater extraction and treatment, and based on this evaluation, a Focused FS was recommended to compare the current remedy with alternative remedial actions that could achieve the ROD cleanup standards more effectively and efficiently.

In July 2012, the Navy finalized a Focused FS for IR Site 26 that incorporates the results of the combined abiotic/biotic treatment using EHC®. On April 15, 2013, based on the Focused FS results, the Navy selected a remedial alternative and issued a Proposed Plan for IR Site 26. Subsequent to the Proposed Plan, the Navy prepared a ROD Amendment (Navy 2014) to document the change in remedy at IR Site 26 from the pump-and-treat remedy using the former EATS to *in situ* bioremediation treatment, MNA, and institutional controls. This amended remedy for IR Site 26 will achieve groundwater cleanup standards in a shorter timeframe, is a more sustainable remedial solution, and costs less. The Navy prepared a pre-design groundwater investigation work plan (ECC-Insight 2015) and field work was completed in Summer 2015. Based on the results of the pre-design groundwater investigation, the Navy recommended and agencies have approved installation of 10 new groundwater monitoring wells scheduled for Spring 2016.

8.0 CONCLUSIONS AND RECOMMENDATIONS

This section presents conclusions and recommendations developed based on the current 2015 and past historical analytical results for IR Site 28 and IR Site 26.

8.1 IR SITE 28

The WATS continues to function as intended. The 2015 capture zone maps indicate that the WATS groundwater extraction system intercepted most of the VOC contamination in the target zone.

Groundwater samples collected in 2015 from IR Site 28 monitoring wells in the upper portion of the A Aquifer indicate that the regional TCE and cis-1,2-DCE plumes extend downgradient (north) from south of U.S. Highway 101. These regional plumes have an axis that generally trends south to north. The plumes are similar in shape and extent to the TCE and cis-1,2-DCE plumes shown on maps prepared since 2003. However, data from monitoring wells added to the Navy, NASA, and MEW sampling programs since 2008 have allowed better definition, and suggest a separate detached plume downgradient of the WATS capture area. The eastern groundwater plume periphery has higher TCE and cis-1,2-DCE concentrations than the western periphery. Although TCE and cis-1,2-DCE concentrations from 2014 suggested a reconnection of the southern portion of the plume to the main WATS area plume, 2015 data do not support that observation as sampling results for TCE are indicated to be non-detectable between the two separate portions of the plume and leading-edge TCE concentrations in the 2015 main WATS area plume have decreased slightly.

The PCE plume in the upper portion of the A Aquifer is located southwest of Hangar 1 and is limited in extent compared to other groundwater VOC plumes. The 2015 interpretation of the PCE plume in the upper portion of the A Aquifer trends in a north-south direction and is similar in distribution to the 2014 PCE plume but lower in observed concentrations. The 2015 depiction of the PCE plume shows two smaller PCE plume areas, both within the larger unified footprint of the 2013 PCE plume. The 2015 VC plume for the upper portion of the A Aquifer is a single plume that originates south of U.S. Highway 101 which flows north-northeastward and incorporates the elevated PCE "hotspot" in the Former Building 88 and the Traffic Island Areas. It is similar in shape to the VC plume mapped in 2014.

The 2015 TCE and cis-1,2-DCE plumes in the lower portion of the A Aquifer at IR Site 28 are similar in shape and extent to the plumes contoured in 2014 and generally are similar in shape and extent to the 2015 TCE and cis-1,2-DCE plumes in the overlying upper portion of the A Aquifer. Similar to the TCE and cis-1,2-DCE plumes in the upper portion of the A Aquifer, the eastern groundwater plume periphery has higher concentrations than the western periphery. The PCE plume in the lower portion of the A Aquifer is elongated in shape and is similar in shape and extent to the 2014 PCE plume. The 2015 VC plume for the lower portion of the A Aquifer is similar in size and extent as the previously mapped VC plumes. VC concentrations south of the site likely are associated with a plume originating south of U.S. Highway 101.

Analytical data collected from the wells in September 2015 indicate that TCE continues to be the most prevalent VOC captured by the WATS, followed in order of declining total mass captured by cis-1,2-DCE, PCE, and VC. The September 2015 data also 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 shape and extent since 2014. VOC concentration time plots generally indicate stable or decreasing concentrations in wells on the plume periphery, indicating adequate plume control. In 2013, NASA resumed the sampling of NASA wells NASA-2A, 11M17A, 11M21A, 11N21A, and 11N22A. Before the 2014 annual groundwater sampling event, NASA added the following NASA wells to the sampling network: 11M24A, 14C60A, 14D28A, 14D33A, WSI-4, and WNB-8. Although not sampled in 2015, data from these additional NASA wells have allowed better definition of TCE concentrations in the upper portion of the A Aquifer downgradient of the WATS capture area. Additionally, in 2013, the following NASA wells installed in the upper portion of the A Aquifer downgradient of the WATS capture area were sampled: 11M16A, 14D37A, and 11N26A. NASA also added wells 14D25A2 and 14D31A2 to the lower portion of the A Aquifer. Only the analytical data from well 14D31A2 have been incorporated into the 2015 IR Site 28 plume maps.

In 2012, the following eight wells at 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 did not affect 2015 annual reporting. Therefore, the removal of these eight wells remains appropriate. Additionally, in 2012, the annual groundwater sampling program at IR Site 28 was modified to include the full implementation of PDBs during the collection of samples for VOC analysis. This change has improved the cost effectiveness of the monitoring program while maintaining data quality and compliance with the ROD.

In 2014, the Navy installed 15 additional monitoring wells ("28SI" series wells) to further delineate Navy sources near the Former Building 88 Area and the Traffic Island Area. Five of these wells were installed in the upper portion of the A Aquifer (28SI-01, 28SI-02, 28SI-03, 28SI-05, and 28SI-08), six wells in the lower portion of the A Aquifer (28SI-04, 28SI-11, 28SI-12, 28SI-13, 28SI-14, and 28SI-15), and four wells in the B2 Aquifer (28SI-06, 28SI-07, 28SI-09, and 28SI-10). Additionally, beginning in 2014, nine observation wells ("28OW" series wells) were sampled, one in the upper A Aquifer (28OW-01) and eight in the lower A Aquifer (28OW-03, 28OW-04, 28OW-09, 28OW-11, 28OW-19, 28OW-20, 28OW-23, and 28OW-24) to supplement the Building 88/Traffic Island Area study.

Data from these additional wells have been fully incorporated into this report. These 24 Navy monitoring wells have been added to the IR Site 28 annual groundwater monitoring network as well as the semiannual well gauging network. Analytical trends for these 24 wells will be assessed over time. Data from a subset of these 24 wells may be used to prepare time series plots in future groundwater monitoring reports.

Except as discussed above, continued monitoring is recommended for the IR Site 28 wells as scheduled (Section 10.0) to evaluate the effectiveness of the WATS. In addition, on-going work based on the *Technical Memorandum for the Supplemental Investigation* (CB&I 2014) includes 1) continuing groundwater monitoring of chlorinated solvent concentration trends; 2) performance of the on-going treatability study for chlorinated ethenes identified in the B2 Aquifer and residual DNAPL in the lower portion of the A Aquifer, 3) further investigate of chlorinated ethenes in shallow groundwater at the northeast corner of Building 126 that may be contributing to indoor air concerns, and 4) installation of additional wells in the vicinity of the Former Building 88 and Traffic Island Areas to further evaluate the flow of chlorinated ethenes from upgradient sources in the A Aquifer and B2 Aquifer

8.2 IR SITE 26

The former EATS remained off line during the 2015 reporting period.

Groundwater samples collected in 2015 from monitoring wells in the upper portion of the A Aquifer generally exhibited decreasing TCE and PCE concentration trends, and the plumes have decreased in area. However, cis-1,2-DCE and VC concentrations in several wells screened in the upper portion of the A Aquifer continue to exhibit overall increasing trends during the last year. These cis-1,2-DCE and VC increasing trends may be attributable to the natural attenuation of TCE and PCE. The decreases in TCE and PCE concentrations and increases in cis-1,2-DCE and VC concentrations appear to result from continued dechlorination effects associated with the treatability studies in the former EATS area.

In 2012, two wells at IR Site 26 were optimized out of the groundwater sampling network: W4-3 and W19-4. 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 biennially (SES-TECH 2012a). These six wells were sampled in 2015 and are scheduled to be next sampled in 2017. The removal of wells W4-3 and W19-4 and the reduction in sampling frequency for these six wells has not affected the 2015 annual reporting. Therefore, these changes are 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 during the collection of samples for VOC analysis. This change has improved the cost effectiveness of the monitoring program while maintaining data quality and compliance with the ROD.

Well WFH-06 at IR Site 26 yielded groundwater elevation data anomalous to the elevation data shown on the potentiometric maps for both March and September 2015, therefore, groundwater elevation data collected from this well were not used to prepare the March and September 2015 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 yielded groundwater elevation data of marginal quality since the 2007 sampling events. Because data from the WFH well group adds little value to the rendering of 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.

Except as discussed above, continued monitoring is recommended for the IR Site 26 wells in the southern plume area as scheduled (Section 10.0) to evaluate the effectiveness of the change in remedy at IR Site 26 from the pump-and-treat remedy using the former EATS to *in situ* bioremediation treatment, MNA, and institutional controls. The Navy implemented a pre-design groundwater investigation during the Summer 2015. Based on the results of the pre-design groundwater investigation, the Navy recommended and agencies have approved installation of 10 new groundwater monitoring wells at IR Site 26. Installation of the wells is scheduled for Spring 2016.

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9.0 FOLLOW-UP ACTIONS

In September 2014, the EPA completed its third 5-year review for the regional plume, which included IR Site 28 (EPA 2014). The Navy also completed its 5-year review for IR Sites 28 and 26 (Navy 2010). Appendix A discusses the progress toward completing recommendations from these 5-year reviews.

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10.0 UPCOMING WORK IN 2016 AND PLANNED FUTURE ACTIVITIES

Table 10-1 summarizes the monitoring and reporting activities planned for IR Sites 28 and 26 in 2016. O&M of the WATS at IR Site 28 will continue in 2016. The IR Site 28 semiannual groundwater gauging event has been cancelled for March but will be performed in September 2016 as scheduled. Well gauging events are coordinated with the MEW companies and NASA as part of continued regional plume monitoring efforts. The 2016 annual groundwater sampling event will occur in September 2015.

In addition, at IR Site 28, to optimize groundwater treatment, the Navy conducted a Supplemental Investigation of the Former Building 88 Area and Traffic Island Area to better define the sources of groundwater contamination in these areas. Based on the investigation, the Navy has performed or is the process of performing many of the recommended actions (CB&I 2014) including installation of supplemental investigation and observation wells in the vicinity of Building 88 and the Traffic Island Areas and perform a treatability study for chlorinated ethenes which is on-going.

Activities planned for IR Site 26 include basewide water level gauging and annual groundwater sampling in September 2016. The former EATS has remained off line in standby mode since 2003 and is not expected to be operated in 2016. In 2014, the Navy finalized the ROD Amendment outlining the Navy's plan to amend the remedy at IR Site 26 to *in situ* bioremediation treatment, MNA, and institutional controls instead of the prior pump-and-treat (former EATS) remedy. Pre-design groundwater investigation began in 2015. Installation of 10 new groundwater monitoring wells is scheduled for Spring 2016.

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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

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TABLE 1-2
IR SITES 28 AND 26 MONITORING AND REPORTING SUMMARY FOR 2015

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		
2014 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 2015

TIME PERIOD		SYSTEM	EA1-1	EA1-2	EA1-3	EA1-4	EA1-5	EA1-6	EA2-1	EA2-2	EA2-3	H1 SUMP	EV5
January 2015 (12/27/2014 to 1/30/15)	TIME OPERATING	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%	99.5%	98.8%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	49.64	0.43	8.29	1.41	0.79	1.42	0.84	11.18	11.37	3.47	6.09	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	49.05	0.43	8.20	1.40	0.78	1.40	0.83	11.05	11.24	3.43	6.02	0.00
February 2015 (1/31/15 to 2/27/15)	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)	49.49	0.39	8.49	1.40	0.67	1.40	0.84	11.34	11.60	3.40	6.53	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	48.75	0.38	8.37	1.38	0.66	1.38	0.83	11.17	11.43	3.35	6.43	0.00
March 2015 (2/28/15 to 3/27/15)	TIME OPERATING	99.7%	99.7%	99.7%	99.7%	97.0%	71.7%	96.7%	99.7%	99.7%	99.7%	100%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	48.34	0.44	8.58	1.38	0.50	1.01	0.88	11.36	11.71	3.52	5.55	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	48.19	0.43	8.45	1.36	0.49	0.99	0.87	11.19	11.53	3.47	5.47	0.00
April 2015 (3/28/15 to 4/24/15)	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)	51.38	0.38	8.51	1.41	0.87	1.46	0.84	10.72	11.35	3.63	6.99	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	51.23	0.37	8.38	1.39	0.86	1.44	0.82	10.56	11.18	3.58	6.89	0.00
May 2015 (4/25/15 to 5/29/15)	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)	37.47	0.33	8.37	1.39	0.83	1.48	0.81	10.92	11.26	3.34	7.30	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	39.01	0.32	8.27	1.37	0.82	1.46	0.80	10.79	11.13	3.30	7.21	0.00
June 2015 (5/30/15 to 6/26/15)	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)	50.53	0.31	8.47	1.49	1.00	1.41	0.76	10.91	11.38	3.42	7.83	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	50.38	0.30	8.34	1.47	0.98	1.39	0.75	10.75	11.21	3.37	7.71	0.00
July 2015 (6/27/15 to 7/31/15)	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)	47.24	0.34	8.37	1.17	1.01	1.45	0.78	10.90	11.48	3.42	8.79	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	47.13	0.33	8.27	1.16	1.00	1.43	0.77	10.77	11.34	3.38	8.68	0.00
August 2015 (8/1/15 to 8/28/15)	TIME OPERATING	99.7%	99.7%	99.4%	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	100%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	44.33	0.42	6.81	1.43	0.91	1.49	0.86	10.45	11.36	3.36	7.76	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	44.20	0.42	6.71	1.41	0.90	1.47	0.85	10.30	11.19	3.31	7.64	0.00
September 2015 (8/329/15 to 9/25/15)	TIME OPERATING	94.0%	94.0%	94.0%	94.0%	94.0%	94.0%	94.0%	94.0%	94.0%	94.0%	100%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	39.21	0.37	3.85	1.35	0.89	1.39	0.79	9.86	10.48	3.02	7.69	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	39.09	0.36	3.79	1.33	0.87	1.37	0.78	9.72	10.32	2.98	7.57	0.00
October 2015 (9/26/15 to 10/30/15)	TIME OPERATING	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	87.5%	99.8%	99.8%	100.0%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	36.51	0.35	2.51	1.35	0.76	1.32	0.72	6.33	10.27	2.79	3.45	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	36.42	0.35	2.48	1.33	0.75	1.30	0.71	6.25	10.15	2.76	3.40	0.00
November 2015 (10/31/15 to 11/27/15)	TIME OPERATING	99.4%	99.4%	99.4%	99.4%	99.4%	99.4%	99.4%	99.4%	92.6%	99.4%	100.0%	100.0%
	AVERAGE FLOW RATE (gpm, when in operation)	35.32	0.30	3.56	1.13	0.66	0.97	0.54	4.58	6.59	2.16	4.79	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	35.22	0.29	3.52	1.11	0.66	0.96	0.53	4.53	6.50	2.13	4.73	0.00
December 2015 (11/28/15 to 12/25/2015)	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)	44.21	0.41	7.53	1.45	0.91	1.40	0.90	9.35	10.64	3.99	7.77	0.00
	AVERAGE FLOW RATE (gpm, averaged over period)	44.08	0.40	7.42	1.43	0.90	1.38	0.89	9.21	10.48	3.93	7.65	0.00

Notes:

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

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

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TABLE 2-2
WATS MONTHLY EXTRACTION TOTALS 2015

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 2015 (12/27/2014 to 1/30/15)	2,472,260	21,568	413,085	70,380	39,504	70,771	41,924	556,714	566,445	172,700	303,199	0
February 2015 (1/31/15 to 2/27/15)	1,965,697	15,422	337,309	55,537	26,490	55,729	33,372	450,443	460,871	135,069	259,379	0
March 2015 (2/28/15 to 3/27/15)	1,943,193	17,481	340,755	54,840	19,670	39,969	35,001	451,359	464,950	139,889	220,401	0
April 2015 (3/28/15 to 4/24/15)	1,926,138	14,959	337,834	56,097	34,505	57,913	33,191	425,618	450,849	144,197	277,771	0
May 2015 (4/25/15 to 5/29/15)	2,378,751	16,340	415,379	69,272	42,335	73,162	39,881	542,350	564,310	170,428	355,930	0
June 2015 (5/30/15 to 6/26/15)	1,865,917	12,280	336,342	59,124	39,714	55,887	30,316	433,342	451,878	136,002	311,032	0
July 2015 (6/27/15 to 7/31/15)	2,307,349	16,285	405,002	56,644	49,043	70,131	37,704	527,274	554,963	165,276	425,027	0
August 2015 (8/1/15 to 8/28/15)	1,782,028	16,765	270,576	56,839	36,269	59,096	34,233	415,172	451,374	133,500	308,204	0
September 2015 (8/329/15 to 9/25/15)	1,576,188	14,563	152,800	53,714	35,215	55,334	31,355	391,739	416,073	120,100	305,295	0
October 2015 (9/26/15 to 10/30/15)	1,783,171	17,126	121,624	65,168	36,876	63,887	34,760	306,034	496,756	134,898	166,690	0
November 2015 (10/31/15 to 11/27/15)	1,420,014	11,875	172,222	54,420	32,144	46,824	26,116	221,589	318,458	104,302	231,751	0
December 2015 (11/28/15 to 12/25/2015)	1,777,344	16,137	299,112	57,691	36,093	55,726	35,869	371,197	422,490	158,297	308,449	0
2015 Total	23,198,050	190,801	3,602,040	709,726	427,858	704,429	413,722	5,092,831	5,619,417	1,714,658	3,473,128	0
Since Startup [b]	524,524,907	1,818,571	75,598,401	24,361,554	11,604,194	21,921,466	10,187,116	115,600,719	116,265,528	35,353,199	65,253,370	5,188,555

Notes:

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

[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

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TABLE 2-3
2015 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 19, 2015 (ft msl)	September 17, 2015 (ft msl)
EA1-1	Upper A	11.69	12.86
EA1-2	Upper A	6.56	13.16
EA1-3	Upper A	8.31	8.94
EA1-4	Upper A	5.00	1.07
EA1-5	Upper A	6.14	4.58
EA1-6	Upper A	4.21	8.35
ERM-1	Upper A	-14.85	16.50
ERM-2	Upper A	-6.61	21.15
ERM-3	Upper A	5.49	21.56
MCH-10LA	Upper A	13.93	12.55
MCH-1UA	Upper A	21.26	20.66
MCH-3UA	Upper A	21.88	20.75
MCH-5UA	Upper A	17.22	16.09
MCH-7UA	Upper A	14.29	12.90
MCH-9UA	Upper A	9.76	9.26
PIC-1	Upper A	12.32	11.26
PIC-10	Upper A	12.37	12.18
PIC-11	Upper A	12.40	12.03
PIC-12	Upper A	12.54	12.24
PIC-13	Upper A	12.57	12.27
PIC-14	Upper A	12.64	12.36
PIC-15	Upper A	12.96	12.69
PIC-2	Upper A	11.47	10.80
PIC-20	Upper A	10.94	10.57
PIC-21	Upper A	11.16	10.77
PIC-22	Upper A	11.16	10.78
PIC-27	Upper A	12.33	11.96
PIC-28	Upper A	12.49	11.91
PIC-29	Upper A	12.45	12.29
PIC-3	Upper A	11.15	10.73
PIC-30	Upper A	12.45	12.07
PIC-31	Upper A	11.59	10.85
PIC-32	Upper A	11.20	10.97
PIC-4	Upper A	11.44	11.01
PIC-5	Upper A	11.15	11.12
PIC-6	Upper A	12.18	11.85
PIC-7	Upper A	12.22	11.86
PIC-8	Upper A	12.45	12.08
PIC-9	Upper A	12.51	12.10
PZA1-1A	Upper A	12.86	12.72
PZA1-1B	Upper A	13.07	12.78
PZA1-1C	Upper A	13.09	12.72
PZA1-1D	Upper A	13.65	13.04
PZA1-1E	Upper A	NO ACCESS	NO ACCESS
PZA1-2A	Upper A	12.78	13.10
PZA1-2B	Upper A	12.98	13.14
PZA1-2C	Upper A	13.41	NO ACCESS
PZA1-2D	Upper A	12.68	13.03

TABLE 2-3
2015 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 19, 2015 (ft msl)	September 17, 2015 (ft msl)
PZA1-3A	Upper A	9.23	8.77
PZA1-3B	Upper A	9.38	8.99
PZA1-3C	Upper A	9.46	9.15
PZA1-3D	Upper A	9.29	8.95
PZA1-4B	Upper A	5.14	2.95
PZA1-4C	Upper A	5.37	3.58
PZA1-4D	Upper A	4.92	1.97
PZA1-5A	Upper A	5.96	4.58
PZA1-5B	Upper A	5.87	4.42
PZA1-5C	Upper A	6.01	4.67
PZA1-5D	Upper A	5.74	4.28
PZA1-6A	Upper A	8.70	8.02
PZA1-6B	Upper A	8.67	7.97
PZA1-6C	Upper A	8.31	7.92
PZNX-2	Upper A	15.01	13.78
UST29-MW01	Upper A	3.80	2.41
UST29-MW02	Upper A	3.55	2.14
UST3-MW-01	Upper A	3.73	3.43
UST3-MW-02	Upper A	3.89	3.07
UST85-MW02	Upper A	13.87	13.23
UST85-MW03	Upper A	12.94	12.73
W12-20	Upper A	0.16	-1.12
W14-11	Upper A	22.85	21.11
W14-12	Upper A	23.47	21.75
W14-13	Upper A	22.54	20.83
W14-2	Upper A	22.02	20.98
W14-3	Upper A	24.00	22.27
W20-01	Upper A	3.18	1.71
W29-3	Upper A	8.73	8.03
W56-2	Upper A	11.15	10.46
W60-1	Upper A	20.99	19.62
W60-2	Upper A	21.19	20.20
W8-4	Upper A	0.43	-1.06
W8-8	Upper A	-0.68	-2.10
W89-1	Upper A	22.45	20.89
W89-10	Upper A	11.08	9.98
W89-14	Upper A	19.57	18.81
W89-5	Upper A	18.95	18.20
W89-9	Upper A	12.05	11.17
W9-1	Upper A	9.37	8.65
W9-10	Upper A	6.05	4.45
W9-16	Upper A	16.69	16.19
W9-2	Upper A	11.29	10.68
W9-23	Upper A	9.88	9.50
W9-24	Upper A	5.50	3.82
W9-26	Upper A	6.41	5.05
W9-31	Upper A	8.74	8.31
W9-33	Upper A	12.98	12.52

