Third 5-Year Review for NAS Whidbey Island Ault Field and Seaplane Base

NAS Whidbey Island
Oak Harbor, Washington

Department of the Navy
Naval Facilities Engineering Command Northwest
1101 Tautog Circle
Silverdale, WA 98315

EXECUTIVE SUMMARY

As lead agency for environmental cleanup of Naval Air Station (NAS) Whidbey Island, Oak Harbor, Washington, the U.S. Navy has completed the third 5-year review of the remedial actions at Operable Units (OUs) 1 through 5 conducted pursuant to Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act and the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations Part 300). The purpose of this 5-year review is to ensure that the remedial actions selected in the Records of Decision (RODs) at NAS Whidbey Island remain protective of human health and the environment. A 5-year review is required for this site because the remedies allow contaminants to remain in place at concentrations that do not allow unlimited site use and unrestricted exposure. This third 5-year review was prepared in accordance with *Navy/Marine Corps Policy for Conducting Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Statutory Five-Year Reviews*, November 2001 (Revised May 2004) and the U.S. Environmental Protection Agency's *Comprehensive Five-Year Review Guidance* (OSWER 9355.7-03B-P, June 2001).

There are a total of five OUs at NAS Whidbey Island. This review covers the remedies selected in the signed RODs for OUs 1 through 5. The remedies implemented at OUs 1, 2, 3, 4, and 5 remain protective of human health and the environment in the short term. Exposure to contaminants that remain in soil and groundwater is restricted by institutional controls. Groundwater extraction and treatment at OU 1 Area 6 remains functional as intended. Future protectiveness will be determined by continued operation of the groundwater extraction and treatment system at OU 1, Area 6 and site-wide by execution of a land use controls implementation plan. Follow-up actions are also needed as documented in Section 8.

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Five-Year Review Summary Form

SITE IDENTIFICATION

Site name *(from WasteLAN)*: Naval Air Station, Whidbey Island (Ault Field and Seaplane Base)

EPA ID *(from WasteLAN)*: WA5170090059 (Ault Field); WA6170090058 (Seaplane Base)

Region: 10 | **State:** WA | **City/County:** Oak Harbor/Island County

SITE STATUS

NPL status: ☐ Final ☐ Deleted ☒ Other (specify): OU 1, OU 2, OU 3, OU 5 Final; OU 4 Deleted

Remediation status (choose all that apply): ☐ Under Construction ☒ Operating ☒ Complete

Multiple OUs?* ☒ YES ☐ NO | **Construction completion date:** 09/25/1997

Has site been put into reuse? ☒ YES ☐ NO

REVIEW STATUS

Lead agency: ☐ EPA ☐ State ☐ Tribe ☒ Other Federal Agency: U.S. Navy

Author name: John Gordon

Author title: Remedial Project Manager | **Author affiliation:** Naval Facilities Engineering Command Northwest, Navy

Review period:** 03/07 to 05/08

Date(s) of site inspection: 9/10/07 and annual inspections

Type of review:

☒ Post-SARA ☐ Pre-SARA ☐ NPL-Removal only
☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead
☐ Regional Discretion

Review number: 1 (first) 2 (second) 3 (third) Other (specify)______

Triggering action:

Actual RA Onsite Construction at OU#____
Actual RA Start at OU___
Construction Completion
Previous Five-Year Review Report
Other (specify):______

Triggering action date *(from WasteLAN)*: 04/15/2004

Due date *(five years after triggering action date)*: 04/15/2009

*[“OU” refers to operable unit.]

**[Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form (Cont'd)

Issues:

General

- Cleanup levels based on practical quantitation limits (PQLs) specified in the Records of Decision (RODs) could be greater than current quantitation capabilities.

OU 1 Area 6

- Fencing along the southwestern portion of the site boundary is damaged and could allow unauthorized site access.
- Residual vadose zone soil impacts could act as a continuing, low-grade source to groundwater.
- Chemicals of concern (COCs), including 1,4-dioxane, that have migrated off site require continued hydraulic control.
- 1,4-Dioxane was not identified in the ROD as a COC. As such, the treatment plant was not designed to treat extracted water containing this compound. Treated water with concentrations of 1,4-dioxane greater than the Model Toxics Control Act (MTCA) Method B cleanup level is being reinfiltrated into the subsurface. This also may extend site restoration time.
- Concentration contour maps in annual reports appear to overestimate the extent of impacts to groundwater.
- A cleanup level for 1,4-dioxane has not been established.
- There is no mechanism to confirm that Island County is implementing the 1,000-foot drilling restriction around the Area 6 landfill.