TABLE 2-3
2015 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 19, 2015 (ft msl)	September 17, 2015 (ft msl)
W9-45	Upper A	12.10	11.69
W9-47	Upper A	9.70	8.90
W9-7	Upper A	11.43	10.82
W9-8	Upper A	13.32	12.56
W9-9	Upper A	10.72	10.06
W9SC-1	Upper A	8.86	8.53
W9SC-11	Upper A	10.14	9.01
W9SC-13	Upper A	10.19	9.26
W9SC-14	Upper A	14.36	13.86
W9SC-16	Upper A	14.59	14.03
W9SC-17	Upper A	14.82	14.24
W9SC-18	Upper A	8.86	8.52
W9SC-2	Upper A	8.67	8.27
W9SC-21	Upper A	16.24	15.37
W9SC-4	Upper A	8.86	8.49
W9SC-5	Upper A	8.56	8.18
W9SC-7	Upper A	8.17	7.47
WIC-1	Upper A	12.39	12.03
WIC-11	Upper A	11.22	10.84
WIC-2	Upper A	11.68	11.33
WIC-3	Upper A	11.42	11.02
WIC-4	Upper A	11.56	11.21
WIC-5	Upper A	12.53	11.99
WIC-6	Upper A	12.73	12.06
WIC-7	Upper A	12.44	12.06
WIC-8	Upper A	12.38	12.04
WIC-9	Upper A	11.14	10.95
WNB-1	Upper A	-0.75	-2.86
WNB-8	Upper A	-1.49	-2.28
WNX-1	Upper A	13.79	13.45
WNX-2	Upper A	13.54	13.29
WNX-3	Upper A	14.56	14.10
WNX-4	Upper A	14.34	13.78
WSI-1	Upper A	25.08	23.51
WSI-2	Upper A	22.99	22.56
WSI-3	Upper A	20.16	18.76
WSI-4	Upper A	-0.05	-1.69
WT14-1	Upper A	19.24	17.75
WT41A-1	Upper A	16.32	15.59
WT87-1	Upper A	15.26	14.29
WU4-1	Upper A	21.83	19.61
WU4-17	Upper A	8.80	7.92
WU4-21	Upper A	5.40	3.99
WU4-25	Upper A	10.93	10.35
WU4-3	Upper A	17.40	16.50
WU4-8	Upper A	6.02	4.56
WWR-1	Upper A	12.84	12.18
WWR-2	Upper A	15.75	14.96

TABLE 2-3
2015 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 19, 2015 (ft msl)	September 17, 2015 (ft msl)
WWR-3	Upper A	17.04	15.93
W29-4	Upper A	11.08	10.65
W29-5	Upper A	6.41	5.23
W56-1	Upper A	10.45	9.74
W89-6	Upper A	18.93	18.08
W89-7	Upper A	17.72	16.84
W9-36	Upper A	13.29	12.96
W9-39	Upper A	9.16	8.32
W9-13	Lower A	12.23	11.62
W9-17	Lower A	14.71	14.20
W9-20	Lower A	11.65	11.40
W9-21	Lower A	12.29	11.86
W9-22	Lower A	7.86	7.45
W9-25	Lower A	9.04	8.18
W9-27	Lower A	7.16	6.04
W9-28	Lower A	8.01	9.11
W9-34	Lower A	12.25	11.66
W9-35	Lower A	11.09	10.96
WNB-10	Lower A	-0.77	-2.83
WNB-11	Lower A	-1.31	-3.03
WU4-11	Lower A	11.50	10.84
WU4-15	Lower A	5.86	4.37
WU4-4	Lower A	16.16	15.35
WU4-7	Lower A	16.88	15.04
WU4-9	Lower A	8.58	4.62
PIC-16	Lower A	11.48	11.32
PIC-17	Lower A	11.71	11.32
PIC-18	Lower A	11.68	11.30
PIC-19	Lower A	11.75	11.37
EA2-1	Lower A	-14.85	9.98
EA2-2	Lower A	-6.61	5.83
EA2-3	Lower A	5.49	4.04
MCH-11UA	Lower A	16.85	15.36
MCH-2LA	Lower A	21.36	20.72
MCH-4LA	Lower A	22.22	21.17
MCH-6LA	Lower A	15.26	14.44
MCH-8LA	Lower A	13.77	12.80
PIC-23	Lower A	11.16	10.81
PIC-24	Lower A	12.38	12.02
PIC-25	Lower A	12.44	12.09
PIC-26	Lower A	12.46	12.08
PZA2-1A	Lower A	3.56	9.84
PZA2-1B	Lower A	3.52	9.77
PZA2-1C	Lower A	7.72	9.52
PZA2-1D	Lower A	9.06	13.03
PZA2-2A	Lower A	2.78	5.78
PZA2-2B	Lower A	5.90	5.87
PZA2-2C	Lower A	6.68	6.39

TABLE 2-3
2015 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 19, 2015 (ft msl)	September 17, 2015 (ft msl)
PZA2-2D	Lower A	4.78	5.13
PZA2-4E	Lower A	3.16	-1.25
W12-6	Lower A	0.63	-0.77
W14-1	Lower A	23.53	22.02
W29-1	Lower A	5.67	3.96
W29-2	Lower A	7.79	7.07
W29-7	Lower A	5.62	3.93
W29-8	Lower A	7.68	7.43
W58-1	Lower A	24.29	22.73
W8-1	Lower A	0.24	-1.32
W8-11	Lower A	0.24	-1.27
W8-2	Lower A	0.03	-1.48
W8-6	Lower A	0.12	-1.36
W89-11	Lower A	23.12	21.82
W89-12	Lower A	23.38	22.21
W89-2	Lower A	22.28	20.98
W89-8	Lower A	13.96	11.17
W9-14	Lower A	13.65	13.19
W9-18	Lower A	13.47	12.94
W9-19	Lower A	15.54	15.39
W9-29	Lower A	13.34	12.96
W9-42	Lower A	13.69	NO ACCESS
W9-43	Lower A	6.42	4.92
W9-44	Lower A	14.59	14.42
W9SC-12	Lower A	10.49	9.80
W9SC-15	Lower A	14.26	13.79
W9SC-20	Lower A	15.70	14.82
W9SC-3	Lower A	8.69	8.31
W9SC-8	Lower A	8.06	7.55
WIC-10	Lower A	11.22	12.03
WIC-12	Lower A	11.24	10.86
WNB-12	Lower A	-1.20	-2.70
WNB-13	Lower A	-2.37	-3.21
WNB-14	Lower A	6.55	5.14
WNB-26	Lower A	-0.67	-2.24
WNB-7	Lower A	-1.10	-2.64
WU4-10	Lower A	11.00	10.38
WU4-12	Lower A	14.94	14.20
WU4-13	Lower A	11.93	11.07
WU4-14	Lower A	5.03	1.77
WU4-16	Lower A	5.86	6.98
WU4-18	Lower A	2.00	0.34
WU4-19	Lower A	3.39	2.05
WU4-2	Lower A	20.47	19.84
WU4-24	Lower A	8.34	7.39
WU4-5	Lower A	22.75	21.58
W14-5	Lower A	24.23	22.65
W14-6	Lower A	23.60	22.07

TABLE 2-3
2015 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 28

Well Number	Aquifer/ Aquifer Zone	March 19, 2015 (ft msl)	September 17, 2015 (ft msl)
W9-37	Lower A	15.19	14.64
W14-10[a]	C	23.60	21.91
W14-4[a]	C	22.61	20.87
W8-3[a]	B	21.04	21.04
W88-3	B	8.75	8.86
W9-11	B	5.58	4.04
W9-12	B	14.87	14.16
W9-15	B	12.50	11.90
W9-30	B	15.08	14.37
W9-4	B	6.48	5.31
W9-40	B	14.39	13.74
W9-5	B	7.72	6.54
W88-1	B	14.12	NO ACCESS
W88-2	B	6.45	5.07
W9-3[a]	B	21.00	20.77

Note:

[a] artesian well

Abbreviations & Acronyms:

ft - feet

IR - installation restoration

msl - mean sea level

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

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TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location:	Units	ROD Cleanup Standard	14C33A	14D05A	14D12A
Sample Number:			12-2015IR280114C33A	12-2015IR280114D05A	12-2015IR280114D12A
Sample Date:			9/23/2015	9/23/2015	9/22/2015
1,1-Dichloroethane	µg/L	5.0	1 U	**9.6 J**	**6.5 J**
1,1-Dichloroethene	µg/L	6.0	1 U	**11 J**	13 U
1,2-Dichloroethane	µg/L	0.5*	1 U	25 U	13 U
2-Butanone	µg/L	NE	2 U	50 U	25 U
Acetone	µg/L	NE	2 U	32 J	25 U
Benzene	µg/L	1.0*	1 U	25 U	13 U
Carbon Disulfide	µg/L	NE	1 U	25 U	13 U
Chloroethane	µg/L	NE	0.79 J	25 U	13 U
Chloroform	µg/L	100	1 U	25 U	13 U
cis-1,2-Dichloroethene	µg/L	6.0	0.39 J	**950**	**390**
Ethylbenzene	µg/L	300*	1 U	25 U	13 U
Freon 113	µg/L	1,200*	1 U	25 U	13 U
m- and p-xylene	µg/L	NE	0.27 J	25 U	13 U
Methyl tert-butyl ether	µg/L	13*	0.5 U	13 U	6.3 U
Methylene Chloride	µg/L	5.0*	1 U	**12 J**	13 U
o-xylene	µg/L	NE	0.25 J	13 U	6.3 U
Tetrachloroethene	µg/L	5.0	1 U	25 U	13 U
Toluene	µg/L	150*	1 U	25 U	13 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	13 U	6.3 U
Trichloroethene	µg/L	5.0	1 U	**30**	**32**
Vinyl chloride	µg/L	0.5	0.75 J	**230**	**5 J**
Xylenes (total)	µg/L	1,750*	0.52 J	50 U	25 U

Location:	Units	ROD Cleanup Standard	14D31A2	14D31A2D (Dup)	14D36A
Sample Number:			12-2015IR280114D31A2	12-2015IR280114D31A2D	12-2015IR280114D36A
Sample Date:			10/9/2015	10/9/2015	9/21/2015
1,1-Dichloroethane	µg/L	5.0	1.3	1.2	3.2
1,1-Dichloroethene	µg/L	6.0	0.4 U	0.4 U	1.8
1,2-Dichloroethane	µg/L	0.5*	0.5 U	0.5 U	1 U
2-Butanone	µg/L	NE	0.8 U	0.8 U	2 U
Acetone	µg/L	NE	5 U	5 U	2 U
Benzene	µg/L	1.0*	0.4 U	0.4 U	1 U
Carbon Disulfide	µg/L	NE	0.4 U	0.4 U	1 U
Chloroethane	µg/L	NE	0.8 U	0.8 U	1 U
Chloroform	µg/L	100	0.4 U	0.4 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0	0.85 J	0.75 J	**29**
Ethylbenzene	µg/L	300*	0.4 U	0.4 U	1 U
Freon 113	µg/L	1,200*	1 U	1 U	1 U
m- and p-xylene	µg/L	NE	0.4 U	0.4 U	1 U
Methyl tert-butyl ether	µg/L	13*	0.4 U	0.4 U	0.5 U
Methylene Chloride	µg/L	5.0*	0.8 U	0.8 U	1 U
o-xylene	µg/L	NE	0.4 U	0.4 U	0.5 U
Tetrachloroethene	µg/L	5.0	0.4 U	0.4 U	0.8 J
Toluene	µg/L	150*	0.8 U	0.8 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.15 J	0.12 J	0.51 J
Trichloroethene	µg/L	5.0	0.81 J	0.74 J	**12**
Vinyl chloride	µg/L	0.5	0.8 U	0.8 U	0.67 J
Xylenes (total)	µg/L	1,750*	1.2 U	1.2 U	2 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location: / Sample Number: / Sample Date:	Units	ROD Cleanup Standard	14D39A / 12-2015IR280114D39A / 9/21/2015	165A / 12-2015IR2801165A / 9/22/2015	165AD (Dup) / 12-2015IR2801165AD / 9/22/2015
1,1-Dichloroethane	µg/L	5.0	1 U	0.58 J	1 J
1,1-Dichloroethene	µg/L	6.0	1 U	1 U	2.5 U
1,2-Dichloroethane	µg/L	0.5*	1 U	1 U	2.5 U
2-Butanone	µg/L	NE	2 U	2 U	5 U
Acetone	µg/L	NE	2 U	2 U	5 U
Benzene	µg/L	1.0*	1 U	1 U	2.5 U
Carbon Disulfide	µg/L	NE	1 U	1 U	2.5 U
Chloroethane	µg/L	NE	1 U	1 U	2.5 U
Chloroform	µg/L	100	1 U	1 U	2.5 U
cis-1,2-Dichloroethene	µg/L	6.0	0.58 J	**25**	**41**
Ethylbenzene	µg/L	300*	1 U	1 U	2.5 U
Freon 113	µg/L	1,200*	1 U	1 U	2.5 U
m- and p-xylene	µg/L	NE	1 U	1 U	2.5 U
Methyl tert-butyl ether	µg/L	13*	0.5 U	0.5 U	1.3 U
Methylene Chloride	µg/L	5.0*	1 U	1 U	2.5 U
o-xylene	µg/L	NE	0.5 U	0.5 U	1.3 U
Tetrachloroethene	µg/L	5.0	1 U	1 U	2.5 U
Toluene	µg/L	150*	1 U	1 U	2.5 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	0.5 U	1.3 U
Trichloroethene	µg/L	5.0	1 U	**29**	**57**
Vinyl chloride	µg/L	0.5	1 U	1 U	2.5 U
Xylenes (total)	µg/L	1,750*	2 U	2 U	5 U

Location: / Sample Number: / Sample Date:	Units	ROD Cleanup Standard	28OW-19 / 12-2015IR280128OW-19 / 9/24/2015	28OW-19D (Dup) / 12-2015IR280128OW-19D / 9/24/2015	28OW-20 / 12-2015IR280128OW-20 / 9/24/2015
1,1-Dichloroethane	µg/L	5.0	50 U	33 U	100 U
1,1-Dichloroethene	µg/L	6.0	50 U	33 U	100 U
1,2-Dichloroethane	µg/L	0.5*	50 U	33 U	100 U
2-Butanone	µg/L	NE	100 U	67 U	200 U
Acetone	µg/L	NE	100 U	67 U	200 U
Benzene	µg/L	1.0*	50 U	33 U	100 U
Carbon Disulfide	µg/L	NE	50 U	33 U	100 U
Chloroethane	µg/L	NE	50 U	33 U	100 U
Chloroform	µg/L	100	50 U	33 U	100 U
cis-1,2-Dichloroethene	µg/L	6.0	**350**	**240**	**360**
Ethylbenzene	µg/L	300*	50 U	33 U	100 U
Freon 113	µg/L	1,200*	50 U	33 U	100 U
m- and p-xylene	µg/L	NE	50 U	33 U	100 U
Methyl tert-butyl ether	µg/L	13*	25 U	17 U	50 U
Methylene Chloride	µg/L	5.0*	50 U	33 U	100 U
o-xylene	µg/L	NE	25 U	17 U	50 U
Tetrachloroethene	µg/L	5.0	50 U	33 U	100 U
Toluene	µg/L	150*	50 U	33 U	100 U
trans-1,2-Dichloroethene	µg/L	10	25 U	17 U	50 U
Trichloroethene	µg/L	5.0	**1700**	**690**	**2800**
Vinyl chloride	µg/L	0.5	**310**	**200**	100 U
Xylenes (total)	µg/L	1,750*	100 U	67 U	200 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location: / Sample Number: / Sample Date:	Units	ROD Cleanup Standard	28OW-23 / 12-2015IR280128OW-23 / 9/24/2015	28OW-24 / 12-2015IR280128OW-24 / 9/24/2015	28SI-01 / 12-2015IR280128SI-01 / 9/24/2015
1,1-Dichloroethane	µg/L	5.0	330 U	130 U	18 U
1,1-Dichloroethene	µg/L	6.0	330 U	130 U	18 U
1,2-Dichloroethane	µg/L	0.5*	330 U	130 U	18 U
2-Butanone	µg/L	NE	670 U	250 U	36 U
Acetone	µg/L	NE	670 U	250 U	36 U
Benzene	µg/L	1.0*	330 U	130 U	18 U
Carbon Disulfide	µg/L	NE	330 U	130 U	7.2 J
Chloroethane	µg/L	NE	330 U	130 U	18 U
Chloroform	µg/L	100	330 U	130 U	18 U
cis-1,2-Dichloroethene	µg/L	6.0	**8200**	**200**	**590**
Ethylbenzene	µg/L	300*	330 U	130 U	18 U
Freon 113	µg/L	1,200*	330 U	130 U	18 U
m- and p-xylene	µg/L	NE	330 U	130 U	18 U
Methyl tert-butyl ether	µg/L	13*	170 U	63 U	9.1 U
Methylene Chloride	µg/L	5.0*	330 U	130 U	18 U
o-xylene	µg/L	NE	170 U	63 U	9.1 U
Tetrachloroethene	µg/L	5.0	**140 J**	130 U	**11 J**
Toluene	µg/L	150*	330 U	130 U	18 U
trans-1,2-Dichloroethene	µg/L	10	170 U	63 U	9.1 U
Trichloroethene	µg/L	5.0	**170 J**	**3200**	**260**
Vinyl chloride	µg/L	0.5	**140 J**	130 U	18 U
Xylenes (total)	µg/L	1,750*	670 U	250 U	36 U

Location: / Sample Number: / Sample Date:	Units	ROD Cleanup Standard	28SI-02 / 12-2015IR280128SI-02 / 9/24/2015	28SI-03 / 12-2015IR280128SI-03 / 9/24/2015	28SI-04 / 12-2015IR280128SI-04 / 9/24/2015
1,1-Dichloroethane	µg/L	5.0	170 U	250 U	170 U
1,1-Dichloroethene	µg/L	6.0	170 U	250 U	170 U
1,2-Dichloroethane	µg/L	0.5*	170 U	250 U	170 U
2-Butanone	µg/L	NE	330 U	500 U	330 U
Acetone	µg/L	NE	330 U	500 U	330 U
Benzene	µg/L	1.0*	170 U	250 U	170 U
Carbon Disulfide	µg/L	NE	170 U	250 U	170 U
Chloroethane	µg/L	NE	170 U	250 U	170 U
Chloroform	µg/L	100	170 U	250 U	170 U
cis-1,2-Dichloroethene	µg/L	6.0	**4600**	**5900**	**800 J**
Ethylbenzene	µg/L	300*	170 U	250 U	170 U
Freon 113	µg/L	1,200*	170 U	250 U	80 J
m- and p-xylene	µg/L	NE	170 U	250 U	170 U
Methyl tert-butyl ether	µg/L	13*	83 U	130 U	83 U
Methylene Chloride	µg/L	5.0*	170 U	250 U	170 U
o-xylene	µg/L	NE	83 U	130 U	83 U
Tetrachloroethene	µg/L	5.0	170 U	250 U	**1700 J**
Toluene	µg/L	150*	170 U	250 U	170 U
trans-1,2-Dichloroethene	µg/L	10	83 U	130 U	83 U
Trichloroethene	µg/L	5.0	**41 J**	250 U	**4800 J**
Vinyl chloride	µg/L	0.5	170 U	250 U	170 U
Xylenes (total)	µg/L	1,750*	330 U	500 U	330 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	28SI-05 12-2015IR280128SI-05 9/24/2015	28SI-11 12-2015IR280128SI-11 9/24/2015	28SI-12 12-2015IR280128SI-12 9/24/2015
1,1-Dichloroethane	µg/L	5.0	100 U	200 U	50 U
1,1-Dichloroethene	µg/L	6.0	100 U	200 U	50 U
1,2-Dichloroethane	µg/L	0.5*	100 U	200 U	50 U
2-Butanone	µg/L	NE	200 U	400 U	100 U
Acetone	µg/L	NE	200 U	400 U	100 U
Benzene	µg/L	1.0*	100 U	200 U	50 U
Carbon Disulfide	µg/L	NE	100 U	200	50 U
Chloroethane	µg/L	NE	100 U	200 U	50 U
Chloroform	µg/L	100	100 U	200 U	50 U
cis-1,2-Dichloroethene	µg/L	6.0	**3000**	**4700**	**1500**
Ethylbenzene	µg/L	300*	100 U	200 U	50 U
Freon 113	µg/L	1,200*	100 U	200 U	50 U
m- and p-xylene	µg/L	NE	100 U	200 U	50 U
Methyl tert-butyl ether	µg/L	13*	50 U	100 U	25 U
Methylene Chloride	µg/L	5.0*	100 U	200 U	50 U
o-xylene	µg/L	NE	50 U	100 U	25 U
Tetrachloroethene	µg/L	5.0	100 U	200 U	50 U
Toluene	µg/L	150*	100 U	200 U	50 U
trans-1,2-Dichloroethene	µg/L	10	50 U	100 U	25 U
Trichloroethene	µg/L	5.0	100 U	**63 J**	50 U
Vinyl chloride	µg/L	0.5	**71 J**	**60 J**	**560**
Xylenes (total)	µg/L	1,750*	200 U	400 U	100 U

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	28SI-14 12-2015IR280128SI-14 9/24/2015	28SI-15 12-2015IR280128SI-15 9/24/2015	45B2 12-2015IR280145B2 9/22/2015
1,1-Dichloroethane	µg/L	5.0	3.2 J	1 U	1 U
1,1-Dichloroethene	µg/L	6.0	8 U	1 U	1 U
1,2-Dichloroethane	µg/L	0.5*	8 U	1 U	1 U
2-Butanone	µg/L	NE	16 U	2 U	2 U
Acetone	µg/L	NE	16 U	2 U	2 U
Benzene	µg/L	1.0*	8 U	1 U	1 U
Carbon Disulfide	µg/L	NE	8 U	1 U	1 U
Chloroethane	µg/L	NE	8 U	1.2	1 U
Chloroform	µg/L	100	8 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0	**140**	2.2	0.5 U
Ethylbenzene	µg/L	300*	8 U	1 U	1 U
Freon 113	µg/L	1,200*	8 U	1 U	1 U
m- and p-xylene	µg/L	NE	8 U	1 U	1 U
Methyl tert-butyl ether	µg/L	13*	4 U	0.5 U	0.5 U
Methylene Chloride	µg/L	5.0*	8 U	1 U	1 U
o-xylene	µg/L	NE	4 U	0.5 U	0.5 U
Tetrachloroethene	µg/L	5.0	8 U	1 U	1 U
Toluene	µg/L	150*	8 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	4 U	0.5 U	0.5 U
Trichloroethene	µg/L	5.0	8 U	1 U	1 U
Vinyl chloride	µg/L	0.5	**300**	**4.3**	1 U
Xylenes (total)	µg/L	1,750*	16 U	2 U	2 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	EA1-1 12-2015IR2801EA1-1 9/23/2015	EA1-2 12-2015IR2801EA1-2 9/23/2015	EA1-3 12-2015IR2801EA1-3 9/23/2015
1,1-Dichloroethane	µg/L	5.0	**7.1 J**	3.6 J	**5.2**
1,1-Dichloroethene	µg/L	6.0	**16 J**	4.1 J	2.1 J
1,2-Dichloroethane	µg/L	0.5*	20 U	5 U	3.3 U
2-Butanone	µg/L	NE	40 U	10 U	6.7 U
Acetone	µg/L	NE	40 U	10 U	6.7 U
Benzene	µg/L	1.0*	20 U	5 U	3.3 U
Carbon Disulfide	µg/L	NE	20 U	5 U	3.3 U
Chloroethane	µg/L	NE	20 U	5 U	3.3 U
Chloroform	µg/L	100	20 U	5 U	3.3 U
cis-1,2-Dichloroethene	µg/L	6.0	**770**	**120**	**130**
Ethylbenzene	µg/L	300*	20 U	5 U	3.3 U
Freon 113	µg/L	1,200*	18 J	5 U	3.3 U
m- and p-xylene	µg/L	NE	20 U	5 U	3.3 U
Methyl tert-butyl ether	µg/L	13*	10 U	2.5 U	1.7 U
Methylene Chloride	µg/L	5.0*	**7.3 J**	5 U	3.3 U
o-xylene	µg/L	NE	10 U	2.5 U	1.7 U
Tetrachloroethene	µg/L	5.0	**140**	5 U	1.8 J
Toluene	µg/L	150*	20 U	5 U	3.3 U
trans-1,2-Dichloroethene	µg/L	10	10 U	2.5 U	1.2 J
Trichloroethene	µg/L	5.0	**770**	**200**	**73**
Vinyl chloride	µg/L	0.5	**44**	**2.1 J**	**8.1**
Xylenes (total)	µg/L	1,750*	40	10 U	6.7 U

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	EA1-4 12-2015IR2801EA1-4 9/23/2015	EA1-5 12-2015IR2801EA1-5 9/23/2015	EA1-6 12-2015IR2801EA1-6 9/23/2015
1,1-Dichloroethane	µg/L	5.0	**6.2 J**	**5.3 J**	3.3 J
1,1-Dichloroethene	µg/L	6.0	6.7 U	3.3 J	3.9 J
1,2-Dichloroethane	µg/L	0.5*	6.7 U	5.7 U	6.7 U
2-Butanone	µg/L	NE	13 U	11 U	13 U
Acetone	µg/L	NE	13 U	11 U	13 U
Benzene	µg/L	1.0*	6.7 U	5.7 U	6.7 U
Carbon Disulfide	µg/L	NE	6.7 U	5.7 U	6.7 U
Chloroethane	µg/L	NE	6.7 U	5.7	6.7 U
Chloroform	µg/L	100	6.7 U	5.7 U	6.7 U
cis-1,2-Dichloroethene	µg/L	6.0	**230**	**210**	**230**
Ethylbenzene	µg/L	300*	6.7 U	5.7 U	6.7 U
Freon 113	µg/L	1,200*	6.7 U	5.7 U	6.7 U
m- and p-xylene	µg/L	NE	6.7 U	5.7 U	6.7 U
Methyl tert-butyl ether	µg/L	13*	3.3 U	2.9 U	3.3 U
Methylene Chloride	µg/L	5.0*	6.7 U	5.7 U	2.8 J
o-xylene	µg/L	NE	3.3 U	2.9 U	3.3 U
Tetrachloroethene	µg/L	5.0	6.7 U	5.7 U	6.7 U
Toluene	µg/L	150*	6.7 U	5.7 U	6.7 U
trans-1,2-Dichloroethene	µg/L	10	2.3 J	4.5 J	3.3 U
Trichloroethene	µg/L	5.0	**54**	**34**	**150**
Vinyl chloride	µg/L	0.5	6.7 U	**16**	**57**
Xylenes (total)	µg/L	1,750*	13 U	11 U	13 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location:	Units	ROD Cleanup Standard	EA2-1	EA2-2	EA2-2D (Dup)
Sample Number:			12-2015IR2801EA2-1	12-2015IR2801EA2-2	12-2015IR2801EA2-2D
Sample Date:			9/23/2015	9/23/2015	9/23/2015
1,1-Dichloroethane	µg/L	5.0	33 U	**7.2 J**	**6.4 J**
1,1-Dichloroethene	µg/L	6.0	**18 J**	**11 J**	**11 J**
1,2-Dichloroethane	µg/L	0.5*	33 U	20 U	20 U
2-Butanone	µg/L	NE	67 U	40 U	40 U
Acetone	µg/L	NE	59 J	40 U	40 U
Benzene	µg/L	1.0*	33 U	20 U	20 U
Carbon Disulfide	µg/L	NE	33 U	20 U	20 U
Chloroethane	µg/L	NE	33 U	20 U	11 J
Chloroform	µg/L	100	33 U	20 U	20 U
cis-1,2-Dichloroethene	µg/L	6.0	**500**	**350**	**330**
Ethylbenzene	µg/L	300*	33 U	20 U	20 U
Freon 113	µg/L	1,200*	23 J	9.3 J	9.9 J
m- and p-xylene	µg/L	NE	33 U	20 U	20 U
Methyl tert-butyl ether	µg/L	13*	17 U	10 U	10 U
Methylene Chloride	µg/L	5.0*	**18 J**	20 U	20 U
o-xylene	µg/L	NE	17 U	10 U	10 U
Tetrachloroethene	µg/L	5.0	**32 J**	20 U	20 U
Toluene	µg/L	150*	33 U	20 U	20 U
trans-1,2-Dichloroethene	µg/L	10	17 U	10 U	10 U
Trichloroethene	µg/L	5.0	**1300**	**630**	**590**
Vinyl chloride	µg/L	0.5	**11 J**	**14 J**	**13 J**
Xylenes (total)	µg/L	1,750*	67 U	40 U	40 U

Location:	Units	ROD Cleanup Standard	EA2-3	UST29-MW01	UST85-MW02
Sample Number:			12-2015IR2801EA2-3	12-2015IR2801UST29-MW01	12-2015IR2801UST85-MW02
Sample Date:			9/23/2015	9/21/2015	9/24/2015
1,1-Dichloroethane	µg/L	5.0	**6.3 J**	0.42 J	18 U
1,1-Dichloroethene	µg/L	6.0	5 J	1 U	18 U
1,2-Dichloroethane	µg/L	0.5*	6.7 U	1 U	18 U
2-Butanone	µg/L	NE	13 U	2 U	36 U
Acetone	µg/L	NE	13 U	2 U	36 U
Benzene	µg/L	1.0*	6.7 U	1 U	18 U
Carbon Disulfide	µg/L	NE	6.7 U	1 U	18 U
Chloroethane	µg/L	NE	6.7 U	1 U	18 U
Chloroform	µg/L	100	6.7 U	1 U	18 U
cis-1,2-Dichloroethene	µg/L	6.0	**260**	0.51 J	**480**
Ethylbenzene	µg/L	300*	6.7 U	1 U	18 U
Freon 113	µg/L	1,200*	6.7 U	1 U	18 U
m- and p-xylene	µg/L	NE	6.7 U	1 U	18 U
Methyl tert-butyl ether	µg/L	13*	3.3 U	0.5 U	9.1 U
Methylene Chloride	µg/L	5.0*	6.7 U	1 U	18 U
o-xylene	µg/L	NE	3.3 U	0.5 U	9.1 U
Tetrachloroethene	µg/L	5.0	6.7 U	1 U	18 U
Toluene	µg/L	150*	6.7 U	1 U	18 U
trans-1,2-Dichloroethene	µg/L	10	4.3 J	0.5 U	9.1 U
Trichloroethene	µg/L	5.0	**57**	1 U	**15 J**
Vinyl chloride	µg/L	0.5	**13**	1 U	**14 J**
Xylenes (total)	µg/L	1,750*	13 U	2 U	36 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	W20-01 12-2015IR2801W20-01 9/21/2015	W29-1 12-2015IR2801W29-1 9/22/2015	W29-2 12-2015IR2801W29-2 9/21/2015
1,1-Dichloroethane	µg/L	5.0	1 U	1 U	1.6
1,1-Dichloroethene	µg/L	6.0	1 U	1 U	1 U
1,2-Dichloroethane	µg/L	0.5*	1 U	1 U	1 U
2-Butanone	µg/L	NE	2 U	2 U	2 U
Acetone	µg/L	NE	2 U	2 U	2 U
Benzene	µg/L	1.0*	1 U	1 U	1 U
Carbon Disulfide	µg/L	NE	1 U	1 U	1 U
Chloroethane	µg/L	NE	1 U	1 U	0.91 J
Chloroform	µg/L	100	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0	1	0.39 J	0.84 J
Ethylbenzene	µg/L	300*	1 U	1 U	1 U
Freon 113	µg/L	1,200*	1 U	1 U	1 U
m- and p-xylene	µg/L	NE	1 U	1 U	1 U
Methyl tert-butyl ether	µg/L	13*	0.5 U	0.5 U	0.5 U
Methylene Chloride	µg/L	5.0*	1 U	1 U	1 U
o-xylene	µg/L	NE	0.5 U	0.5 U	0.5 U
Tetrachloroethene	µg/L	5.0	1 U	1 U	1 U
Toluene	µg/L	150*	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	0.5 U	0.5 U
Trichloroethene	µg/L	5.0	1 U	1 U	1 U
Vinyl chloride	µg/L	0.5	1 U	1 U	**3.3**
Xylenes (total)	µg/L	1,750*	2 U	2 U	2 U

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	W29-3 12-2015IR2801W29-3 9/21/2015	W29-4 12-2015IR2801W29-4 9/21/2015	W29-5 12-2015IR2801W29-5 9/22/2015
1,1-Dichloroethane	µg/L	5.0	**8.4 J**	2.9 J	**5.3**
1,1-Dichloroethene	µg/L	6.0	25 U	4 J	1 U
1,2-Dichloroethane	µg/L	0.5*	25 U	5 U	1 U
2-Butanone	µg/L	NE	50 U	10 U	2 U
Acetone	µg/L	NE	50 U	10 U	2 U
Benzene	µg/L	1.0*	25 U	5 U	1 U
Carbon Disulfide	µg/L	NE	25 U	5 U	1 U
Chloroethane	µg/L	NE	25 U	5 U	1 U
Chloroform	µg/L	100	25 U	1.8 J	1 U
cis-1,2-Dichloroethene	µg/L	6.0	**760**	**94**	0.44 J
Ethylbenzene	µg/L	300*	25 U	5 U	1 U
Freon 113	µg/L	1,200*	25 U	5 U	1 U
m- and p-xylene	µg/L	NE	25 U	5 U	1 U
Methyl tert-butyl ether	µg/L	13*	13 U	2.5 U	0.5 U
Methylene Chloride	µg/L	5.0*	**9.4 J**	5 U	1 U
o-xylene	µg/L	NE	13 U	2.5 U	0.5 U
Tetrachloroethene	µg/L	5.0	25 U	5 U	1 U
Toluene	µg/L	150*	25 U	5 U	1 U
trans-1,2-Dichloroethene	µg/L	10	13 U	2.5 U	0.5 U
Trichloroethene	µg/L	5.0	**14 J**	**190**	1 U
Vinyl chloride	µg/L	0.5	**23 J**	5 U	0.4 J
Xylenes (total)	µg/L	1,750*	50 U	10 U	2 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location:	Units	ROD Cleanup Standard	W29-7	W56-2	W9-10
Sample Number:			12-2015IR2801W29-7	12-2015IR2801W56-2	12-2015IR2801W9-10
Sample Date:			9/22/2015	9/24/2015	9/22/2015
1,1-Dichloroethane	µg/L	5.0	56 U	**13 J**	33 U
1,1-Dichloroethene	µg/L	6.0	56 U	**10 J**	33 U
1,2-Dichloroethane	µg/L	0.5*	56 U	**4 J**	33 U
2-Butanone	µg/L	NE	110 U	33 U	67 U
Acetone	µg/L	NE	110 U	33 U	67 U
Benzene	µg/L	1.0*	56 U	17 U	33 U
Carbon Disulfide	µg/L	NE	56 U	17 U	33 U
Chloroethane	µg/L	NE	56 U	17 U	33 U
Chloroform	µg/L	100	56 U	17 U	33 U
cis-1,2-Dichloroethene	µg/L	6.0	**1600**	**480**	**1000**
Ethylbenzene	µg/L	300*	56 U	17 U	33 U
Freon 113	µg/L	1,200*	56 U	17 U	33 U
m- and p-xylene	µg/L	NE	56 U	17 U	33 U
Methyl tert-butyl ether	µg/L	13*	28 U	8.3 U	17 U
Methylene Chloride	µg/L	5.0*	56 U	17 U	33 U
o-xylene	µg/L	NE	28 U	8.3 U	17 U
Tetrachloroethene	µg/L	5.0	56 U	17 U	33 U
Toluene	µg/L	150*	56 U	17 U	33 U
trans-1,2-Dichloroethene	µg/L	10	28 U	8.3 U	17 U
Trichloroethene	µg/L	5.0	**14 J**	**160**	33 U
Vinyl chloride	µg/L	0.5	**160**	**44**	**77**
Xylenes (total)	µg/L	1,750*	110 U	33 U	67 U

Location:	Units	ROD Cleanup Standard	W9-12	W9-14	W9-15
Sample Number:			12-2015IR2801W9-12	12-2015IR2801W9-14	12-2015IR2801W9-15
Sample Date:			9/23/2015	9/24/2015	9/24/2015
1,1-Dichloroethane	µg/L	5.0	1 U	100 U	1 U
1,1-Dichloroethene	µg/L	6.0	1 U	100 U	1 U
1,2-Dichloroethane	µg/L	0.5*	1 U	100 U	1 U
2-Butanone	µg/L	NE	2 U	200 U	2 U
Acetone	µg/L	NE	2 U	200 U	2 U
Benzene	µg/L	1.0*	1 U	100 U	1 U
Carbon Disulfide	µg/L	NE	1 U	100 U	1 U
Chloroethane	µg/L	NE	1 U	100 U	1 U
Chloroform	µg/L	100	1 U	100 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0	0.5 U	**640**	0.5 U
Ethylbenzene	µg/L	300*	1 U	100 U	1 U
Freon 113	µg/L	1,200*	1 U	100 U	1 U
m- and p-xylene	µg/L	NE	1 U	100 U	1 U
Methyl tert-butyl ether	µg/L	13*	0.5 U	50 U	0.5 U
Methylene Chloride	µg/L	5.0*	1 U	100 U	1 U
o-xylene	µg/L	NE	0.5 U	50 U	0.5 U
Tetrachloroethene	µg/L	5.0	1 U	100 U	1 U
Toluene	µg/L	150*	1 U	100 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	50 U	0.5 U
Trichloroethene	µg/L	5.0	1 U	**2900**	1 U
Vinyl chloride	µg/L	0.5	1 U	**36 J**	1 U
Xylenes (total)	µg/L	1,750*	2 U	200 U	2 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location:	Units	ROD Cleanup Standard	W9-18	W9-19	W9-19D (Dup)
Sample Number:			12-2015IR2801W9-18	12-2015IR2801W9-19	12-2015IR2801W9-19D
Sample Date:			10/9/2015	9/22/2015	9/22/2015
1,1-Dichloroethane	µg/L	5.0	1.1	**9**	**8.3**
1,1-Dichloroethene	µg/L	6.0	0.4 U	1.7 U	0.77 J
1,2-Dichloroethane	µg/L	0.5*	0.5 U	1.7 U	1.7 U
2-Butanone	µg/L	NE	0.8 U	3.3 U	3.3 U
Acetone	µg/L	NE	5 U	3.3 U	3.3 U
Benzene	µg/L	1.0*	0.4 U	1.7 U	1.7 U
Carbon Disulfide	µg/L	NE	0.4 U	1.7 U	1.7 U
Chloroethane	µg/L	NE	0.8 U	1.7 U	1.7 U
Chloroform	µg/L	100	0.4 U	1.7 U	1.7 U
cis-1,2-Dichloroethene	µg/L	6.0	1.1	**30**	**30**
Ethylbenzene	µg/L	300*	0.4 U	1.7 U	1.7 U
Freon 113	µg/L	1,200*	1 U	1.7 U	1.7 U
m- and p-xylene	µg/L	NE	0.4 U	1.7 U	1.7 U
Methyl tert-butyl ether	µg/L	13*	0.4 U	0.84 U	0.84 U
Methylene Chloride	µg/L	5.0*	0.8 U	1.7 U	1.7 U
o-xylene	µg/L	NE	0.4 U	0.84 U	0.84 U
Tetrachloroethene	µg/L	5.0	0.4 U	1.7 U	1.7 U
Toluene	µg/L	150*	0.8 U	1.7 U	1.7 U
trans-1,2-Dichloroethene	µg/L	10	0.68 J	3.2	1.2 J
Trichloroethene	µg/L	5.0	0.4 U	0.6 J	0.58 J
Vinyl chloride	µg/L	0.5	**1.7**	**39**	**43**
Xylenes (total)	µg/L	1,750*	1.2 U	3.3 U	3.3 U

Location:	Units	ROD Cleanup Standard	W9-2	W9-2D (Dup)	W9-20
Sample Number:			12-2015IR2801W9-2	12-2015IR2801W9-2D	12-2015IR2801W9-20
Sample Date:			9/21/2015	9/21/2015	9/24/2015
1,1-Dichloroethane	µg/L	5.0	**17 J**	**13 J**	50 U
1,1-Dichloroethene	µg/L	6.0	**29 J**	**21 J**	50 U
1,2-Dichloroethane	µg/L	0.5*	50 U	40 U	50 U
2-Butanone	µg/L	NE	100 U	80 U	100 U
Acetone	µg/L	NE	100 U	80 U	100 U
Benzene	µg/L	1.0*	50 U	40 U	50 U
Carbon Disulfide	µg/L	NE	50 U	40 U	50 U
Chloroethane	µg/L	NE	50 U	40 U	50 U
Chloroform	µg/L	100	50 U	40 U	50 U
cis-1,2-Dichloroethene	µg/L	6.0	**1100**	**860**	**730**
Ethylbenzene	µg/L	300*	50 U	40 U	50 U
Freon 113	µg/L	1,200*	23 J	40 U	24 J
m- and p-xylene	µg/L	NE	50 U	40 U	50 U
Methyl tert-butyl ether	µg/L	13*	25 U	20 U	25 U
Methylene Chloride	µg/L	5.0*	**24 J**	**15 J**	50 U
o-xylene	µg/L	NE	25 U	20 U	25 U
Tetrachloroethene	µg/L	5.0	50 U	40 U	**94**
Toluene	µg/L	150*	50 U	40 U	50 U
trans-1,2-Dichloroethene	µg/L	10	25 U	20 U	25 U
Trichloroethene	µg/L	5.0	**1900**	**1100**	1200
Vinyl chloride	µg/L	0.5	50 U	40 U	**26 J**
Xylenes (total)	µg/L	1,750*	100 U	80 U	100 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	W9-21 12-2015IR2801W9-21 9/24/2015	W9-22 12-2015IR2801W9-22 9/21/2015	W9-24 12-2015IR2801W9-24 9/22/2015
1,1-Dichloroethane	µg/L	5.0	40 U	56 U	2
1,1-Dichloroethene	µg/L	6.0	40 U	**25 J**	1 U
1,2-Dichloroethane	µg/L	0.5*	40 U	56 U	1 U
2-Butanone	µg/L	NE	80 U	110 U	2 U
Acetone	µg/L	NE	80 U	110 U	2 U
Benzene	µg/L	1.0*	40 U	56 U	1 U
Carbon Disulfide	µg/L	NE	40 U	56 U	1 U
Chloroethane	µg/L	NE	40 U	56 U	1 U
Chloroform	µg/L	100	40 U	56 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0	**1100**	**1700**	0.68 J
Ethylbenzene	µg/L	300*	40 U	56 U	1 U
Freon 113	µg/L	1,200*	40 U	56 U	1 U
m- and p-xylene	µg/L	NE	40 U	56 U	1 U
Methyl tert-butyl ether	µg/L	13*	20 U	28 U	0.5 U
Methylene Chloride	µg/L	5.0*	40 U	**22 J**	1 U
o-xylene	µg/L	NE	20 U	28 U	0.5 U
Tetrachloroethene	µg/L	5.0	40 U	56 U	1 U
Toluene	µg/L	150*	40 U	56 U	1 U
trans-1,2-Dichloroethene	µg/L	10	20 U	28 U	0.79 J
Trichloroethene	µg/L	5.0	40 U	**27 J**	1 U
Vinyl chloride	µg/L	0.5	**240**	**32 J**	**17 J**
Xylenes (total)	µg/L	1,750*	80 U	110 U	2 U

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	W9-3 12-2015IR2801W9-3 9/24/2015	W9-31 12-2015IR2801W9-31 9/21/2015	W9-33 12-2015IR2801W9-33 9/24/2015
1,1-Dichloroethane	µg/L	5.0	1 U	4.9 J	**12 J**
1,1-Dichloroethene	µg/L	6.0	1 U	13 U	**26 J**
1,2-Dichloroethane	µg/L	0.5*	1 U	13 U	40 U
2-Butanone	µg/L	NE	2 U	25 U	80 U
Acetone	µg/L	NE	2 U	25 U	80 U
Benzene	µg/L	1.0*	1 U	13 U	40 U
Carbon Disulfide	µg/L	NE	1 U	13 U	40 U
Chloroethane	µg/L	NE	1 U	13 U	40 U
Chloroform	µg/L	100	1 U	13 U	40 U
cis-1,2-Dichloroethene	µg/L	6.0	0.5 U	**190**	**1300**
Ethylbenzene	µg/L	300*	1 U	13 U	40 U
Freon 113	µg/L	1,200*	1 U	13 U	26 J
m- and p-xylene	µg/L	NE	1 U	13 U	40 U
Methyl tert-butyl ether	µg/L	13*	0.5 U	6.3 U	20 U
Methylene Chloride	µg/L	5.0*	1 U	**5.2 J**	40 U
o-xylene	µg/L	NE	0.5 U	6.3 U	20 U
Tetrachloroethene	µg/L	5.0	1 U	13 U	40 U
Toluene	µg/L	150*	1 U	13 U	40 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	6.3 U	20 U
Trichloroethene	µg/L	5.0	1 U	13 U	**1100**
Vinyl chloride	µg/L	0.5	1 U	**380**	**12 J**
Xylenes (total)	µg/L	1,750*	2 U	25 U	80 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location:	Units	ROD Cleanup Standard	W9-34	W9-37	W9-39
Sample Number:			12-2015IR2801W9-34	12-2015IR2801W9-37	12-2015IR2801W9-39
Sample Date:			9/24/2015	9/24/2015	9/22/2015
1,1-Dichloroethane	µg/L	5.0	29 U	**8.1 J**	1 U
1,1-Dichloroethene	µg/L	6.0	29 U	25 U	1 U
1,2-Dichloroethane	µg/L	0.5*	29 U	25 U	1 U
2-Butanone	µg/L	NE	57 U	50 U	2 U
Acetone	µg/L	NE	57 U	50 U	2 U
Benzene	µg/L	1.0*	29 U	25 U	1 U
Carbon Disulfide	µg/L	NE	29 U	25 U	1 U
Chloroethane	µg/L	NE	29 U	25 U	1 U
Chloroform	µg/L	100	29 U	25 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0	**740**	**630**	0.5 U
Ethylbenzene	µg/L	300*	29 U	25 U	1 U
Freon 113	µg/L	1,200*	29 U	25 U	1 U
m- and p-xylene	µg/L	NE	29 U	25 U	1 U
Methyl tert-butyl ether	µg/L	13*	14 U	13 U	0.5 U
Methylene Chloride	µg/L	5.0*	29 U	25 U	1 U
o-xylene	µg/L	NE	14 U	13 U	0.5 U
Tetrachloroethene	µg/L	5.0	29 U	25 U	1 U
Toluene	µg/L	150*	29 U	25 U	1 U
trans-1,2-Dichloroethene	µg/L	10	14 U	13 U	0.5 U
Trichloroethene	µg/L	5.0	29 U	25 U	1 U
Vinyl chloride	µg/L	0.5	**89**	**540**	1 U
Xylenes (total)	µg/L	1,750*	57 U	50 U	2 U