OU 2 Areas 2/3

- Two drums were observed on the site during the site inspection.
- Vinyl chloride, total arsenic, and total manganese remain at concentrations above cleanup levels in groundwater samples from some of the wells monitored in 2007.

OU 2 Area 4

- Total arsenic remains at concentrations above cleanup levels in samples from the two wells monitored in 2007.

OU 2 Area 29

- Total arsenic remains at concentrations above cleanup levels in samples from the three wells monitored in 2007.

OU 3 Area 16

Petroleum concentrations in 2006 sediment samples from the northernmost ditch were above the ROD-specified MTCA cleanup level for total petroleum hydrocarbons.

Five-Year Review Summary Form (Cont'd)

OU 5, Area 1

- Slumping and erosion along the shoreline has exposed construction debris along the western edge of Area 1. It is reported that this condition has existed for some time.

OU 5 Area 31

- Petroleum hydrocarbon concentrations remain above cleanup levels in groundwater and manganese was not monitored in well MW31-11 as previously recommended.

OU 5 Area 52

- 2007 sediment pore water sampling locations were limited.

Recommendations and Follow-up Actions:

General

- PQL-based cleanup levels specified in the RODs need to be evaluated against current quantitation capabilities.

OU 1 Area 6

- Repair the fence along the southwestern portion of the site boundary. Have on-site personnel inform NAS Whidbey Island Security of trespassers.
- Conduct vadose zone vapor monitoring for volatile organic compounds to evaluate stability of vadose zone impacts. If groundwater COC concentrations in samples from wells near the former industrial waste disposal area stabilize or begin to increase during pumping conditions or once pumping is suspended, develop a criterion for additional source area work and agree on how to evaluate it.
- Maintain target pumping rate and drawdown at PW-5 to control the plume in the southwestern corner and along the western boundary of the site. Install infrastructure for pumping from PW-10 in the event that PW-5 production is compromised.
- Evaluate applicability and cost effectiveness of treating extraction system effluent for 1,4-dioxane.
- Future contouring should be conducted by hand, out to the analyte-specific remediation goal (RG) or cleanup level. This will ensure that the plume definition reflects the RG values. Results should be documented on the appropriate figure at locations where target analytes were measured below the analyte-specific RG or cleanup level. This will allow for assessment of potential containment problems.
- Assess the need for a ROD amendment to establish a 1,4-dioxane cleanup level.
- Contact Island County annually during the institutional controls inspection and confirm that the restriction is still in place and no additional wells have been installed.

OU 2 Area 2

- The Navy was notified and will remove the two drums observed at this area.

Five-Year Review Summary Form (Cont'd)

OU 2 Areas 2/3

- Maintain land use controls.
- Discontinue monitoring for 1,1-dichloroethene and 1,4-dichlorobenzene. Conduct groundwater monitoring during the next 5-year-review period for total and dissolved arsenic, total and dissolved manganese, and vinyl chloride.

OU 2 Area 4

- Maintain land use controls.
- Discontinue monitoring for 1,1-dichloroethene and 1,4-dichlorobenzene. Conduct groundwater monitoring during the next 5-year-review period for total and dissolved arsenic, total and dissolved manganese, and vinyl chloride.

OU 2 Area 29

- Maintain land use controls.
- Conduct groundwater monitoring during the next 5-year-review period for total and dissolved arsenic.

OU 3 Area 16

- Maintain land use controls and clean out the catch basin associated with the 2006 sampling location 16-2 to remove sediment containing elevated total petroleum hydrocarbon concentrations.
- Collect sediment samples from previous locations during the next 5-year review period for the same COCs as the 2006 event.

OU 5, Area 1

- Conduct annual inspection of the shoreline side of the landfill.

OU 5 Area 31

- Residual-range organics, styrene, and toluene monitoring should be discontinued. Monitor annually for diesel-range organics, gasoline-range organics, benzene, naphthalene, and vinyl chloride at wells MW31-9A and OWS-1 until the next 5-year review. Monitor annually well MW31-11 for total and dissolved manganese only.