Location:	Units	ROD Cleanup Standard	W9-40	W9-44	W9-45
Sample Number:			12-2015IR2801W9-40	12-2015IR2801W9-44	12-2015IR2801W9-45
Sample Date:			9/22/2015	9/22/2015	9/24/2015
1,1-Dichloroethane	µg/L	5.0	1 U	**5.5 J**	**5.8 J**
1,1-Dichloroethene	µg/L	6.0	1 U	17 U	**8.9 J**
1,2-Dichloroethane	µg/L	0.5*	1 U	17 U	11 U
2-Butanone	µg/L	NE	0.71 J	33 U	22 U
Acetone	µg/L	NE	2 U	33 U	22 U
Benzene	µg/L	1.0*	1 U	17 U	11 U
Carbon Disulfide	µg/L	NE	1 U	17 U	11 U
Chloroethane	µg/L	NE	1 U	17 U	11 U
Chloroform	µg/L	100	1 U	17 U	11 U
cis-1,2-Dichloroethene	µg/L	6.0	0.5 U	**270**	**170**
Ethylbenzene	µg/L	300*	1 U	17 U	11 U
Freon 113	µg/L	1,200*	1 U	17 U	11 U
m- and p-xylene	µg/L	NE	1 U	17 U	11 U
Methyl tert-butyl ether	µg/L	13*	0.5 U	8.3 U	5.6 U
Methylene Chloride	µg/L	5.0*	1 U	17 U	11 U
o-xylene	µg/L	NE	0.5 U	8.3 U	5.6 U
Tetrachloroethene	µg/L	5.0	1 U	17 U	**5.4 J**
Toluene	µg/L	150*	1 U	17 U	11 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	8.3 U	5.6 U
Trichloroethene	µg/L	5.0	1 U	**550**	**330**
Vinyl chloride	µg/L	0.5	1 U	17 U	11 U
Xylenes (total)	µg/L	1,750*	2 U	33 U	22 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	W9-5 12-2015IR2801W9-5 9/22/2015	W9-7 12-2015IR2801W9-7 9/21/2015	W9-8 12-2015IR2801W9-8 9/21/2015
1,1-Dichloroethane	µg/L	5.0	1 U	29 U	67 U
1,1-Dichloroethene	µg/L	6.0	1 U	**14 J**	67 U
1,2-Dichloroethane	µg/L	0.5*	1 U	29 U	67 U
2-Butanone	µg/L	NE	2 U	57 U	130 U
Acetone	µg/L	NE	2 U	40 J	130 U
Benzene	µg/L	1.0*	1 U	29 U	67 U
Carbon Disulfide	µg/L	NE	1 U	29 U	67 U
Chloroethane	µg/L	NE	1 U	29 U	67 U
Chloroform	µg/L	100	1 U	29 U	67 U
cis-1,2-Dichloroethene	µg/L	6.0	0.5 U	**880**	**2100**
Ethylbenzene	µg/L	300*	1 U	29 U	67 U
Freon 113	µg/L	1,200*	1 U	29 U	67 U
m- and p-xylene	µg/L	NE	1 U	29 U	67 U
Methyl tert-butyl ether	µg/L	13*	0.5 U	14 U	33 U
Methylene Chloride	µg/L	5.0*	1 U	**20 J**	67 U
o-xylene	µg/L	NE	0.5 U	14 U	33 U
Tetrachloroethene	µg/L	5.0	1 U	29 U	67 U
Toluene	µg/L	150*	1 U	29 U	67 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	14 U	33 U
Trichloroethene	µg/L	5.0	1 U	**290**	67 U
Vinyl chloride	µg/L	0.5	1 U	**15 J**	**170**
Xylenes (total)	µg/L	1,750*	2 U	57 U	130 U

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	W9-9 12-2015IR2801W9-9 9/21/2015	W9SC-1 12-2015IR2801W9SC-1 9/21/2015	W9SC-1D (Dup) 12-2015IR2801W9SC-1D 9/21/2015
1,1-Dichloroethane	µg/L	5.0	**5.5 J**	**7.9 J**	**8 J**
1,1-Dichloroethene	µg/L	6.0	4.9 J	20 U	20 U
1,2-Dichloroethane	µg/L	0.5*	10 U	20 U	20 U
2-Butanone	µg/L	NE	20 U	40 U	40 U
Acetone	µg/L	NE	20 U	40 U	40 U
Benzene	µg/L	1.0*	10 U	20 U	20 U
Carbon Disulfide	µg/L	NE	10 U	20 U	20 U
Chloroethane	µg/L	NE	10 U	20 U	20 U
Chloroform	µg/L	100	10 U	20 U	20 U
cis-1,2-Dichloroethene	µg/L	6.0	**230**	**65**	**67**
Ethylbenzene	µg/L	300*	10 U	20 U	20 U
Freon 113	µg/L	1,200*	10 U	20 U	20 U
m- and p-xylene	µg/L	NE	10 U	20 U	20 U
Methyl tert-butyl ether	µg/L	13*	5 U	10 U	10 U
Methylene Chloride	µg/L	5.0*	10 U	**7.2 J**	**8.9 J**
o-xylene	µg/L	NE	5 U	10 U	10 U
Tetrachloroethene	µg/L	5.0	10 U	20 U	20 U
Toluene	µg/L	150*	10 U	20 U	20 U
trans-1,2-Dichloroethene	µg/L	10	5 U	10 U	10 U
Trichloroethene	µg/L	5.0	**11**	**560**	**560**
Vinyl chloride	µg/L	0.5	**270**	20 U	20 U
Xylenes (total)	µg/L	1,750*	20 U	40 U	40 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	W9SC-13 12-2015IR2801W9SC-13 9/21/2015	W9SC-14 12-2015IR2801W9SC-14 9/23/2015	W9SC-15 12-2015IR2801W9SC-15 9/23/2015
1,1-Dichloroethane	µg/L	5.0	**18 J**	29 U	50 U
1,1-Dichloroethene	µg/L	6.0	20 U	29 U	50 U
1,2-Dichloroethane	µg/L	0.5*	**5.1 J**	29 U	50 U
2-Butanone	µg/L	NE	40 U	57 U	100 U
Acetone	µg/L	NE	40 U	57 U	100 U
Benzene	µg/L	1.0*	**13 J**	29 U	50 U
Carbon Disulfide	µg/L	NE	20 U	29 U	50 U
Chloroethane	µg/L	NE	20 U	29 U	50 U
Chloroform	µg/L	100	20 U	29 U	50 U
cis-1,2-Dichloroethene	µg/L	6.0	**660**	**870**	**430**
Ethylbenzene	µg/L	300*	20 U	29 U	50 U
Freon 113	µg/L	1,200*	20 UJ	29 U	50 U
m- and p-xylene	µg/L	NE	20 U	29 U	50 U
Methyl tert-butyl ether	µg/L	13*	10 U	14 U	25 U
Methylene Chloride	µg/L	5.0*	20 U	29 U	50 U
o-xylene	µg/L	NE	10 U	14 U	25 U
Tetrachloroethene	µg/L	5.0	20 U	29 U	**89**
Toluene	µg/L	150*	20 U	29 U	50 U
trans-1,2-Dichloroethene	µg/L	10	10 U	14 U	25 U
Trichloroethene	µg/L	5.0	20 U	**8.2 J**	1600
Vinyl chloride	µg/L	0.5	**310**	**170**	**62**
Xylenes (total)	µg/L	1,750*	40 U	57 U	100 U

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	W9SC-3 12-2015IR2801W9SC-3 9/21/2015	WIC-1 12-2015IR2801WIC-1 9/24/2015	WNB-14 12-2015IR2801WNB-14 9/21/2015
1,1-Dichloroethane	µg/L	5.0	50 U	**6.8 J**	0.31 J
1,1-Dichloroethene	µg/L	6.0	**24 J**	**11 J**	1 U
1,2-Dichloroethane	µg/L	0.5*	50 U	22 U	1 U
2-Butanone	µg/L	NE	100 U	44 U	2 U
Acetone	µg/L	NE	100 U	44 U	2 U
Benzene	µg/L	1.0*	50 U	22 U	1 U
Carbon Disulfide	µg/L	NE	50 U	22 U	1 U
Chloroethane	µg/L	NE	50 U	22 U	1 U
Chloroform	µg/L	100	50 U	22 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0	**1200**	**340**	0.28 J
Ethylbenzene	µg/L	300*	50 U	22 U	1 U
Freon 113	µg/L	1,200*	50 U	22 U	1 U
m- and p-xylene	µg/L	NE	50 U	22 U	1 U
Methyl tert-butyl ether	µg/L	13*	25 U	11 U	0.5 U
Methylene Chloride	µg/L	5.0*	50 U	22 U	1 U
o-xylene	µg/L	NE	25 U	11 U	0.5 U
Tetrachloroethene	µg/L	5.0	**21 J**	**8 J**	1 U
Toluene	µg/L	150*	50 U	22 U	1 U
trans-1,2-Dichloroethene	µg/L	10	25 U	11 U	0.5 U
Trichloroethene	µg/L	5.0	**1400**	**640**	1 U
Vinyl chloride	µg/L	0.5	**28 J**	22 U	**1.3**
Xylenes (total)	µg/L	1,750*	100 U	44 U	2 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	WNX-1 12-2015IR2801WNX-1 9/23/2015	WNX-2 12-2015IR2801WNX-2 9/23/2015	WNX-3 12-2015IR2801WNX-3 9/23/2015
1,1-Dichloroethane	µg/L	5.0	**7.2 J**	**31 J**	3.7 J
1,1-Dichloroethene	µg/L	6.0	10 U	**30 J**	4.4 J
1,2-Dichloroethane	µg/L	0.5*	10 U	50 U	8 U
2-Butanone	µg/L	NE	20 U	100 U	16 U
Acetone	µg/L	NE	20 U	100 U	16 U
Benzene	µg/L	1.0*	10 U	50 U	8 U
Carbon Disulfide	µg/L	NE	10 U	50 U	8 U
Chloroethane	µg/L	NE	10 U	50 U	8 U
Chloroform	µg/L	100	10 U	50 U	8 U
cis-1,2-Dichloroethene	µg/L	6.0	**250**	**1600**	**220**
Ethylbenzene	µg/L	300*	10 U	50 U	8 U
Freon 113	µg/L	1,200*	10 U	50 U	8 U
m- and p-xylene	µg/L	NE	10 U	50 U	8 U
Methyl tert-butyl ether	µg/L	13*	5 U	25 U	4 U
Methylene Chloride	µg/L	5.0*	10 U	50 U	8 U
o-xylene	µg/L	NE	5 U	25 U	4 U
Tetrachloroethene	µg/L	5.0	10 U	50 U	8 U
Toluene	µg/L	150*	10 U	50 U	8 U
trans-1,2-Dichloroethene	µg/L	10	4 J	25 U	4 U
Trichloroethene	µg/L	5.0	**160**	50 U	**190**
Vinyl chloride	µg/L	0.5	10 U	**200**	8 U
Xylenes (total)	µg/L	1,750*	20 U	100 U	16 U

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	WU4-10 12-2015IR2801WU4-10 9/21/2015	WU4-10D (Dup) 12-2015IR2801WU4-10D 9/21/2015	WU4-11 12-2015IR2801WU4-11 9/21/2015
1,1-Dichloroethane	µg/L	5.0	4.1	3.1 J	1 U
1,1-Dichloroethene	µg/L	6.0	5.6	5.3	1
1,2-Dichloroethane	µg/L	0.5*	4 U	4 U	1 U
2-Butanone	µg/L	NE	8 U	8 U	2 U
Acetone	µg/L	NE	8 U	8 U	2 U
Benzene	µg/L	1.0*	4 U	4 U	1 U
Carbon Disulfide	µg/L	NE	4 U	4 U	1 U
Chloroethane	µg/L	NE	4 U	4 U	1 U
Chloroform	µg/L	100	4 U	4 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0	**92**	**85**	1.5
Ethylbenzene	µg/L	300*	4 U	4 U	1 U
Freon 113	µg/L	1,200*	4 U	4 U	1 U
m- and p-xylene	µg/L	NE	4 U	4 U	1 U
Methyl tert-butyl ether	µg/L	13*	2 U	2 U	0.5 U
Methylene Chloride	µg/L	5.0*	4 U	4 U	1 U
o-xylene	µg/L	NE	2 U	2 U	0.5 U
Tetrachloroethene	µg/L	5.0	4 U	4 U	1 U
Toluene	µg/L	150*	4 U	4 U	1 U
trans-1,2-Dichloroethene	µg/L	10	2 U	2 U	0.5 U
Trichloroethene	µg/L	5.0	**82**	**75**	**6.8**
Vinyl chloride	µg/L	0.5	4 U	4 U	1 U
Xylenes (total)	µg/L	1,750*	8 U	8 U	2 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location: / Sample Number: / Sample Date:	Units	ROD Cleanup Standard	WU4-14 / 12-2015IR2801WU4-14 / 9/22/2015	WU4-14D (Dup) / 12-2015IR2801WU4-14D / 9/22/2015	WU4-15 / 12-2015IR2801WU4-15 / 9/22/2015
1,1-Dichloroethane	µg/L	5.0	0.73 J	0.67 J	1.6
1,1-Dichloroethene	µg/L	6.0	1 U	1 U	1.3
1,2-Dichloroethane	µg/L	0.5*	1 U	1 U	1 U
2-Butanone	µg/L	NE	2 U	2 U	2 U
Acetone	µg/L	NE	2 U	2 U	2 U
Benzene	µg/L	1.0*	1 U	1 U	1 U
Carbon Disulfide	µg/L	NE	1 U	1 U	1 U
Chloroethane	µg/L	NE	1 U	1 U	1 U
Chloroform	µg/L	100	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0	4.4	4.2	17
Ethylbenzene	µg/L	300*	1 U	1 U	1 U
Freon 113	µg/L	1,200*	1 U	1 U	0.47 J
m- and p-xylene	µg/L	NE	1 U	1 U	1 U
Methyl tert-butyl ether	µg/L	13*	0.5 U	0.5 U	0.5 U
Methylene Chloride	µg/L	5.0*	1 U	1 U	1 U
o-xylene	µg/L	NE	0.5 U	0.5 U	0.5 U
Tetrachloroethene	µg/L	5.0	1 U	0.31 J	0.74 J
Toluene	µg/L	150*	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.31 J	0.3 J	0.5 U
Trichloroethene	µg/L	5.0	2.6	2.6	**7.7**
Vinyl chloride	µg/L	0.5	1 U	1 U	1.1
Xylenes (total)	µg/L	1,750*	2 U	2 U	2 U

Location: / Sample Number: / Sample Date:	Units	ROD Cleanup Standard	WU4-17 / 12-2015IR2801WU4-17 / 9/22/2015	WU4-21 / 12-2015IR2801WU4-21 / 9/21/2015	WU4-24 / 12-2015IR2801WU4-24 / 9/21/2015
1,1-Dichloroethane	µg/L	5.0	1 U	2	1.6
1,1-Dichloroethene	µg/L	6.0	1 U	0.9 J	1 U
1,2-Dichloroethane	µg/L	0.5*	1 U	1 U	1 U
2-Butanone	µg/L	NE	2 U	2 U	2 U
Acetone	µg/L	NE	2 J	2 U	2 U
Benzene	µg/L	1.0*	**4.9**	1 U	1 U
Carbon Disulfide	µg/L	NE	1 U	1 U	1 U
Chloroethane	µg/L	NE	0.5 J	1 U	1 U
Chloroform	µg/L	100	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0	0.5 U	**26**	2.1
Ethylbenzene	µg/L	300*	0.4 J	1 U	1 U
Freon 113	µg/L	1,200*	1 U	1 U	1 U
m- and p-xylene	µg/L	NE	2	1 U	1 U
Methyl tert-butyl ether	µg/L	13*	2.2	0.5 U	0.5 U
Methylene Chloride	µg/L	5.0*	1 U	1 U	1 U
o-xylene	µg/L	NE	0.25 J	0.5 U	0.5 U
Tetrachloroethene	µg/L	5.0	1 U	1 U	1 U
Toluene	µg/L	150*	0.85 J	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	0.42 J	0.5 U
Trichloroethene	µg/L	5.0	1 U	1	1.9
Vinyl chloride	µg/L	0.5	1 U	0.48 J	1 U
Xylenes (total)	µg/L	1,750*	2.3	2 U	2 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Location: / Sample Number: / Sample Date:	Units	ROD Cleanup Standard	WU4-25 / 12-2015IR2801WU4-25 / 9/21/2015	WU4-3 / 12-2015IR2801WU4-3 / 9/22/2015	WU4-4 / 12-2015IR2801WU4-4 / 9/22/2015
1,1-Dichloroethane	µg/L	5.0	**7.2**	**10 J**	200 U
1,1-Dichloroethene	µg/L	6.0	2.5	**20 J**	200 U
1,2-Dichloroethane	µg/L	0.5*	1.7 U	33 U	200 U
2-Butanone	µg/L	NE	3.3 U	67 U	400 U
Acetone	µg/L	NE	3.3 U	67 U	400 U
Benzene	µg/L	1.0*	1.7 U	33 U	200 U
Carbon Disulfide	µg/L	NE	1.7 U	33 U	200 U
Chloroethane	µg/L	NE	1.7 U	33 U	200 U
Chloroform	µg/L	100	1.7 U	33 U	200 U
cis-1,2-Dichloroethene	µg/L	6.0	**36**	**950 J**	**160 J**
Ethylbenzene	µg/L	300*	1.7 U	33 U	200 U
Freon 113	µg/L	1,200*	1.7 U	33 U	200 U
m- and p-xylene	µg/L	NE	1.7 U	33 U	200 U
Methyl tert-butyl ether	µg/L	13*	0.84 U	17 U	100 U
Methylene Chloride	µg/L	5.0*	1.7 U	33 U	200 U
o-xylene	µg/L	NE	0.84 U	17 U	100 U
Tetrachloroethene	µg/L	5.0	1.7 U	33 U	200 U
Toluene	µg/L	150*	1.7 U	33 U	200 U
trans-1,2-Dichloroethene	µg/L	10	0.84 U	17 U	100 U
Trichloroethene	µg/L	5.0	0.46 J	**1100 J**	**4400**
Vinyl chloride	µg/L	0.5	**0.5 J**	33 U	200 U
Xylenes (total)	µg/L	1,750*	3.3 U	67 U	400 U

Location: / Sample Number: / Sample Date:	Units	ROD Cleanup Standard	WU4-9 / 12-2015IR2801WU4-9 / 9/21/2015	WU4-9D (Dup) / 12-2015IR2801WU4-9D / 9/21/2015	WWR-3 / 12-2015IR2801WWR-3 / 9/22/2015
1,1-Dichloroethane	µg/L	5.0	2	1.7	4.4
1,1-Dichloroethene	µg/L	6.0	1 U	1 U	5.6
1,2-Dichloroethane	µg/L	0.5*	1 U	1 U	3.3 U
2-Butanone	µg/L	NE	2 U	2 U	6.7 U
Acetone	µg/L	NE	2 U	2 U	6.7 U
Benzene	µg/L	1.0*	1 U	1 U	3.3 U
Carbon Disulfide	µg/L	NE	1 U	1 U	3.3 U
Chloroethane	µg/L	NE	1 U	1 U	3.3 U
Chloroform	µg/L	100	1 U	1 U	3.3 U
cis-1,2-Dichloroethene	µg/L	6.0	**21**	**19**	**89**
Ethylbenzene	µg/L	300*	1 U	1 U	3.3 U
Freon 113	µg/L	1,200*	1 U	1 U	1.9 J
m- and p-xylene	µg/L	NE	1 U	1 U	3.3 U
Methyl tert-butyl ether	µg/L	13*	0.5 U	0.5 U	1.7 U
Methylene Chloride	µg/L	5.0*	1 U	1 U	3.3 U
o-xylene	µg/L	NE	0.5 U	0.5 U	1.7 U
Tetrachloroethene	µg/L	5.0	1 U	1 U	3.3 U
Toluene	µg/L	150*	1 U	1 U	3.3 U
trans-1,2-Dichloroethene	µg/L	10	1.4	1.2	1.7 U
Trichloroethene	µg/L	5.0	1.2	0.82 J	**41**
Vinyl chloride	µg/L	0.5	**8.7**	**7.5**	3.3 U
Xylenes (total)	µg/L	1,750*	2 U	2 U	6.7 U

TABLE 2-5
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 28

Notes:

Analytes not listed were not detected in any of the 2015 well samples above the laboratory reporting limits.

Bold values indicate concentrations greater than the ROD Cleanup Standard
* California maximum contaminant level. No ROD value established.

Complete laboratory analytical data for September 2015 IR Site 26 and 28 event, including data validation,
are provided on CD in Appendix C and D.

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
ROD - Record of Decision
U - analyte not detected at or above laboratory reporting limit (value indicates the reporting limit)
UJ - analyte detected with an estimated laboratory reporting limit
VOC - volatile organic compound

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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
14C33A	Upper A	9/23/2013	0.50 U	0.28 J	0.50 U	0.27 J
14C33A	Upper A	9/30/2014	0.4 U	0.32 J	0.4 U	0.48 J
14C33A	Upper A	9/23/2015	1 U	0.39 J	1 U	0.75 J
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

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	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
14D05A	Upper A	9/24/2013	12	820	2.5 U	160 J
14D05A	Upper A	10/1/2014	18	870 J	0.4 U	200 J
14D05A	Upper A	9/23/2015	30	950	25 U	230
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

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	3/24/1999	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
14D12A	Upper A	9/24/2013	19	330	2.9 J	3.1 J
14D12A	Upper A	9/29/2014	12	260	2.4	60
14D12A	Upper A	9/22/2015	32	390	13 U	5 J
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
14D24A	Upper A	10/30/2013	31	49	0.20 U	0.40 U
14D24A	Upper A	9/29/2014	25	18	0.4 U	0.8 U
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

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)
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
14D31A2	Lower A	9/24/2013	0.50 U	0.11 J	0.50 U	0.25 U
14D31A2	Lower A	10/9/2015	0.81 J	0.85 J	0.4 U	0.8 U
14D36A	Upper A	11/24/2008	12	51	0.79	1.3
14D36A	Upper A	11/23/2009	15	53	0.92	1.6
14D36A	Upper A	11/23/2010	12	43	1.0 U	1.1
14D36A	Upper A	9/19/2011	13	42	0.88 J	1.1
14D36A	Upper A	9/24/2012	9.7	35	0.64 J	0.25 U
14D36A	Upper A	9/23/2013	8.3	27	1.1	0.34 J
14D36A	Upper A	10/17/2014	13	31	0.92 J	0.76 J
14D36A	Upper A	9/21/2015	12	29	0.8 J	0.67 J
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
14D39A	Upper A	10/30/2013	0.40 U	0.40 U	0.20 U	0.40 U
14D39A	Upper A	9/29/2014	0.17 J	0.66 J	0.4 U	0.8 U
14D39A	Upper A	9/21/2015	1 U	0.58 J	1 U	1 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

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)
165A	Upper A	11/19/2007	320	100	0.7 J	1
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
165A	Upper A	9/23/2013	170	95	5.0 U	2.5 U
165A	Upper A	10/1/2014	180	100	0.4 U	0.8 U
165A	Upper A	9/22/2015	29	25	1 U	1 U
28OW-01	Upper A	9/30/2014	14	340	0.83 J	36
28OW-03	Lower A	9/30/2014	12000	15000	17000	0.8 U
28OW-03	Lower A	9/9/2015	10000	17000	17000	1700
28OW-04	Lower A	9/30/2014	12000	17000	20000	0.8 UJ
28OW-04	Lower A	9/9/2015	8000	15000	13000	1300 J
28OW-09	Upper A	9/30/2014	2.2	1300	0.4 U	110
28OW-11	Lower A	9/30/2014	280	30	4.2	0.8 U
28OW-11	Lower A	9/10/2015	240	32 U	27 U	0.57 U
28OW-19	Lower A	9/30/2014	2600	460	31	300
28OW-19	Lower A	9/24/2015	1700	350	50 U	310
28OW-20	Lower A	9/30/2014	3200	580	13	26
28OW-20	Lower A	9/24/2015	2800	360	100 U	100 U
28OW-23	Lower A	9/30/2014	560	8600	610	100 J
28OW-23	Lower A	9/24/2015	170 J	8200	140 J	140 J
28OW-24	Lower A	9/30/2014	3700	210	20 U	0.84 J
28OW-24	Lower A	9/24/2015	3200	200	130 U	130 U
28SI-01	Upper A	11/11/2013	240	580	11	1.3 J
28SI-01	Upper A	9/30/2014	310	600	12	2.6
28SI-01	Upper A	9/24/2015	260	590	11 J	18 U
28SI-02	Upper A	11/11/2013	12 J	3700 J	11 J	14 U
28SI-02	Upper A	9/30/2014	13	4700	6.1	80
28SI-02	Upper A	9/24/2015	41 J	4600	170 U	170 U
28SI-03	Upper A	11/11/2013	16 J	6400	20 U	22 J
28SI-03	Upper A	9/29/2014	4.4	5400	0.4 U	82 J
28SI-03	Upper A	9/24/2015	250 U	5900	250 U	250 U
28SI-04	Lower A	11/11/2013	3400	1100	1600	5 J
28SI-04	Lower A	9/29/2014	4100	750	2000	14
28SI-04	Lower A	9/24/2015	4800 J	800 J	1700 J	170 U
28SI-05	Upper A	11/11/2013	76	2400	86	16 J
28SI-05	Upper A	9/30/2014	6	3500	1.5	110
28SI-05	Upper A	9/24/2015	100 U	3000	100 U	71 J
28SI-06	B2	11/11/2013	10000	3800	5600	25 U
28SI-06	B2	9/30/2014	12000	9000	9700	320
28SI-06	B2	9/10/2015	6000 U	13000 U	8900 U	720 U
28SI-07	B2	11/11/2013	3900	780	1000	14 U
28SI-07	B2	9/30/2014	9700	4200	6200	29
28SI-07	B2	9/9/2015	1400	4900	2200	50 J
28SI-08	Upper A	11/11/2013	92	4500	170	61
28SI-08	Upper A	9/30/2014	5.2	6300	4.5	150 J
28SI-09	B2	11/11/2013	3	1	5	0.2 U
28SI-09	B2	10/1/2014	0.4 U	0.4 U	0.4 U	0.8 U
28SI-09	B2	9/8/2015	0.2 J	2.8	0.2 U	0.2 U
28SI-10	B2	11/11/2013	17	25	13	0.2 U
28SI-10	B2	9/30/2014	2.4	26	2.3	1.6
28SI-10	B2	9/8/2015	0.92 J	3.1	0.69 J	0.24 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)
28SI-11	Lower A	11/11/2013	1500	2700	1400	7 J
28SI-11	Lower A	9/30/2014	1.9	3300	2.6	730
28SI-11	Lower A	9/24/2015	63 J	4700	200 U	60 J
28SI-12	Lower A	11/11/2013	920	1500	29	58
28SI-12	Lower A	9/29/2014	8.1	2000	0.98 J	430
28SI-12	Lower A	9/24/2015	50 U	1500	50 U	560
28SI-13	Lower A	11/11/2013	4300	84000	28000	12000
28SI-13	Lower A	9/30/2014	10000	330000	7400 J	80000
28SI-13	Lower A	9/10/2015	12000 U	180000 U	28000 U	44000 U
28SI-14	Lower A	11/11/2013	11	77	58	10
28SI-14	Lower A	9/30/2014	0.4 U	360	0.4 U	180
28SI-14	Lower A	9/24/2015	8 U	140	8 U	300
28SI-15	Lower A	11/11/2013	5	39	20	4
28SI-15	Lower A	9/30/2014	0.4 U	24	0.4 U	1.8
28SI-15	Lower A	9/24/2015	1 U	2.2	1 U	4.3
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
45B2	B2	9/23/2013	0.50 U	0.25 U	0.50 U	0.25 U
45B2	B2	9/30/2014	0.4 U	0.4 U	0.4 U	0.8 U
45B2	B2	9/22/2015	1 U	0.5 U	1 U	1 U
46B1	Lower A	10/1/1992	1 U	1 U	1 U	1 U
46B1	Lower A	12/28/1992	2700	290	100 U	100 U
46B1	Lower A	7/22/1998	950	64	0.5 U	0.5 U
46B1	Lower A	1/12/1999	1900	360	6.3 U	6.3 U
46B1	Lower A	7/8/1999	2800	170	8.3 U	8.3 U
46B1	Lower A	12/23/1999	1600	97	6.3 U	6.3 U
46B1	Lower A	7/13/2000	1600	120	6.3 U	6.3 U
46B1	Lower A	12/15/2000	1900	280	8.3 U	8.3 U
46B1	Lower A	11/30/2001	1200	190	5 U	4.2 U
46B1	Lower A	12/12/2002	2000	490	5 U	5 U
46B1	Lower A	12/4/2003	1500	250	5 U	5 U
46B1	Lower A	12/2/2004	1700	210	13 U	13 U
46B1	Lower A	12/7/2005	910	180	6.3 U	6.3 U
46B1	Lower A	12/8/2005	1200	210	2 U	0.5 U
46B1	Lower A	12/6/2006	1300	220	2.5 U	2.5 U
46B1	Lower A	12/4/2007	940	230	7.1 U	7.1 U
46B1	Lower A	12/5/2008	840	170	7.1 U	7.1 U
46B1	Lower A	12/8/2009	780	270	3.1 U	3.1 U
46B1	Lower A	12/13/2010	560	160	2.5 U	2.5 U
46B1	Lower A	10/3/2011	580	180	5.0 U	5.0 U

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

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

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
79B1	Lower A	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
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

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
81A	Upper A	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
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	0.5 U	0.5 U	0.5 U
87B1	Lower A	10/3/2012	53	0.66	0.5 U	0.5 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

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
EA1-1	Upper A	9/20/2011	92	32	290	1.0 U
EA1-1	Upper A	9/25/2012	31	1200	33	84
EA1-1	Upper A	9/24/2013	210	590	64	6.3 U
EA1-1	Upper A	10/1/2014	870 J	720 J	180 J	64
EA1-1	Upper A	9/23/2015	770	770	140	44
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
EA1-2	Upper A	9/24/2013	190 J	110 J	5.0 U	1.1 J
EA1-2	Upper A	10/1/2014	200	120	0.58 J	1.6
EA1-2	Upper A	9/23/2015	200	120	5 U	2.1 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
EA1-3	Upper A	9/24/2013	180	170	1.8 J	9.0 J
EA1-3	Upper A	10/1/2014	150 J	140 J	2.1	15
EA1-3	Upper A	9/23/2015	73	130	1.8 J	8.1

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)
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
EA1-4	Upper A	9/24/2013	10	320 J	1.3	3.2
EA1-4	Upper A	10/1/2014	10	150	1.6	1.2
EA1-4	Upper A	9/23/2015	54	230	6.7 U	6.7 U
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
EA1-5	Upper A	9/24/2013	8.6	100	2.5 U	11
EA1-5	Upper A	10/1/2014	12	130 J	0.29 J	21
EA1-5	Upper A	9/23/2015	34	210	5.7 U	16
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

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	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
EA1-6	Upper A	9/24/2013	77	320	5.0 U	73
EA1-6	Upper A	10/1/2014	120	270	0.4 U	69
EA1-6	Upper A	9/23/2015	150	230	6.7 U	57
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
EA2-1	Lower A	9/24/2013	1400	530	49	8.6 J
EA2-1	Lower A	10/1/2014	1400	490	52	9.9
EA2-1	Lower A	9/23/2015	1300	500	32 J	11 J
EA2-2	Lower A	3/24/1999	1990	180	25 U	50 U
EA2-2	Lower A	6/23/1999	322	345	5 J	102
EA2-2	Lower A	1/19/2000	2000	420	100 U	50 U
EA2-2	Lower A	8/23/2000	1900	470	28	65
EA2-2	Lower A	11/27/2000	1700	420	25 J	73
EA2-2	Lower A	3/29/2001	1980	570	29 J	69
EA2-2	Lower A	7/18/2001	2000	270	26	31

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	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
EA2-2	Lower A	9/24/2013	700	410	5.0	19
EA2-2	Lower A	10/1/2014	610	360	5.4	18
EA2-2	Lower A	9/23/2015	630	350	20 U	14 J
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
EA2-3	Lower A	9/24/2013	43	220	5.0 U	5.9 J
EA2-3	Lower A	10/1/2014	40	170 J	1	3.1
EA2-3	Lower A	9/23/2015	57	260	6.7 U	13
UST29-MW01	Upper A	9/24/2012	0.50 U	0.21 J	0.50 U	0.25 U
UST29-MW01	Upper A	9/23/2013	0.50 U	0.38 J	0.50 U	0.25 U
UST29-MW01	Upper A	9/30/2014	0.4 U	0.4 J	0.4 U	0.8 U
UST29-MW01	Upper A	9/21/2015	1 U	0.51 J	1 U	1 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

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
UST85-MW02	Upper A	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
UST85-MW02	Upper A	9/24/2013	19 J	610	13 U	6.3 U
UST85-MW02	Upper A	10/1/2014	23	580	0.4 U	8.8
UST85-MW02	Upper A	9/24/2015	15 J	480	18 U	14 J
W20-01	Upper A	9/24/2012	0.50 U	0.97 J	0.50 U	0.25 U
W20-01	Upper A	9/23/2013	0.50 U	0.90 J	0.50 U	0.25 U
W20-01	Upper A	9/30/2014	0.4 U	1.2	0.4 U	0.8 U
W20-01	Upper A	9/21/2015	1 U	1	1 U	1 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
W29-1	Upper A	9/24/2013	0.50 U	0.25 J	0.50 U	0.25 U
W29-1	Upper A	9/29/2014	0.4 U	0.4 U	0.4 U	0.8 U
W29-1	Upper A	9/22/2015	1 U	0.39 J	1 U	1 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

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W29-2	Upper A	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
W29-2	Upper A	9/23/2013	0.50 U	0.62 J	0.50 U	2.6
W29-2	Upper A	9/29/2014	0.4 U	7.4	0.4 U	26
W29-2	Upper A	9/21/2015	1 U	0.84 J	1 U	3.3
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
W29-3	Upper A	9/23/2013	170	380	1.3 U	11
W29-3	Upper A	9/29/2014	23	1000	0.4 U	23
W29-3	Upper A	9/21/2015	14 J	760	25 U	23 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

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W29-4	Upper A	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
W29-4	Upper A	9/23/2013	430	510	13 U	6.3 U
W29-4	Upper A	9/29/2014	430	630	0.4 U	0.87 J
W29-4	Upper A	9/21/2015	190	94	5 U	5 U
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
W29-5	Upper A	9/24/2013	0.50 U	0.26 J	0.50 U	0.21 J
W29-5	Upper A	9/29/2014	0.4 U	0.33 J	0.4 U	0.8 U
W29-5	Upper A	9/22/2015	1 U	0.44 J	1 U	0.4 J
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

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	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
W29-7	Lower A	9/24/2013	36 J	1500	25 U	190
W29-7	Lower A	9/29/2014	29	1500	0.4 U	400
W29-7	Lower A	9/22/2015	14 J	1600	56 U	160
W56-2	Upper A	3/3/1992	1600	NA	23	12 U
W56-2	Upper A	6/10/1992	1800	NA	25 U	50 U
W56-2	Upper A	9/11/1992	1400	NA	100 U	100 U
W56-2	Upper A	11/24/1992	2800	66	10 U	10 U
W56-2	Upper A	6/7/1993	1500	NA	2 U	2 U
W56-2	Upper A	9/15/1993	2000	NA	170 U	170 U
W56-2	Upper A	2/23/1994	1100 D	NA	2 U	3
W56-2	Upper A	8/24/1994	2000	NA	33 UJ-H	33 UJ-H
W56-2	Upper A	5/3/1996	1800	260	50 U	100 U
W56-2	Upper A	6/26/1996	2400	470	10 U	20 U
W56-2	Upper A	5/27/1997	2000	48 J	100 U	100 U
W56-2	Upper A	8/5/1997	440 D	880 D	4 U	4 U
W56-2	Upper A	3/26/1999	7.5	21	0.5 U	0.6 J
W56-2	Upper A	6/24/1999	15 J	750	20 U	20
W56-2	Upper A	1/20/2000	28	67	1 U	68.6
W56-2	Upper A	8/22/2000	13	290	5 U	82
W56-2	Upper A	11/29/2000	0.42 J	8	0.35 J	1.4
W56-2	Upper A	10/29/2001	180	260	0.5 U	46
W56-2	Upper A	12/6/2001	0.8 J	1 J	2 U	2 J
W56-2	Upper A	11/6/2002	6	39	2 U	53
W56-2	Upper A	12/9/2003	15	140	2 U	63
W56-2	Upper A	12/9/2003	17 J	110	2 U	35
W56-2	Upper A	11/30/2004	2 J	47	2 UJ	130
W56-2	Upper A	12/6/2005	32	300	2 U	270
W56-2	Upper A	11/21/2006	0.2 J	3 J	2 U	31
W56-2	Upper A	11/16/2007	0.6 J	0.7 J	2 U	10
W56-2	Upper A	11/21/2008	1.3	17	0.50 U	300
W56-2	Upper A	11/23/2009	0.42 J	3	0.50 U	10
W56-2	Upper A	11/19/2010	2.5	11	1.0 U	39
W56-2	Upper A	9/16/2011	0.44 J	4.8	1.0 U	90

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W56-2	Upper A	9/24/2012	63 J	500 J	2.5 U	32 J
W56-2	Upper A	9/24/2013	73	580	1.3 U	64
W56-2	Upper A	9/29/2014	95	430	0.4 U	100
W56-2	Upper A	9/24/2015	160	480	17 U	44
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	0.5U
W88-1	Lower A	8/22/2005	20 J	10000	47 J	25 U
W88-1	Lower A	11/24/2008	530	3200	560	4.4
W88-1	Lower A	11/23/2009	480	2600	260	4.1 J
W88-1	Lower A	11/22/2010	2200 J	4500 J	3300 J	290 J
W88-1	Lower A	9/19/2011	3600	6600	1300	450
W88-1	Lower A	10/1/2012	36 J	3300	36 J	3700
W88-1	Lower A	9/23/2013	130 U	2000	130 U	6200
W88-1	Lower A	9/30/2014	40 U	1900	40 U	5200
W88-1	Lower A	9/9/2015	7	630	12	4600
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

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)
W89-1	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
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
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

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	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
W9-10	Upper A	9/24/2013	13 U	960	13 U	78
W9-10	Upper A	9/29/2014	2.3	1200	0.4 U	91
W9-10	Upper A	9/22/2015	33 U	1000	33 U	77
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
W9-12	B2	9/23/2013	0.50 U	0.25 U	0.50 U	0.25 U
W9-12	B2	9/29/2014	0.4 U	0.4 U	0.4 U	0.8 U
W9-12	B2	9/23/2015	1 U	0.5 U	1 U	1 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

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-14	Lower A	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
W9-14	Lower A	9/23/2013	3400	630	50 U	22 J
W9-14	Lower A	9/30/2014	3400	740	1.4	27
W9-14	Lower A	9/24/2015	2900	640	100 U	36 J
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
W9-15	B2	9/24/2013	0.50 U	0.25 U	0.50 U	0.25 U
W9-15	B2	9/29/2014	0.4 J	0.56 J	0.4 U	0.8 U
W9-15	B2	9/24/2015	1 U	0.5 U	1 U	1 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

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-18	Upper A	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	0.5U	26	0.5U	530
W9-18	Upper A	9/23/2013	25 U	12 J	25 U	660
W9-18	Upper A	9/30/2014	0.4 U	2	0.4 U	5.8
W9-18	Upper A	10/9/2015	0.4 U	1.1	0.4 U	1.7
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
W9-19	Upper A	9/23/2013	0.48 J	43	0.50 U	62
W9-19	Upper A	10/1/2014	0.64 J	73	0.4 U	85 J
W9-19	Upper A	9/22/2015	0.6 J	30	1.7 U	43
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

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	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
W9-2	Upper A	9/23/2013	1800	930	50 U	25 U
W9-2	Upper A	9/29/2014	1300	690	0.83 J	1.4
W9-2	Upper A	9/21/2015	1900	1100	50 U	50 U
W9-20	Lower A	9/1/1992	10000 D	NA	360	50 U
W9-20	Lower A	10/28/1992	14000	2000 U	2000 U	2000 U
W9-20	Lower A	5/19/1993	9900 D	NA	420	50 U
W9-20	Lower A	2/23/1994	13000 B	NA	200 J	1000 U
W9-20	Lower A	8/24/1994	18000	NA	220 J	1000 U
W9-20	Lower A	3/3/1995	13000	NA	1000 U	1000 U
W9-20	Lower A	6/14/1996	630	104	22	1 U
W9-20	Lower A	9/19/1996	130	180	12	0.5 U
W9-20	Lower A	1/19/1997	7900	250 J	500 U	120 U
W9-20	Lower A	5/4/1997	8700	230 J	250 U	80 U
W9-20	Lower A	6/3/1997	11000	260 J	710 U	710 U
W9-20	Lower A	8/7/1997	8600 J	240 J	130 J	49 UJ
W9-20	Lower A	10/24/1997	9700 D	270 D	250 D	0.5 U
W9-20	Lower A	4/3/1998	7600 D	NA	120	10 U
W9-20	Lower A	3/25/1999	3330	1530	150	100 U
W9-20	Lower A	6/24/1999	4720	250	200	50 U
W9-20	Lower A	1/20/2000	327	77	20	5 U
W9-20	Lower A	8/24/2000	5000	260	190 J	0.57
W9-20	Lower A	11/29/2000	25	4.5	1.1	0.5 U
W9-20	Lower A	12/7/2001	2800	230	130	2 U
W9-20	Lower A	11/8/2002	3800	370	310	0.5 U
W9-20	Lower A	12/10/2003	3500	430	450	0.8 J
W9-20	Lower A	12/1/2004	3500	370 J	410 J	1 J
W9-20	Lower A	12/1/2004	3800	370 J	480 J	2 U
W9-20	Lower A	4/28/2005	3100 J	540 J	530 J	2
W9-20	Lower A	12/6/2005	3300	710	550	0.8
W9-20	Lower A	11/20/2006	140	110	13 J	0.3 J
W9-20	Lower A	11/19/2007	34	31	3	0.5 U
W9-20	Lower A	11/21/2008	78	120	6.5 J	0.31 J
W9-20	Lower A	11/21/2008	94	120	6.8 J	0.28 J
W9-20	Lower A	11/24/2009	1400	580	170	10 U
W9-20	Lower A	11/24/2009	2000	700	230	10 U
W9-20	Lower A	11/19/2010	2100	820	360	50 U
W9-20	Lower A	9/20/2011	1700	1500	340	43

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-20	Lower A	9/24/2012	1200	1500	130	91
W9-20	Lower A	9/24/2013	1000	1300	160	44 J
W9-20	Lower A	9/29/2014	740	980	100	56
W9-20	Lower A	9/24/2015	1200	730	94	26 J
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
W9-21	Lower A	9/23/2013	25 U	1200	25 U	190
W9-21	Lower A	9/30/2014	9.3 J	1200	20 U	250
W9-21	Lower A	9/24/2015	40 U	1100	40 U	240
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
W9-22	Lower A	9/23/2013	1200	540	25 U	15 J
W9-22	Lower A	9/29/2014	120	1400	0.4 U	24
W9-22	Lower A	9/21/2015	27 J	1700	56 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)
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
W9-24	Upper A	9/24/2013	0.50 U	0.10 J	0.50 U	5.8
W9-24	Upper A	9/29/2014	0.4 U	0.65 J	0.4 U	22
W9-24	Upper A	9/22/2015	1 U	0.68 J	1 U	17 J
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
W9-3	C	9/24/2013	0.50 U	0.25 U	0.50 U	0.25 U
W9-3	C	10/1/2014	0.4 U	0.4 U	0.4 U	0.8 U
W9-3	C	9/24/2015	1 U	0.5 U	1 U	1 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
W9-31	Upper A	9/23/2013	1.3 U	160	1.3 U	290

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-31	Upper A	9/29/2014	0.4 U	560	0.4 U	630
W9-31	Upper A	9/21/2015	13 U	190	13 U	380
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
W9-33	Lower A	9/23/2013	1500	1100	25 U	13 J
W9-33	Lower A	9/30/2014	640	1900	0.4 U	24
W9-33	Lower A	9/24/2015	1100	1300	40 U	12 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

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W9-34	Lower A	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
W9-34	Lower A	9/23/2013	25 U	1100	25 U	200
W9-34	Lower A	9/29/2014	13	990	0.4 U	120
W9-34	Lower A	9/24/2015	29 U	740	29 U	89
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
W9-37	Upper A	9/23/2013	25 U	870	25 U	530
W9-37	Upper A	9/29/2014	1.3	520	0.4 U	680
W9-37	Upper A	9/24/2015	25 U	630	25 U	540
W9-39	B2	11/16/2007	2 U	2 U	2 U	0.5 U
W9-39	B2	9/24/2013	0.27 J	0.25 U	0.50 U	0.25 U
W9-39	B2	9/29/2014	0.4 U	0.4 U	0.4 U	0.8 U
W9-39	B2	9/22/2015	1 U	0.5 U	1 U	1 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
W9-40	B2	9/23/2013	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)
W9-40	B2	9/30/2014	0.4 U	0.4 U	0.4 U	0.8 U
W9-40	B2	9/22/2015	1 U	0.5 U	1 U	1 U
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
W9-42	Lower A	9/23/2013	0.26 J	160	0.50 U	93
W9-42	Lower A	9/30/2014	1.4 J	180	2 U	130
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
W9-44	Upper A	9/23/2013	670	360	13 U	6.3 U
W9-44	Upper A	9/30/2014	600	360	8 U	16 U
W9-44	Upper A	9/22/2015	550	270	17 U	17 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
W9-45	Upper A	9/23/2013	310	180	4.6	1.9 J
W9-45	Upper A	9/30/2014	290	170	4.8 J	8 U
W9-45	Upper A	9/24/2015	330	170	5.4 J	11 U
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	B3	11/20/2007	2U	0.1 J	2U	0.5U
W9-5	B3	9/24/2013	0.50 U	0.25 U	0.50 U	0.25 U
W9-5	B3	9/29/2014	0.4 U	0.4 U	0.4 U	0.8 U
W9-5	B3	9/22/2015	1 U	0.5 U	1 U	1 U

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
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
W9-7	Upper A	9/24/2013	10	830	1.3 U	100
W9-7	Upper A	9/29/2014	21	990	0.4 U	49
W9-7	Upper A	9/21/2015	290	880	29 U	15 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
W9-8	Lower A	9/23/2013	50 U	2300	50 U	85 J
W9-8	Lower A	9/30/2014	20 U	2100	20 U	150
W9-8	Lower A	9/21/2015	67 U	2100	67 U	170
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

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	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
W9-9	Lower A	9/23/2013	4.0	57	1.3 U	340
W9-9	Lower A	9/29/2014	6.9	120	0.4 U	350
W9-9	Lower A	9/21/2015	11	230	10 U	270
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
W9SC-1	Upper A	9/23/2013	690	95	13 U	6.3 U
W9SC-1	Upper A	9/29/2014	760	100	2.4	0.8 U
W9SC-1	Upper A	9/21/2015	560	65	20 U	20 U
W9SC-13	Upper A	5/27/1997	13 J	820	33 U	22 J
W9SC-13	Upper A	7/29/1997	3 J	NA	3 UJ	21 J
W9SC-13	Upper A	3/26/1999	6	603	5 U	94
W9SC-13	Upper A	6/24/1999	20 U	685	20 U	84
W9SC-13	Upper A	1/21/2000	10	354	10 U	196
W9SC-13	Upper A	8/22/2000	15	560	1 U	260
W9SC-13	Upper A	11/29/2000	61	1000	25 U	120
W9SC-13	Upper A	12/5/2001	0.5 J	410 D	2 U	67 D
W9SC-13	Upper A	11/6/2002	2 U	370	2 U	39 J
W9SC-13	Upper A	12/9/2003	2 U	470	2 U	39 J
W9SC-13	Upper A	4/7/2004	0.5 U	560	0.5 U	56
W9SC-13	Upper A	4/28/2004	0.5 U	530	0.5 U	4
W9SC-13	Upper A	5/10/2004	0.5 U	420	0.5 U	42
W9SC-13	Upper A	6/15/2004	0.5 U	550	0.5 U	39
W9SC-13	Upper A	7/13/2004	0.5 U	630	0.5 U	38
W9SC-13	Upper A	8/17/2004	0.5 U	790	0.5 U	110
W9SC-13	Upper A	11/15/2004	0.5 U	190	0.5 U	52
W9SC-13	Upper A	11/30/2004	0.3 J	570	2 U	34
W9SC-13	Upper A	12/7/2005	2 U	140	2 U	18
W9SC-13	Upper A	11/21/2006	2 U	450 J	2 U	58

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	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-13	Upper A	9/23/2013	0.50 U	0.25 U	0.50 U	0.25 U
W9SC-13	Upper A	9/29/2014	0.4 U	0.4 U	0.4 U	0.8 U
W9SC-13	Upper A	9/21/2015	20 U	660	20 U	310
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
W9SC-14	Upper A	9/23/2013	17 J	1100	25 U	140
W9SC-14	Upper A	9/30/2014	33	890	0.87 J	180
W9SC-14	Upper A	9/23/2015	8.2 J	870	29 U	170
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-15	Lower A	9/23/2013	1800	330	100	17 J
W9SC-15	Lower A	9/30/2014	1600	410	100	47
W9SC-15	Lower A	9/23/2015	1600	430	89	62

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (μg/L)	cis-1,2-DCE (μg/L)	PCE (μg/L)	VC (μg/L)
W9SC-3	Lower A	12/8/2001	4800	590	69	2 U
W9SC-3	Lower A	11/11/2002	4700	1500	60	12 U
W9SC-3	Lower A	12/11/2003	6100 J	610 J	71	1
W9SC-3	Lower A	12/1/2004	6000	830	82	3
W9SC-3	Lower A	12/1/2004	5500	780	75	2 J
W9SC-3	Lower A	4/27/2005	4500 J	1000 J	67	3.3
W9SC-3	Lower A	12/6/2005	3000	2400	53	7
W9SC-3	Lower A	11/21/2006	4600 J	1700 J	66 J	9 J
W9SC-3	Lower A	11/19/2007	1600	2000	35	2
W9SC-3	Lower A	11/24/2008	660	2400	12 J	38 J
W9SC-3	Lower A	11/23/2009	400	2400	11	4.3
W9SC-3	Lower A	11/22/2010	3000	1300	100 U	50 U
W9SC-3	Lower A	9/20/2011	1900 J	1100	25 U	12 U
W9SC-3	Lower A	9/24/2012	1900 J	1200 J	29 J	24 J
W9SC-3	Lower A	9/23/2013	1900	1100	27 J	22 J
W9SC-3	Lower A	10/1/2014	1400	1100	21	27
W9SC-3	Lower A	9/21/2015	1400	1200	21 J	28 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
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

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	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
WIC-1	Upper A	9/24/2013	660	300	8.9 J	6.3 U
WIC-1	Upper A	9/29/2014	620	320	9.4	2.7
WIC-1	Upper A	9/24/2015	640	340	8 J	22 U
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
WNB-14	Lower A	9/24/2013	0.50 U	1.9	0.50 U	3.7
WNB-14	Lower A	10/1/2014	0.4 U	3.5	0.4 U	9.6
WNB-14	Lower A	9/21/2015	1 U	0.28 J	1 U	1.3
WNX-1	Upper A	11/19/2007	360	720	0.2 J	0.5
WNX-1	Upper A	9/24/2013	190	310	6.3 U	3.1 U
WNX-1	Upper A	9/30/2014	200	310	0.4 U	0.8 U
WNX-1	Upper A	9/23/2015	160	250	10 U	10 U
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

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	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-2	Upper A	9/24/2013	25 U	1500	25 U	130
WNX-2	Upper A	9/30/2014	20 U	1700	0.4 U	210
WNX-2	Upper A	9/23/2015	50 U	1600	50 U	200
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
WNX-3	Upper A	9/24/2013	180	220	5.0 U	2.5 U
WNX-3	Upper A	9/30/2014	220	260	0.4 U	4 U
WNX-3	Upper A	9/23/2015	190	220	8 U	8 U
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

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	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
WU4-10	Upper A	9/23/2013	93	110	2.5 U	0.59 J
WU4-10	Upper A	10/1/2014	91	110	0.19 J	0.63 J
WU4-10	Upper A	9/21/2015	82	92	4 U	4 U
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

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	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
WU4-11	Lower A	9/23/2013	7.0	2.8	0.50 U	0.25 U
WU4-11	Lower A	10/1/2014	6.9	2.4	0.4 U	0.8 U
WU4-11	Lower A	9/21/2015	6.8	1.5	1 U	1 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
WU4-14	Upper A	9/24/2013	2.1 J	100 J	2.5 U	0.79 J
WU4-14	Upper A	9/29/2014	0.79 J	24	0.27 J	0.66 J
WU4-14	Upper A	9/22/2015	2.6	4.4	0.31 J	1 U
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

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	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
WU4-15	Lower A	9/24/2013	8.8	23	0.97 J	0.85 J
WU4-15	Lower A	9/29/2014	7.8	18	0.76 J	0.88 J
WU4-15	Lower A	9/22/2015	7.7	17	0.74 J	1.1
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
WU4-17	Upper A	9/24/2013	0.50 U	0.32 J	0.50 U	0.55 J
WU4-17	Upper A	9/29/2014	0.4 U	0.75 J	0.4 U	7.3
WU4-17	Upper A	9/22/2015	1 U	0.5 U	1 U	1 U
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

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	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
WU4-21	Upper A	9/23/2013	0.56 J	18	0.50 U	0.28 J
WU4-21	Upper A	9/30/2014	0.67 J	27	0.4 U	0.8 U
WU4-21	Upper A	9/21/2015	1	26	1 U	0.48 J
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
WU4-24	Upper A	9/23/2013	2.2	2.8	0.50 U	0.25 U
WU4-24	Upper A	9/30/2014	1.7	2.3	0.4 U	0.8 U
WU4-24	Upper A	9/21/2015	1.9	2.1	1 U	1 U

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
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
WU4-25	Upper A	9/23/2013	0.26 J	34	0.50 U	0.46 J
WU4-25	Upper A	9/30/2014	0.26 J	36	0.4 U	0.65 J
WU4-25	Upper A	9/21/2015	0.46 J	36	1.7 U	0.5 J
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

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-3	Upper A	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
WU4-3	Upper A	9/23/2013	1100	750	25 U	13 U
WU4-3	Upper A	9/30/2014	1600	710	0.94 J	2.5
WU4-3	Upper A	9/22/2015	1100 J	950 J	33 U	33 U
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
WU4-4	Lower A	9/23/2013	4300	150	13 U	6.3 U
WU4-4	Lower A	9/30/2014	5600	200	0.99 J	0.73 J
WU4-4	Lower A	9/22/2015	4400	160 J	200 U	200 U
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

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	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
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

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU4-9	Lower A	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	1/19/2000	1	21	1 U	0.5 U
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	11/16/2007	0.9 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
WU4-9	Lower A	9/23/2013	1.1	20	0.50 U	0.15 J
WU4-9	Lower A	9/29/2014	0.75 J	18	0.4 U	0.46 J
WU4-9	Lower A	9/21/2015	1.2	21	1 U	8.7
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

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-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
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
WWR-3	Upper A	9/23/2013	37 J	92 J	0.50 U	0.41 J
WWR-3	Upper A	9/30/2014	49	100	0.4 U	0.63 J
WWR-3	Upper A	9/22/2015	41	89	3.3 U	3.3 U

TABLE 2-6
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 28

Abbreviations and Acronyms:

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

TABLE 3-1
2015 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 26

Well Number	Aquifer/ Aquifer Zone	March 19, 2014 (ft msl)	September 17, 2014 (ft msl)
EXW-1	Upper A	0.98	3.46
EXW-2	Upper A	-1.10	21.15
EXW-3	Upper A	-1.74	21.56
EXW-4	Upper A	-1.33	-2.01
EXW-5	Upper A	-2.61	-3.14
FP5-1	Upper A	1.31	-1.05
FP5-2	Upper A	5.26	4.08
FP5-3	Upper A	3.83	2.51
FP5-5	Upper A	1.53	0.11
FP5-7	Upper A	3.15	2.01
FP5-8	Upper A	2.38	1.00
FP5-9	Upper A	1.00	-0.41
UST115-MW01	Upper A	0.47	-1.01
UST115-MW02	Upper A	0.30	-0.94
W19-1	Upper A	0.55	0.11
W19-2	Lower A	1.05	0.44
W19-3	Lower A	0.40	-0.20
W19-4	Upper A	0.17	-0.33
W2-12	Upper A	-5.07	-5.37
W2-13	Upper A	-5.61	-5.65
W2-16	Upper A	-5.67	-5.83
W2-3	Upper A	-4.41	-4.96
W26-1	Upper A	-3.69	-4.24
W3-1	Upper A	-3.06	-3.34
W3-11	Upper A	-2.86	-3.35
W3-13	Lower A	-3.71	-4.04
W3-14	B	-2.10	-2.60
W3-15	B	-2.20	-2.73
W3-16[a]	C	40.12	40.11
W3-19	Upper A	-2.84	-3.87
W3-20	Upper A	-3.87	-4.02
W3-21	Upper A	-3.54	-3.70
W3-22	Lower A	-1.61	-1.99
W3-24	Upper A	-3.93	-4.26
W3-3	Upper A	-4.78	-4.93
W3-6	Upper A	-4.09	-4.42
W3-7	B	-2.12	-2.76
W3-8	Upper A	-4.33	-4.43
W3-9	B	-2.10	-2.72
W4-1	Upper A	-1.89	-2.42
W4-11	Upper A	-0.84	-1.50
W4-12	Upper A	-1.91	-2.56
W4-13	B	-0.55	-1.41
W4-14	Upper A	-0.87	-1.46
W4-15	Upper A	-2.15	-2.57
W4-16	Upper A	-1.21	-1.81

TABLE 3-1
2015 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 26

Well Number	Aquifer/ Aquifer Zone	March 19, 2014 (ft msl)	September 17, 2014 (ft msl)
W4-17	Upper A	-1.85	-2.51
W4-2	Upper A	-2.10	-2.58
W4-3	Upper A	-1.42	-2.03
W43-1	Upper A	0.57	0.12
W43-2	Upper A	0.63	0.20
W43-3	Upper A	0.41	-0.02
W4-4	Upper A	-0.98	-1.58
W4-5	Upper A	-1.20	-1.87
W4-6	Lower A	-1.21	-1.81
W4-7[a]	C	37.36	39.67
W4-9	B	0.01	-0.98
W5-1	Upper A	2.24	0.97
W5-10	Upper A	3.94	2.87
W5-11	Upper A	3.02	1.76
W5-12	Upper A	2.37	0.56
W5-13	Upper A	7.52	6.09
W5-14	Upper A	1.01	-0.41
W5-15	Upper A	1.72	0.34
W5-16	Upper A	5.86	4.47
W5-17	Upper A	5.85	4.61
W5-18	Upper A	6.32	4.89
W5-19	Upper A	6.11	4.95
W5-20	Upper A	1.91	0.22
W5-23	Upper A	-2.80	-1.95
W5-25	Lower A	-0.49	-1.59
W5-26	B	3.19	1.83
W5-3	Upper A	1.01	-0.36
W5-34	Upper A	0.30	-1.00
W5-35	Upper A	1.17	-0.10
W5-4	Lower A	0.37	-1.05
W5-6	Upper A	2.46	1.08
W5-7	Lower A	4.54	3.34
W5-8	Lower A	3.83	2.50
W6-1	Upper A	2.91	2.03
W6-10	Upper A	2.24	1.37
W6-2	Lower A	0.23	-0.60
W6-3	Upper A	0.21	-0.59
W6-4	Upper A	-0.37	-1.05
W6-5	Upper A	-0.06	-0.78
W6-6	Upper A	-0.51	-0.68
W6-8	Lower A	1.34	0.42
W6-9	Upper A	1.08	0.06
W7-10	Upper A	0.81	0.37
W7-11	Upper A	2.47	1.98
W7-12	Upper A	2.54	2.09
W7-13	Upper A	4.42	3.53

TABLE 3-1
2015 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 26

Well Number	Aquifer/ Aquifer Zone	March 19, 2014 (ft msl)	September 17, 2014 (ft msl)
W7-17	Lower A	-0.03	-0.44
W7-19	Upper A	1.37	-0.27
W7-3	Upper A	1.58	1.10
W7-4	B	2.18	1.66
W7-6	Upper A	0.60	0.03
W7-7	Upper A	0.75	0.26
W7-8	Lower A	0.78	0.29
W7-9	Lower A	0.62	0.11
WFH-01	Upper A	-3.35	-3.62
WFH-02	Upper A	-3.37	-3.60
WFH-03	Upper A	-3.09	-3.40
WFH-04	Upper A	-2.50	-2.88
WFH-05	Upper A	-2.53	-2.97
WFH-06	Upper A	0.73	0.65
WGC2-1	Upper A	-2.63	-3.28
WGC2-10	Upper A	-3.14	-3.63
WGC2-11	Upper A	-3.38	-3.64
WGC2-12	Upper A	-2.59	-3.00
WGC2-13	Upper A	-2.33	-2.98
WGC2-4	Upper A	-2.37	-2.72
WGC2-5	Upper A	-2.76	-2.91
WGC2-6	Upper A	-2.48	-2.98
WGC2-8	Upper A	-3.35	-3.43
WGC2-9	Upper A	-3.41	-3.72
WNB-17	Upper A	-4.30	-4.34
WNB-18	Upper A	-3.68	-3.90
WNB-19	Upper A	-3.37	-3.64
WNB-4	Upper A	-2.62	-3.42
WSW-1	Upper A	-4.97	NO ACCESS
WSW-2	Upper A	-3.92	-4.38
WSW-3	Upper A	-4.34	-4.75
WSW-4	Upper A	-1.32	-1.93
WSW-5	Upper A	-1.17	-1.72
WSW-6	Upper A	-1.51	-2.04
WT17-1	Upper A	-0.82	-2.06
WT17-2	Upper A	-1.80	-2.45
WT17-3	Upper A	-1.83	-2.53
WT2-1	Upper A	2.64	2.20
WU5-1	Upper A	-1.58	-2.22
WU5-10	Upper A	-0.19	-1.06
WU5-11	Lower A	-1.70	-2.26
WU5-12	Lower A	-1.30	-1.91
WU5-13	Lower A	-2.52	-3.08
WU5-14	Upper A	-1.10	-1.84
WU5-15	Upper A	-1.09	-1.87
WU5-16	Upper A	-1.20	-1.94

TABLE 3-1
2015 NAVY GROUNDWATER ELEVATIONS FOR IR SITE 26

Well Number	Aquifer/ Aquifer Zone	March 19, 2014 (ft msl)	September 17, 2014 (ft msl)
WU5-17	Upper A	-0.92	-1.67
WU5-18	Upper A	-2.72	-3.20
WU5-19	Upper A	-2.76	-3.19
WU5-2	Upper A	-1.63	-2.24
WU5-20	Upper A	-2.58	-3.16
WU5-21	Upper A	-2.51	-3.11
WU5-22	Upper A	-1.60	-2.15
WU5-23	Upper A	-1.82	-2.42
WU5-24	Upper A	0.63	0.14
WU5-25	Upper A	-2.89	-3.41
WU5-3	Upper A	DRY WELL	DRY WELL
WU5-4	Upper A	-3.66	-4.16
WU5-5	Upper A	-2.58	-3.12
WU5-6	Upper A	-4.04	-4.37
WU5-7	Upper A	-4.11	-4.42
WU5-8	Upper A	-4.44	-4.77
WU5-9	Upper A	-4.82	NO ACCESS

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 2015 ANNUAL SAMPLING EVENT FOR IR SITE 26

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	EXW-1 12-2015IR2601EXW-1 9/22/2015	EXW-2 12-2015IR2601EXW-2 9/22/2015	EXW-3 12-2015IR2601EXW-3 9/22/2015
1,1-Dichloroethane	µg/L	5.0	1 U	1 U	0.37 J
1,1-Dichloroethene	µg/L	6.0	1 U	1.3	1 U
1,2-Dichlorobenzene	µg/L	600*	1 U	1 U	0.28 J
1,2-Dichloroethane	µg/L	0.5*	1 U	1 U	1 U
Acetone	µg/L	NE	2 U	2 U	2.5 J
Benzene	µg/L	1.0*	1 U	1 U	1 U
Chlorobenzene	µg/L	NE	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0*	5.3	5	3.8
Tetrachloroethene	µg/L	5.0	1 U	1 U	2.3
Toluene	µg/L	150*	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	3	0.5 U
Trichloroethene	µg/L	5.0	0.23 J	3.6	**8.9**
Vinyl chloride	µg/L	0.5	0.37 J	1 U	1.1

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	EXW-4 12-2015IR2601EXW-4 9/22/2015	EXW-5 12-2015IR2601EXW-5 9/23/2015	W19-1 12-2015IR2601W19-1 9/22/2015
1,1-Dichloroethane	µg/L	5.0	0.5 J	1 U	1.6
1,1-Dichloroethene	µg/L	6.0	1.6	1 U	0.62 J
1,2-Dichlorobenzene	µg/L	600*	1 U	1 U	1 U
1,2-Dichloroethane	µg/L	0.5*	0.28 J	1 U	1 U
Acetone	µg/L	NE	2 U	3 J	2 U
Benzene	µg/L	1.0*	1 U	1 U	1 U
Chlorobenzene	µg/L	NE	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0*	2.7	3.4	3.6
Tetrachloroethene	µg/L	5.0	1 U	0.41 J	1 U
Toluene	µg/L	150*	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	0.5 U	0.44 J
Trichloroethene	µg/L	5.0	2.8	2.4	0.81 J
Vinyl chloride	µg/L	0.5	1 U	1 U	**3**

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	W3-21 12-2015IR2601W3-21 9/23/2015	W4-1 12-2015IR2601W4-1 9/23/2015	W4-11 12-2015IR2601W4-11 9/22/2015
1,1-Dichloroethane	µg/L	5.0	0.93 J	0.32 J	5 U
1,1-Dichloroethene	µg/L	6.0	1 U	0.53 J	5 U
1,2-Dichlorobenzene	µg/L	600*	1 U	1 U	4.3 J
1,2-Dichloroethane	µg/L	0.5*	1 U	1 U	5 U
Acetone	µg/L	NE	2 U	2 U	10 U
Benzene	µg/L	1.0*	1 U	1 U	3.1 J
Chlorobenzene	µg/L	NE	1 U	1 U	130
cis-1,2-Dichloroethene	µg/L	6.0*	1.8	2.8	3.6 J
Tetrachloroethene	µg/L	5.0	1 U	1 U	5 U
Toluene	µg/L	150*	1 U	1 U	5 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	0.5 U	2.5 U
Trichloroethene	µg/L	5.0	4.2	5.3	5 U
Vinyl chloride	µg/L	0.5	1 U	1 U	**10**

TABLE 3-2
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 26

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	W4-14 12-2015IR2601W4-14 9/22/2015	W4-15 12-2015IR2601W4-15 9/22/2015	W4-2 12-2015IR2601W4-2 9/22/2015
1,1-Dichloroethane	µg/L	5.0	0.73 J	0.73 J	1 U
1,1-Dichloroethene	µg/L	6.0	1 U	1 U	1 U
1,2-Dichlorobenzene	µg/L	600*	1 U	1 U	1 U
1,2-Dichloroethane	µg/L	0.5*	1 U	1 U	1 U
Acetone	µg/L	NE	2 U	2 U	2 U
Benzene	µg/L	1.0*	1 U	1 U	1 U
Chlorobenzene	µg/L	NE	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0*	2.1	2.1	1.5
Tetrachloroethene	µg/L	5.0	1.2	1.2	0.68 J
Toluene	µg/L	150*	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	0.5 U	0.71 J
Trichloroethene	µg/L	5.0	4.7	4.7	15
Vinyl chloride	µg/L	0.5	0.3 J	0.3 J	1 U

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	W43-2 12-2015IR2601W43-2 9/22/2015	W43-2D 12-2015IR2601W43-2D 9/22/2015	W43-3 12-2015IR2601W43-3 9/22/2015
1,1-Dichloroethane	µg/L	5.0	1 U	1 U	1 U
1,1-Dichloroethene	µg/L	6.0	1 U	1 U	0.54 J
1,2-Dichlorobenzene	µg/L	600*	1 U	1 U	1 U
1,2-Dichloroethane	µg/L	0.5*	1 U	1 U	1 U
Acetone	µg/L	NE	2 U	2 U	2 U
Benzene	µg/L	1.0*	1 U	1 U	1 U
Chlorobenzene	µg/L	NE	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0*	8.1	8.3	2.7
Tetrachloroethene	µg/L	5.0	33	27	2.4
Toluene	µg/L	150*	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.91 J	0.95 J	0.5 U
Trichloroethene	µg/L	5.0	20	20	3.2
Vinyl chloride	µg/L	0.5	0.69 J	0.68 J	0.31 J

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	W5-23 12-2015IR2601W5-23 9/24/2015	W6-2 12-2015IR2601W6-2 9/24/2015	W7-10 12-2015IR2601W7-10 9/22/2015
1,1-Dichloroethane	µg/L	5.0	1 U	0.31 J	1 U
1,1-Dichloroethene	µg/L	6.0	1 U	1 U	1 U
1,2-Dichlorobenzene	µg/L	600*	1 U	1 U	1 U
1,2-Dichloroethane	µg/L	0.5*	1 U	1 U	1 U
Acetone	µg/L	NE	2 U	2 U	2 U
Benzene	µg/L	1.0*	1 U	1 U	1 U
Chlorobenzene	µg/L	NE	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0*	0.5 U	0.5 U	16
Tetrachloroethene	µg/L	5.0	1 U	1 U	7
Toluene	µg/L	150*	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	0.5 U	0.66 J
Trichloroethene	µg/L	5.0	1 U	1.2	9.9
Vinyl chloride	µg/L	0.5	1 U	1 U	1.4

TABLE 3-2
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 26

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	W7-7 12-2015IR2601W7-7 9/22/2015	W7-7D (Dup) 12-2015IR2601W7-7D 9/22/2015	WSW-6 12-2015IR2601WSW-6 9/22/2015
1,1-Dichloroethane	µg/L	5.0	1 U	1 U	1 U
1,1-Dichloroethene	µg/L	6.0	1 U	1 U	1 U
1,2-Dichlorobenzene	µg/L	600*	2.4	2.5	1 U
1,2-Dichloroethane	µg/L	0.5*	1 U	1 U	1 U
Acetone	µg/L	NE	2 U	2 U	2 U
Benzene	µg/L	1.0*	1 U	1 U	1 U
Chlorobenzene	µg/L	NE	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0*	1.8	1.9	0.5 U
Tetrachloroethene	µg/L	5.0	1 U	1 U	1 U
Toluene	µg/L	150*	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	0.5 U	0.5 U
Trichloroethene	µg/L	5.0	0.41 J	0.42 J	1 U
Vinyl chloride	µg/L	0.5	3.3	3.5	1 U

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	WU5-1 12-2015IR2601WU5-1 9/22/2015	WU5-10 12-2015IR2601WU5-10 9/22/2015	WU5-11 12-2015IR2601WU5-11 9/23/2015
1,1-Dichloroethane	µg/L	5.0	1 U	0.38 J	0.3 J
1,1-Dichloroethene	µg/L	6.0	1 U	1 U	1 U
1,2-Dichlorobenzene	µg/L	600*	1 U	1 U	1.3
1,2-Dichloroethane	µg/L	0.5*	0.24 J	1 U	1 U
Acetone	µg/L	NE	2 U	2 U	2 U
Benzene	µg/L	1.0*	1 U	1 U	1 U
Chlorobenzene	µg/L	NE	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0*	11	1	2
Tetrachloroethene	µg/L	5.0	1.6	1 U	1.8
Toluene	µg/L	150*	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	0.5 U	0.5 U
Trichloroethene	µg/L	5.0	3	12	4.1
Vinyl chloride	µg/L	0.5	0.38 J	1 U	1 U

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	WU5-12 12-2015IR2601WU5-12 9/22/2015	WU5-13 12-2015IR2601WU5-13 9/23/2015	WU5-14 12-2015IR2601WU5-14 9/22/2015
1,1-Dichloroethane	µg/L	5.0	1 U	1 U	1 U
1,1-Dichloroethene	µg/L	6.0	1 U	1 U	1 U
1,2-Dichlorobenzene	µg/L	600*	1 U	1 U	1 U
1,2-Dichloroethane	µg/L	0.5*	1 U	1 U	1 U
Acetone	µg/L	NE	2 U	2 U	2 U
Benzene	µg/L	1.0*	1 U	1 U	1 U
Chlorobenzene	µg/L	NE	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0*	0.5 U	0.5 U	8.6
Tetrachloroethene	µg/L	5.0	1 U	1 U	1 U
Toluene	µg/L	150*	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	0.5 U	2.1
Trichloroethene	µg/L	5.0	1 U	1 U	5.6
Vinyl chloride	µg/L	0.5	1 U	1 U	7.8

TABLE 3-2
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 26

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	WU5-15 12-2015IR2601WU5-15 9/22/2015	WU5-16 12-2015IR2601WU5-16 9/22/2015	WU5-16D (Dup) 12-2015IR2601WU5-16D 9/22/2015
1,1-Dichloroethane	µg/L	5.0	1 U	1 U	1 U
1,1-Dichloroethene	µg/L	6.0	1 U	0.56 J	0.45 J
1,2-Dichlorobenzene	µg/L	600*	1 U	1 U	1 U
1,2-Dichloroethane	µg/L	0.5*	1 U	1 U	1 U
Acetone	µg/L	NE	2 U	2 U	2 U
Benzene	µg/L	1.0*	1 U	1 U	1 U
Chlorobenzene	µg/L	NE	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0*	0.53 J	1.8	1.9
Tetrachloroethene	µg/L	5.0	1.1	2	2.2
Toluene	µg/L	150*	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	1.2	1.2
Trichloroethene	µg/L	5.0	17	19	19
Vinyl chloride	µg/L	0.5	1 U	0.79 J	0.74 J

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	WU5-17 12-2015IR2601WU5-17 9/22/2015	WU5-2 12-2015IR2601WU5-2 9/22/2015	WU5-20 12-2015IR2601WU5-20 9/23/2015
1,1-Dichloroethane	µg/L	5.0	1 U	1 U	1 U
1,1-Dichloroethene	µg/L	6.0	1 U	1 U	1 U
1,2-Dichlorobenzene	µg/L	600*	1 U	1 U	1 U
1,2-Dichloroethane	µg/L	0.5*	1 U	0.35 J	0.85 J
Acetone	µg/L	NE	2 U	2 U	2 U
Benzene	µg/L	1.0*	1 U	1 U	1 U
Chlorobenzene	µg/L	NE	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0*	0.6 J	16	11
Tetrachloroethene	µg/L	5.0	1.4	1.2	1 U
Toluene	µg/L	150*	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	0.34 J	0.5 U
Trichloroethene	µg/L	5.0	9.3	2.9	0.94 J
Vinyl chloride	µg/L	0.5	1 U	0.48 J	1 U

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	WU5-21 12-2015IR2601WU5-21 9/23/2015	WU5-23 12-2015IR2601WU5-23 9/23/2015	WU5-24 12-2015IR2601WU5-24 9/22/2015
1,1-Dichloroethane	µg/L	5.0	1 U	1 U	0.31 J
1,1-Dichloroethene	µg/L	6.0	1 U	1 U	1 U
1,2-Dichlorobenzene	µg/L	600*	1 U	1 U	1 U
1,2-Dichloroethane	µg/L	0.5*	0.69 J	1 U	1 U
Acetone	µg/L	NE	2 U	2 U	2 U
Benzene	µg/L	1.0*	1 U	1 U	1 U
Chlorobenzene	µg/L	NE	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0*	2.9	0.69 J	0.88 J
Tetrachloroethene	µg/L	5.0	1 U	0.57 J	1 U
Toluene	µg/L	150*	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	0.5 U	0.35 J
Trichloroethene	µg/L	5.0	1 U	0.85 J	1 U
Vinyl chloride	µg/L	0.5	1 U	1 U	0.96 J

TABLE 3-2
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 26

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	WU5-25 12-2015IR2601WU5-25 9/22/2015	WU5-4 12-2015IR2601WU5-4 9/24/2015	WU5-8 12-2015IR2601WU5-8 9/24/2015
1,1-Dichloroethane	µg/L	5.0	1 U	1 U	1 U
1,1-Dichloroethene	µg/L	6.0	1 U	1 U	1 U
1,2-Dichlorobenzene	µg/L	600*	1 U	1 U	1 U
1,2-Dichloroethane	µg/L	0.5*	1 U	1 U	1 U
Acetone	µg/L	NE	2 U	2 U	2 U
Benzene	µg/L	1.0*	1 U	1 U	1 U
Chlorobenzene	µg/L	NE	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	6.0*	1.8	0.5 U	0.41 J
Tetrachloroethene	µg/L	5.0	0.42 J	1 U	1 U
Toluene	µg/L	150*	1 U	1 U	1 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U	0.5 U	0.5 U
Trichloroethene	µg/L	5.0	1.2	1.1	0.24 J
Vinyl chloride	µg/L	0.5	1 U	1 U	1 U

Location: Sample Number: Sample Date:	Units	ROD Cleanup Standard	WU5-9 12-2015IR2601WU5-9 9/24/2015
1,1-Dichloroethane	µg/L	5.0	1 U
1,1-Dichloroethene	µg/L	6.0	1 U
1,2-Dichlorobenzene	µg/L	600*	1 U
1,2-Dichloroethane	µg/L	0.5*	1 U
Acetone	µg/L	NE	2 U
Benzene	µg/L	1.0*	1 U
Chlorobenzene	µg/L	NE	1 U
cis-1,2-Dichloroethene	µg/L	6.0*	0.5 U
Tetrachloroethene	µg/L	5.0	1 U
Toluene	µg/L	150*	1 U
trans-1,2-Dichloroethene	µg/L	10	0.5 U
Trichloroethene	µg/L	5.0	1 U
Vinyl chloride	µg/L	0.5	1 U

TABLE 3-2
ANALYTICAL RESULTS FOR VOCs DETECTED IN GROUNDWATER, NAVY 2015 ANNUAL SAMPLING EVENT FOR IR SITE 26

Notes:

Analytes not listed were not detected in any of the 2014 well samples above the laboratory reporting limits.

Bold values indicate concentrations greater than the ROD Cleanup Standards
* California maximum contaminant level. No ROD value established.

Complete laboratory analytical data for September 2014 IR Site 26 and 28 event, including data validation, are provided on CD in Appendix C and D.

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
ROD - Record of Decision
U - analyte not detected at or above laboratory reporting limit (value indicates the reporting limit)
UJ - analyte detected with an estimated laboratory reporting limit
VOC - volatile organic compound

TABLE 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	8/23/2000	25	11	44	1.3
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	57	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
EXW-1	Upper A	9/23/2013	0.50 U	3.1	0.50 U	1.6 J
EXW-1	Upper A	9/29/2014	0.4 U	4.2	0.4 U	1.2
EXW-1	Upper A	9/22/2015	0.23 J	5.3	1 U	0.37 J
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

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	11/6/2002	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
EXW-2	Upper A	9/23/2013	6.9 J	2.8 J	1.1 J	0.14 J
EXW-2	Upper A	9/30/2014	5.7	33	1.5	5.3
EXW-2	Upper A	9/22/2015	3.6	5	1 U	1 U
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

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	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-3	Upper A	9/23/2013	6.0	3.3	1.8	1.4 J
EXW-3	Upper A	9/30/2014	7.7	19	2.9	3.6
EXW-3	Upper A	9/22/2015	8.9	3.8	2.3	1.1
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
EXW-4	Upper A	9/23/2013	2.5	3.1	0.50 U	0.11 J
EXW-4	Upper A	9/29/2014	2.9	3.4	0.4 U	0.8 U
EXW-4	Upper A	9/22/2015	2.8	2.7	1 U	1 U
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

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	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
EXW-5	Upper A	9/23/2013	2.3	5.0	0.41 J	0.25 U
EXW-5	Upper A	9/30/2014	2.9	15	2.3	1.8
EXW-5	Upper A	9/23/2015	2.4	3.4	0.41 J	1 U
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
W19-1	Upper A	9/23/2013	0.48 J	3.1	0.50 U	4.3

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)
W19-1	Upper A	9/29/2014	0.76 J	3.9	0.4 U	5.8
W19-1	Upper A	9/22/2015	0.81 J	3.6	1 U	3
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
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

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)
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
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
W3-21	Upper A	9/30/2014	4.6	8.7	0.4 U	1.5
W3-21	Upper A	9/23/2013	2.9	1.3	0.50 U	0.15 J
W3-21	Upper A	9/23/2015	4.2	1.8	1 U	1 U
W3-8	Upper A	10/1/1993	2 U	NA	2 U	2 U
W3-8	Upper A	8/31/1994	2 U	NA	2 U	2 UJ-K
W3-8	Upper A	12/2/1994	2 U	NA	2 U	2 UJ-K
W3-8	Upper A	5/28/2003	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	9/17/2003	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	12/10/2003	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	3/2/2004	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	6/14/2004	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	9/13/2004	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	9/13/2004	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	12/6/2004	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	12/14/2005	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	12/6/2006	0.2 J	0.1 J	0.5 U	0.5 U
W3-8	Upper A	12/4/2007	0.5 U	0.5 U	0.5 U	0.5 U
W3-8	Upper A	12/3/2008	0.50 U	0.50 U	0.50 U	0.50 U
W3-8	Upper A	12/1/2009	0.50 U	0.50 U	0.50 U	0.50 U
W3-8	Upper A	11/30/2010	1.0 U	1.0 U	1.0 U	0.50 U
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

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	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
W4-1	Upper A	9/24/2013	5.5	3.0	0.23 J	0.23 J
W4-1	Upper A	9/29/2014	5.4	3.5	0.4 U	0.8 U
W4-1	Upper A	9/23/2015	5.3	2.8	1 U	1 U
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

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	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
W4-11	Upper A	9/24/2013	0.51 J	0.11 J	0.50 U	0.25 U
W4-11	Upper A	9/30/2014	0.53 J	7.4	0.32 J	1
W4-11	Upper A	9/22/2015	0.26 J	3.8	1 U	1.2
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)
W4-14	Upper A	9/23/2013	0.47 J	4.1 J	0.50 UJ	9.6 J
W4-14	Upper A	9/29/2014	0.41 J	4.2	0.4 U	12
W4-14	Upper A	9/22/2015	5 U	3.6 J	5 U	10
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
W4-15	Upper A	9/24/2013	1.5	0.38 J	0.85 J	0.25 U
W4-15	Upper A	9/30/2014	3.3	6.7	0.95 J	0.85 J
W4-15	Upper A	9/22/2015	4.7	2.1	1.2	0.3 J
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

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	1/18/2000	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
W4-2	Upper A	9/24/2013	14	1.5	0.71 J	0.27 J
W4-2	Upper A	9/30/2014	9.8	1.1	0.4 U	0.8 U
W4-2	Upper A	9/22/2015	15	1.5	0.68 J	1 U
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

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	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
W43-2	Upper A	9/23/2013	20	7.9	41	0.40 J
W43-2	Upper A	9/29/2014	21	8.8	46	1.1
W43-2	Upper A	9/22/2015	20	8.3	33	0.69 J
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

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	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
W43-3	Upper A	9/23/2013	2.6	2.4	2.4	0.19 J
W43-3	Upper A	9/29/2014	2.9	2.5	2.3	0.8 U
W43-3	Upper A	9/22/2015	3.2	2.7	2.4	0.31 J
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

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	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
W4-4	Upper A	9/23/2013	0.82 J	1.1	0.58 J	0.25 J
W4-4	Upper A	9/29/2014	0.94 J	1.6	0.53 J	0.8 U
W4-4	Upper A	9/24/2015	0.71 J	1.2	0.52 J	1 U
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
W5-23	Upper A	9/23/2013	0.50 U	0.25 U	0.50 U	0.25 U
W5-23	Upper A	9/30/2014	0.4 U	0.4 U	0.4 U	0.8 U
W5-23	Upper A	9/24/2015	1 U	0.5 U	1 U	1 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

TABLE 3-3
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
W6-2	Lower A	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
W6-2	Lower A	9/23/2013	0.93 J	0.15 J	0.50 U	0.25 U
W6-2	Lower A	9/24/2015	1.2	0.5 U	1 U	1 U
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
W7-10	Upper A	9/23/2013	11	17	14	1.4 J
W7-10	Upper A	9/29/2014	16	16	20	0.8 U
W7-10	Upper A	9/22/2015	9.9	16	7	1.4
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

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	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
W7-7	Upper A	9/23/2013	0.51 J	2.6	0.50 U	4
W7-7	Upper A	9/29/2014	0.43 J	2.4	0.4 U	3.4
W7-7	Upper A	9/22/2015	0.42 J	1.9	1 U	3.5
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

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	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
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

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	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
WSW-6	Upper A	9/23/2013	4.4 J	2.1 J	1.5 J	0.29 J
WSW-6	Upper A	9/30/2014	5.2	3.6	1.5	0.8 U
WSW-6	Upper A	9/22/2015	1 U	0.5 U	1 U	1 U
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
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

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	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
WU5-1	Upper A	9/23/2013	2.6	12	1.7	0.35 J
WU5-1	Upper A	9/29/2014	3.3	13	1.8	0.8 U
WU5-1	Upper A	9/22/2015	3	11	1.6	0.38 J
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

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	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
WU5-10	Upper A	9/24/2013	14	1.0	0.50 U	0.25 U
WU5-10	Upper A	9/29/2014	14	1.1	0.4 U	0.8 U
WU5-10	Upper A	9/22/2015	12	1	1 U	1 U
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
WU5-11	Lower A	9/23/2013	0.50 U	0.25 U	0.50 U	0.25 U
WU5-11	Lower A	9/23/2015	4.1	2	1.8	1 U
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

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)
WU5-12	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
WU5-12	Lower A	9/23/2013	0.50 U	0.25 U	0.50 U	0.25 U
WU5-12	Lower A	9/22/2015	1 U	0.5 U	1 U	1 U
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
WU5-13	Lower A	9/23/2013	0.50 U	0.25 U	0.50 U	0.25 U
WU5-13	Lower A	9/23/2015	1 U	0.5 U	1 U	1 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

TABLE 3-3
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-14	Upper A	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
WU5-14	Upper A	9/23/2013	3.0	5.3	0.50 U	3.7
WU5-14	Upper A	9/30/2014	4.7	9.2	0.4 U	8.1
WU5-14	Upper A	9/22/2015	5.6	8.6	1 U	7.8
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

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	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
WU5-15	Upper A	9/23/2013	13	0.51 J	1.1	0.25 U
WU5-15	Upper A	9/30/2014	18	0.77 J	1.1	0.8 U
WU5-15	Upper A	9/22/2015	17	0.53 J	1.1	1 U
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
WU5-16	Upper A	9/23/2013	14	2.6	1.9	1.8 J

TABLE 3-3
HISTORICAL ANALYTICAL RESULTS SUMMARY FOR TCE; CIS-1,2-DCE; PCE; AND VC DETECTED IN GROUNDWATER FOR IR SITE 26

Well	Water Bearing Unit	Date Sampled	TCE (µg/L)	cis-1,2-DCE (µg/L)	PCE (µg/L)	VC (µg/L)
WU5-16	Upper A	9/30/2014	17	2.6	2.1	1.6
WU5-16	Upper A	9/22/2015	19	1.9	2.2	0.79 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
WU5-17	Upper A	9/23/2013	7.2	0.49 J	1.2	0.25 U
WU5-17	Upper A	9/29/2014	9.1	0.59 J	1.3	0.8 U
WU5-17	Upper A	9/22/2015	9.3	0.6 J	1.4	1 U
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

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	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
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

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	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
WU5-2	Upper A	9/23/2013	2.3	17	1.1	0.61 J
WU5-2	Upper A	9/29/2014	3	20	0.95 J	0.72 J
WU5-2	Upper A	9/22/2015	2.9	16	1.2	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
WU5-20	Upper A	9/23/2013	0.73 J	9.4	0.22 J	0.25 U
WU5-20	Upper A	9/30/2014	0.98 J	11	0.29 J	0.8 U
WU5-20	Upper A	9/23/2015	0.94 J	11	1 U	1 U
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

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	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
WU5-21	Upper A	9/23/2013	0.50 U	2.7	0.50 U	0.20 J
WU5-21	Upper A	9/30/2014	0.4 U	3.1	0.4 U	0.8 U
WU5-21	Upper A	9/23/2015	1 U	2.9	1 U	1 U
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
WU5-23	Upper A	9/23/2013	0.93 J	0.81 J	0.88 J	0.25 U
WU5-23	Upper A	9/30/2014	0.97 J	0.97 J	0.67 J	0.8 U
WU5-23	Upper A	9/23/2015	0.85 J	0.69 J	0.57 J	1 U
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

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	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
WU5-24	Upper A	9/24/2013	0.39 J	0.55 J	0.50 U	0.49 J
WU5-24	Upper A	9/29/2014	0.14 J	1.9	0.4 U	2.5
WU5-24	Upper A	9/22/2015	1 U	0.88 J	1 U	0.96 J
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

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	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
WU5-25	Upper A	9/23/2013	1.1	2.4	0.55 J	0.25 U
WU5-25	Upper A	9/30/2014	1.1	2.5	0.54 J	0.8 U
WU5-25	Upper A	9/22/2015	1.2	1.8	0.42 J	1 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
WU5-4	Upper A	9/24/2013	2.6	0.25 U	0.50 U	0.25 U
WU5-4	Upper A	9/30/2014	2.3	0.4 U	0.4 U	0.8 U
WU5-4	Upper A	9/24/2015	1.1	0.5 U	1 U	1 U
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

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	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
WU5-8	Upper A	9/23/2013	0.31 J	0.35 J	0.50 U	0.21 J
WU5-8	Upper A	9/24/2015	0.24 J	0.41 J	1 U	1 U
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

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	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
WU5-9	Upper A	9/24/2013	0.50 U	0.25 U	0.50 U	0.25 U
WU5-9	Upper A	9/24/2015	1 U	0.5 U	1 U	1 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
EATS - East-Side Aquifer Treatment System
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

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TABLE 10-1
IR SITES 28 AND 26 MONITORING AND REPORTING SCHEDULE FOR 2016

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			
Annual Groundwater Sampling for IR Sites 26 and 28									X			
2015 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

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APPENDIX A

PROGRESS TOWARD COMPLETING 5-YEAR REVIEW RECOMMENDATIONS

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PROGRESS TOWARD COMPLETING 5-YEAR REVIEW RECOMMENDATIONS

Issues and recommendations for the West-Side Aquifers Treatment System (WATS) area are identified in Tables 7-1 and 7-2 of the 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), the *Final Second Five-Year Review Report for MEW Superfund Study Area, Mountain View, California* (EPA 2009), and the *Final Third Five-Year Review Report for MEW Superfund Study Area, Mountain View, California* (EPA 2014). 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 former East-Side Aquifer Treatment System (EATS) are identified in Section 8 of the Navy's *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). Former EATS issues, recommendations, and actions taken or planned are included on Table A.2.

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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.

Navy. 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.

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

EPA. 2014. Final Third Five-Year Review Report for Middlefield-Ellis-Whisman (MEW) Superfund Study Area, Mountain View, California. September 29.

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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; 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 and 2008. Continue to evaluate results for 2015.
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 2015.
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 and 2008. Continue to evaluate capture zones through 2015.
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. A Supplemental Investigation began in Fall 2012 and has further characterized these source areas. A Technical Memorandum was issued in 2014 outlining several recommendations, including installing additional monitoring wells and adding them to the existing Navy network and performing a treatability study to evaluate technologies for treating the chlorinated ethenes identified in the B2 aquifer zone and residual DNAPL in the lower portion of the A aquifer. The Navy is currently planning a treatability study in the Traffic Island Area.	Ongoing. The treatability study field work began in Summer 2015.

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

Issue [a]	Recommendation and Follow-up Action [a]	Action Taken or Planned	Timeframe
The mass removal efficiency is decreasing due to decreasing influent treatment system VOC concentrations. Based on concentrations trends, the existing remedy is not expected to achieve Site cleanup levels for many more decades (EPA 2009).	The Navy disagrees with the statement "The mass removal efficiency of the current groundwater remedy is ineffective" for IR Site 28. The Navy's recommendation is to "Continue to participate in a regional strategy to address groundwater contamination and document the strategy in a Feasibility Study."	In March 2013, the EPA announced that they will not finalize the Sitewide Groundwater Feasibility Study. The Navy has been working with the EPA to develop a plan to optimize groundwater treatment and remove contaminant mass in the WATS area.	Ongoing.
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 has been working with the EPA to develop a plan to optimize groundwater treatment and remove contaminant mass in the WATS area. With regard to the B2 zone contamination, the Navy will implement the technical recommendations for optimization of contaminant mass removal in the Supplemental Investigation Report.	Ongoing.
No institutional controls selected for groundwater remedy to ensure there is no direct exposure to contaminated groundwater. (EPA 2009, EPA 2014).	Include groundwater institutional controls to ensure there is no direct exposure to contaminated groundwater as part of the in Sitewide Groundwater Feasibility Study, Proposed Plan, and ROD Amendment process.	In March 2013, the EPA announced that they will not finalize the Sitewide Groundwater Feasibility Study. The Navy has been working with the EPA and NASA to address institutional controls for groundwater at IR Site 28. NASA's EIMP contains restrictions on well construction, noninterference with remedy and provisions for access to operate the remedy.	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
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.	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 has been 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 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 prepared a Work Plan for air sampling (*Final Air Sampling Work Plan for Vapor Intrusion Tier Response Evaluation* [Accord MACTEC 2012]). Air sampling was conducted in May and June 2012. In June 2013, the Navy collected soil gas and shallow groundwater samples to assess vapor intrusion within the Navy's area of responsibility. The results were reported in the *Draft Vapor Pathway, Soil Gas, and Groundwater Sampling Report to Support Vapor Intrusion Tier Response Evaluation* (Accord MACTEC January 2014a). The Navy collected indoor and outdoor air samples for assessing potential vapor intrusion in buildings within the Navy's area of responsibility in February 2014. The air samples were reported in the *Draft 2014 Air Sampling and Vapor Intrusion Tier Response Evaluation Report* (Accord	According to the current Moffett Field Federal Facility Agreement schedule, the final operations, maintenance and monitoring plan is scheduled for January 2017.

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

Issue [a]	Recommendation and Follow-up Action [a]	Action Taken or Planned	Timeframe
There is a potential vapor intrusion of TCE into buildings overlying the shallow TCE groundwater plume (EPA 2004). (continued)	Sampling/evaluation of additional buildings overlying shallow TCE groundwater plume. Develop and implement long-term monitoring program. (continued)	MACTEC September 2014b). The Navy collected indoor and outdoor air samples for assessing potential vapor intrusion in buildings within the Navy's area of responsibility in January 2016. The draft results report is being prepared. The Draft Remedial Design for Building 10 was submitted November 9, 2015. The next milestone is the Remedial Action followed by the Remedial Action Completion Report, then the long-term monitoring plan.	According to the current Moffett Field Federal Facility Agreement schedule, the final operations, maintenance and monitoring plan is scheduled for January 2017. (continued)

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

Issue [a]	Recommendation and Follow-up Action [a]	Action Taken or Planned	Timeframe
Elevated levels of TCE were detected in indoor air above EPA's health protective risk range at selected buildings overlying the regional TCE plume north and south of U.S. Highway 101 (EPA 2004).	Identify potential pathways and implement mitigation measures to reduce levels in the indoor air. Implement long-term monitoring program.	The Navy, EPA and Water Board signed an agreement dated February 9, 2011 stating the Navy will implement the vapor intrusion remedy as selected in EPA's 2010 MEW Record of Decision Amendment for the vapor intrusion pathway in areas impacted by Navy sources. The Navy assessed buildings in November 2011 to identify potential pathways and air sampling locations. This 2011 assessment indicated that Building 10 has an underground utility corridor that can act as a conduit for VOC vapors that required ventilation and continued monitoring. In July 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. The utility corridor ventilation system was optimized in May 2013 and further characterization of the tunnel was completed in April 2013. The results were reported in the *Draft Technical Memorandum, Building 10 Utility Tunnel Closure/Sealing Evaluation* (Accord MACTEC 2014c).	The Moffett Field Federal Facility Agreement schedule is being updated. The utility corridor ventilation system continues to operate, and indoor air samples from Building 10 are collected quarterly for monitoring.
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	Air sampling was conducted in May and June 2012. The air sampling results are reported in the *Final Air Sampling and Vapor Intrusion Tier*

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

Issue [a]	Recommendation and Follow-up Action [a]	Action Taken or Planned	Timeframe
		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 2012)].	*Response Evaluation Report* (Accord MACTEC 2013).
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) or *Final Third Five-Year Review Report for Middlefield-Ellis-Whisman (MEW) Superfund Study Area, Mountain View, California* (EPA 2014).

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

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 2008b) and the *Final Site 26 Technical Memorandum (Optimization Evaluation)* (TtEC 2008c).	2003-2008
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 Navy prepared a FFS (Shaw 2012a) to evaluate other potential remedial alternatives along with the current remedy of groundwater extraction and treatment. A remedial alternative was selected and a proposed plan for IR Site 26 was issued in April 2013. The Navy prepared a ROD Amendment (Navy 2014) to document the change in remedy at IR Site 26 from pump and treat to in situ bioremediation treatment, MNA, and institutional controls.	New remedy for Site 26 is documented in ROD Amendment (Navy 2014)
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.	NASA's March 2015 Environmental Resources Document (ERD) contains restrictions on well construction, noninterference with remedy and provisions for access to operate the remedy.	Completed

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

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

APPENDIX B

2014 ANNUAL REMEDY PERFORMANCE CHECKLISTS

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2015 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: January 30, 2016	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. 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] 2005c) for record drawings.	

II. CONTACTS

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

	Name/Title	Phone	E-mail
PRP / Facility Representative	Scott Anderson, BEC U.S. Department of the Navy	619-532-0938	scott.d.anderson@navy.mil
PRP Contractor/ Consultant	Scott Fenby, PM SES-TECH	585-337-3040	scott.fenby@sealaska.com
O&M Contractor	Duane Harrison, Site Supervisor SES-TECH	650-564-9868	duane.harrison@tetratech.com
Other			

2015 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST
(Continued)

III. O&M COSTS (OPTIONAL)

What is your annual O&M cost total for the reporting year? $351,400
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 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. The Navy performs quarterly air monitoring of Building 10.

2015 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST
(Continued)

- 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 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 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 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: N/A

VII. REDEVELOPMENT

Is redevelopment on property planned? ☑Yes ☐ No

If yes, what is planned? Please describe below.

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

2015 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?
2015 Data Table, Historical Data Table Plume Maps,	*2015 Annual Groundwater Report for*
Estimated and Simulated Capture Zone Maps,	*IR Sites 26 and 28, Moffett Field, CA*
Long-Term VOC Time Series Plots	(Sealaska Environmental Services 2016)

☑ 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	Quarterly and Annual National Pollutant Discharge
Summary; and Influent and Effluent Data Tables	Elimination System (NPDES) Self-Monitoring Report
Compliance Evaluation Summary	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	Quarterly and Annual NPDES
Compliance Evaluation Summary	Self-Monitoring Report for WATS
	(SES 2015a, b, c, d)

☑ The system is in compliance with discharge permits.

Slurry Wall Data

List the types of data that are available:	What is the source report?
Not applicable to WATS.	

Is slurry wall operating as designed? ☐ Yes ☐ No

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

Elaborate on technical data and/or other comments:

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

Walk-throughs/Surveys:

The Navy prepared the *Final Air Sampling Work Plan for Vapor Intrusion Tier Response Evaluation* (Accord MACTEC 2012). Building walk-throughs/surveys were conducted in November 2011 and April 2012. Air sampling was conducted in May and June 2012. In June 2013, the Navy collected soil gas and shallow groundwater samples to assess vapor intrusion within the Navy's area of responsibility. The Navy collected indoor and outdoor air samples for assessing potential vapor intrusion in buildings within the Navy's area of responsibility in February 2014. During 2015, the Navy collected performed quarterly air monitoring at Building 10.

Summary of Results:

The building walk-through and survey results from 2011 and 2012 are reported in the *Final Air Sampling and Vapor Intrusion Tier Response Evaluation Report* (Accord MACTEC 2013). The results of the 2013 sampling were reported in the *Draft Vapor Pathway, Soil Gas, and Groundwater Sampling Report to Support Vapor Intrusion Tier Response Evaluation* (Accord MACTEC 2014a). The air sampling results from the indoor and outdoor air sampling conducted in February 2014 were reported in the *Draft 2014 Air Sampling and Vapor Intrusion Tier Response Evaluation Report* (Accord MACTEC 2014b). Quarterly air sampling was conducted at Building 10 in 2015.

Problems Encountered:

Some air sample results were above cleanup goals.

Recommendations/Next Steps:

Continue quarterly air sampling at Building 10.

Schedule:

Installed blower in 2012 and modified tunnel ventilation system in May 2013. Conducted tunnel walk-thru in April 2013. Continued to collect quarterly soil gas data for Building 10 in 2015.

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 2015, 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 2014c).

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. These data indicate 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 2015 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 from the MEW source(s) 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.

2015 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST
(Continued)

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 conducted a Supplemental Investigation of the Building 88 Area and Traffic Island Area to better define the sources in these areas. Based on the Supplemental Investigation, the Navy has recommended the installation of additional groundwater monitoring wells and the execution of a treatability study to evaluate technologies for treating the chlorinated ethenes identified in the B2 aquifer zone and residual DNAPL identified in the lower portion of the A aquifer. The results of the investigation and details pertaining to the recommendations for further action are presented in the *Technical Memorandum for the Supplemental Investigation* (CB&I 2014). The Navy began performing in 2015 a treatability study in the Traffic Island Area to address item 2 above. The field work began during the Summer of 2015 and will continue in 2016. Elaborate on basis for determining progress or lack of progress toward these goals:
XI. PROJECTIONS
<u>Administrative Issues</u> Dates of next monitoring and sampling events for next annual reporting period: Monthly NPDES sampling and Quarterly NPDES reporting in 2016; September 2016 basewide water gauging; September 2016 Annual Groundwater sampling; 2016 Annual Report for IR Sites 26 and 28 due April 2017.
A. Groundwater Remedies - Projections for the upcoming year and long-term (Check all that apply)
<u>Remedy Projections for **the upcoming year (2016)**</u> ☐ 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? Treatability study will occur in the B2 aquifer Elaborate below. Target date: Summer 2015 through 2016 ☐ Change in discharge location. Target date: ☐ Other modification(s) anticipated ? Elaborate below. Target date:
Elaborate on Remedy Projections: Based on the Supplemental Investigation, the Navy has recommended the installation of additional groundwater monitoring wells and the execution of a treatability study to evaluate technologies for treating the chlorinated ethenes identified in the B2 aquifer zone and residual DNAPL identified in the lower portion of the A aquifer. The Navy began performing a treatability study in the Traffic Island Area in 2015. The field work began during the

2015 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST
(Continued)

Summer of 2015 and will continue in 2016.

<u>Remedy Projections for **the long-term**</u> (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: 2016
☐ 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

<u>Remedy Projections for **the upcoming year (2016)**</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:

<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:

2015 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST
(Continued)

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

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

The *WATS Optimization Work Plan* (FWENC 2003c) 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 2005d).

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. The Navy completed the Supplemental Investigation of the Building 88 Area and Traffic Island Area to better define the sources in these areas in 2014 (CB&I 2014). The treatability field implementation began in 2015 and will continue into 2016. In March 2013, the EPA announced that it will not be finalizing the Supplemental FS at this time. The Navy has been 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: Final Moffett Field Five-Year Review scheduled to be delivered in 2020

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.

Complete Treatability Study in the B2 aquifer.

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2015 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: January 30, 2016	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 2003 reporting period as part of the *Final East-Side Aquifer Treatment System Evaluation Work Plan* (Foster Wheeler Environmental Corporation [FWENC] 2003b) implementation.	

II. CONTACTS

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

	Name/Title	Phone	E-mail
PRP / Facility Representative	Scott Anderson, BEC U.S. Department of the Navy	619-532-0938	scott.d.anderson@navy.mil
PRP Contractor/ Consultant	Scott Fenby, PM SES-TECH	858-337-4030	scott.fenby@sealaska.com
O&M Contractor	Duane Harrison, Site Supervisor SES-TECH	650-564-9868	duane.harrison@tetratech.com
Other			

2015 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): 2015 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] 2003b) 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 stated that 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). The ROD Amendment no longer includes operation of the Building 191 pump station as a component of the remedy for IR Site 26. ICs included in the ROD Amendment are land use controls that will (1) prohibit access to groundwater except for treatment and dewatering until cleanup levels are met; and (2) notify and require property owners and developers that any new building planned for construction over the groundwater plume at IR Site 26 be designed and constructed in a manner that will mitigate potential unacceptable health risks from vapor intrusion or evaluate and demonstrate that there are no potential unacceptable vapor intrusion risks prior to construction. Status of their implementation: Since the Navy no longer owns the property, the Navy cannot implement such restrictions 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.

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.

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

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). The EIMP for the MFA Leasehold documents the following long-term risk management activities: ensuring future land uses are consistent with planned land use, prohibiting the use of untreated groundwater within the MFA Leasehold, and ensuring compliance with LUCs and Navy remedies.
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 and construction of buildings over the plume is not planned.. The ICs included in the ROD Amendment 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:

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

☐ 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?
2015 Data Table,	*2015 Annual Groundwater Report for*
Historical Data Table Plume Maps,	*WATS and EATS*
Long-Term VOC Time Series Plots	(Sealaska Environmental Services 2016)

☑ 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 2015 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 2015 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 2015 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 2008b) 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 2012a) currently present at Site 26. A remedial alternative was selected and a proposed plan for IR Site 26 was issued by the Navy on April 15, 2013. Subsequent to the Proposed Plan, the Navy prepared a ROD Amendment (Navy 2014) to document the change in remedy at IR Site 26 from the pump and treat remedy to in situ

bioremediation treatment, MNA, and institutional controls. This amended remedy for IR Site 26 will achieve groundwater cleanup standards in a shorter timeframe, is a more sustainable remedial solution, and has a lower cost. The Navy is currently preparing a Pre-design Groundwater Investigation Work Plan with the fieldwork planned for Summer 2015. The Navy prepared a pre-design groundwater investigation work plan and field work was completed in Summer 2015. Based on the results of the pre-design groundwater investigation, the Navy recommended and agencies have approved installation of 10 new groundwater monitoring wells scheduled for Spring 2016.

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 by the Navy.

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 2015 in the upper portion of the A aquifer exhibited generally stable to decreasing trends and the TCE plume has generally decreased in areal extent. The shape and location of the upper portion of the A aquifer cis-1,2-dichloroethene (cis-1,2-DCE) plume areas have remained stable when compared to the 2014 depictions of the plume. The long-term cis-1,2-DCE trends show overall decreasing trends and the cis-1,2-DCE plume has generally decreased in areal extent. 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 2015 compared to previous years, which is significant since EATS was turned off in July 2003 and remained off through 2015. The TCE, cis-1,2-DCE, tetrachloroethene (PCE) and VC 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 2015 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

Water level gauging has been changed to one annual event per year in September. Annual groundwater sampling has been changed to biennial sampling. Dates of next monitoring and sampling events for annual reporting period: September 2016 base wide water gauging; September 2016 Annual Groundwater sampling; 2016 Annual Report for IR Sites 26 and 28 due April 2017.

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

Remedy Projections for **the upcoming year (2016)**
☐ 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: <u>outlined in ROD Amendment (Navy 2014)</u> Elaborate below. Target date: 2015

Elaborate on Remedy Projections:

Water level gauging has been changed to one annual event per year in September. Annual groundwater sampling has been changed to biennial sampling.

The Navy prepared a ROD Amendment (Navy 2014) to document the change in remedy at IR Site 26 from the pump and treat remedy to in situ bioremediation treatment, MNA, and institutional controls. This amended remedy for IR Site 26 will achieve groundwater cleanup standards in a shorter timeframe, is a more sustainable remedial solution, and has a lower cost. The Navy prepared a pre-design groundwater investigation work plan and field work was completed in Summer 2015. Based on the results of the pre-design groundwater investigation, the Navy recommended and agencies have approved installation of 10 new groundwater monitoring wells scheduled for Spring 2016.

<u>Remedy Projections for **the long-term**</u> (Check all that apply)
☐ No significant changes projected.
☐ Groundwater remedy will be converted to monitored natural attenuation. Target date: September 2017
☐ 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: September 2016
☐ Change in discharge location. Target date:
☑ Other modification(s) anticipated: <u>outlined in ROD Amendment (Navy 2014)</u> Elaborate below. Target date: 2015

Elaborate on Remedy Projections:

Implementation of the remedy selected in the ROD Amendment will be outlined in the Remedial Design document which will be prepared after the Pre-Design Investigation is completed. In situ groundwater treatment in portions of IR Site 26 is expected to begin in 2016 while MNA continues in all other areas of the plume. There are no plans to restart the EATS.

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

<u>Remedy Projections for **the upcoming year (2015)**</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:

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 2008b) 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 2012a) currently present at IR Site 26. A remedial alternative was selected and a proposed plan for IR Site 26 was issued by the Navy on April 15, 2013. Subsequent to the Proposed Plan, the Navy prepared a ROD Amendment (Navy 2014) to document the change in remedy at IR Site 26 from the pump and treat remedy to in situ bioremediation treatment, MNA, and institutional controls. This amended remedy for IR Site 26 will achieve groundwater cleanup standards in a shorter timeframe, is a more sustainable remedial solution, and has a lower cost. The Navy prepared a pre-design groundwater investigation work plan and field work was completed in Summer 2015. Based on the results of the pre-design groundwater investigation, the Navy recommended and agencies have approved installation of 10 new groundwater monitoring wells scheduled for Spring 2016.

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: Final submitted in 2015

The Navy prepared a pre-design groundwater investigation work plan and field work was completed in Summer 2015. Based on the results of the pre-design groundwater investigation, the Navy recommended and agencies have approved installation of 10 new groundwater monitoring wells scheduled for Spring 2016.

XIII. RECOMMENDATIONS

2015 ANNUAL REPORT REMEDY PERFORMANCE CHECKLIST
(Continued)

Continue to monitor EATS area wells as scheduled. The remedy for IR Site 26 was revised in 2014 from pump and treat to in situ bioremediation treatment, MNA, and institutional controls. This amended remedy for IR Site 26 will achieve groundwater cleanup standards in a shorter timeframe, is a more sustainable remedial solution, and has a lower cost. The Navy prepared a pre-design groundwater investigation work plan and field work was completed in Summer 2015. Based on the results of the pre-design groundwater investigation, the Navy recommended and agencies have approved installation of 10 new groundwater monitoring wells scheduled for Spring 2016.

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APPENDIX E

QUALITY ASSURANCE/QUALITY CONTROL EVALUATION OF ANALYTICAL DATA

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QUALITY ASSURANCE/QUALITY CONTROL EVALUATION OF ANALYTICAL DATA
March 2016

FOR 2015 ANNUAL GROUNDWATER REPORT FOR WATS AND EATS

FORMER NAVAL AIR STATION MOFFETT FIELD
MOFFETT FIELD, CALIFORNIA

Base Realignment and Closure
Program Management Office West
33000 Nixie Way, Building 50
San Diego, California 92147

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

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LIST OF TABLES

Table D.2-1 Field Quality Control Samples

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ABBREVIATIONS AND ACRONYMS

%	percent
CLP	Contract Laboratory Program
D	difference
DQO	data quality objective
EATS	East-Side Aquifer Treatment System
EPA	U.S. Environmental Protection Agency
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
R	recovery
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 2015 annual West-Side Aquifers Treatment System (WATS) and East-Side Aquifer Treatment System (EATS) groundwater monitoring event. All samples from 2015 WATS and EATS annual sampling events were collected and handled in accordance with the procedures detailed in the Final Addendum 2 to the *Final Sampling and Analysis Plan Groundwater Monitoring Plan, Installation Restoration Sites 26 and 28*, *Former Naval Air Station Moffett Field, Moffett Field, California* (SES-TECH, 2014), *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 D of the 2015 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 124 monitoring wells during the WATS and EATS annual sampling event. All samples were analyzed for volatile organic compounds (VOCs). All samples were analyzed by TestAmerica, a state of California-certified and DoD Accredited 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 2 (SES-TECH, 2014), 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 95 selected WATS monitoring wells and 38 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.

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. Thirteen 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.

Except for duplicate samples collected from monitoring well W9-2 (for 1,1-dichloroethene [DCE] and methylene chloride), WU4-9 (for trichlorethene [TCE]), 165A (for 1,1- DCE, cis-1,2-DCE, and TCE), W9-19 (for trans-1,2-DCE), and 28OW-19 (for cis-1,2-DCE, TCE and vinyl chloride) the RPD values for other wells were either 30 percent or less.

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 2 (SES-

TECH, 2014). The frequency requirement per the SAP is to collect one MS/MSD pair per every 20 samples. Ten 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: cis-1,3-dichloropropene in sample from W9SC-1, 1,1,2-trichloro-1,2,2-trifluoroethane in sample from W9SC-13, vinyl chloride in sample from W9-24.

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. Three 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 from all groundwater wells were collected by deploying low density polyethylene passive diffusion bag. Samples from extraction wells were collected by attaching tubing and flow-through cell directly to the wellhead. Sampling equipment such as bladder pump was not required; therefore, equipment rinsate samples were not collected for this event.

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. For detected analytes with concentrations less than five times the method blank contaminant concentrations, associated sample results were qualified "U." For concentrations greater than five times the method blank contaminant concentrations, sample results were not qualified. The following sample was affected with method blank contamination:

Sample	Analyte	Reported Concentration (µg/L)	Modified Final Concentration (µg/L)
12-2015IR2801W9-7	Acetone	40	290 U

2.3.4 Surrogate Percent Recovery

The percent recoveries of surrogates for all samples were within QC limits.

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 2, 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 2015 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 2015 annual event are comparable to those used for previous investigations at Moffett.

2.7 OVERALL ASSESSMENT OF DATA

The data collected from the 2015 annual groundwater monitoring event are valid and usable.

All samples were collected in accordance to the criteria listed in the Final SAP Addendum 2, Final SAP Addendum 1 and the Final SAP. A total of 25 QC samples, including 3 trip blanks, 13 field duplicates, and 10 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. All data were found to be of appropriate quality to support the data evaluation detailed in the 2015 Annual Groundwater Monitoring Report for WATS and EATS.

3.0 REFERENCES

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TABLES

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TABLE D.2-1
FIELD QUALITY CONTROL SAMPLES

Field Duplicate Location	Blanks	MS/MSD Location
WU4-14	12-2015IR26_28-02TB01	W9SC-1
W43-2	12-2015IR26-28-02TB-02	W9SC-13
W7-7	TB-151009	W9-24
WU5-16	--	W29-1
165A	--	EA1-5
28OW-19	--	W4-2
14D31A2	--	W7-10
EA2-2	--	W9-12
W9-19	--	14C33A
W9-2	--	W20-01
W9SC-1	--	--
WU4-10	--	--
WU4-9	--	--

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