OU 5 Area 52

- Conduct sediment pore water monitoring at all six previously established locations using push probe.

Protectiveness Statement(s):

Remedy construction is complete at all five OUs. The remedies remain protective of human health and the environment at this time. The recommendations in Table 8-1 should be implemented in order to maintain long-term protectiveness.

Five-Year Review Summary Form (Cont'd)

The remedial action is operating as expected at OU 1 Area 6 and remains protective of human health and the environment. The remedy at Area 6 will continue to require routine, regular maintenance and monitoring to ensure that protectiveness is maintained. Maintenance of site-wide land use controls is required to ensure protectiveness of the remedy.

The remedies at OU 1, OU 2, OU 3, OU 4, and OU 5 remain protective of human health and the environment. Maintenance of site-wide land use controls and long-term monitoring are required to maintain protectiveness of the remedies.

Other Comments: None

Signature sheet for the Naval Air Station Whidbey Island third five-year review for Operable Units 1 through 5.

G. K. David, CAPT, USN
Commanding Officer
Naval Air Station Whidbey Island

9/29/09
Date

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ABBREVIATIONS AND ACRONYMS

ARAR	applicable or relevant and appropriate requirement
ATSDR	Agency for Toxic Substances and Disease Control
AVGAS	aviation gasoline
BTEX	benzene, toluene, elhylbenzene, and xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	chemical of concern
cPAHs	carcinogenic polycyclic aromatic hydrocarbons
CSR	Current Situation Report
DCA	dichloroethane
DCE	dichloroethene
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
DNAPL	dense nonaqueous-phase liquid
DOH	Department of Health (Washington State)
DRO	diesel-range organics
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
FAA	Federal Facilities Agreement
FS	feasibility study
GCL	geosynthetic clay liner
GRO	gasoline-range organics
HDPE	high-density polyethylene
IRIS	Integrated Risk Information System
JP-4	jet petroleum No. 4
MCL	maximum contaminant level
MEK	methylethyl ketone
MFS	minimum functional standards
μg/L	microgram per liter
MCPP	2-(2-methyl-4-chlorophenoxy)propanoic acid
mg/kg	milligram per kilogram
mg/kg-day	milligram per kilogram per day
MSL	mean sea level
MTCA	Model Toxics Control Act
NACIP	Navy Assessment and Control of Installation Pollutants
NAS	Naval Air Station

ABBREVIATIONS AND ACRONYMS (Continued)

Navy	U.S. Navy
NAVFAC NW	Naval Facilities Engineering Command Northwest
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	operation and maintenance
OU	operable unit
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCP	pentachlorophenol
ppb	parts per billion
ppm	parts per million
PQL	practical quantitation limit
PVC	polyvinyl chloride
RAB	Restoration Advisory Board
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RfD	reference dose
RG	remediation goal
RI	remedial investigation
RI/FS	remedial investigation/feasibility study
ROD	Record of Decision
RRO	residual-range organics
SARA	Superfund Amendments and Reauthorization Act
SIM	selected ion monitoring
SVOC	semivolatile organic compound
TCA	trichloroethane
TCDD	tetrachlorodibenzo-p-dioxin
TCE	trichloroethene
TCLP	toxicity characteristics leaching procedure
TPH	total petroleum hydrocarbons
TPH-D	total petroleum hydrocarbons—diesel
TPH-G	total petroleum hydrocarbons—gasoline
TPH-Dx	total petroleum hydrocarbons as diesel and heavy oil
TRC	Technical Review Committee
UST	underground storage tank
VOC	volatile organic compound
yd^3	cubic yard

1.0 INTRODUCTION

This report presents the results of the third 5-year review performed for NAS Whidbey Island National Priorities List (NPL) sites, including both the Ault Field and Seaplane Base sites, which are listed separately on the NPL. NAS Whidbey Island is located along the shoreline of the Strait of Juan de Fuca in Oak Harbor, Washington (Figure 1-1). The purpose of a 5-year review is to determine whether the remedies selected for implementation in the Records of Decision (RODs) for a site remain protective of human health and the environment. The methods, findings, and conclusions of 5-year reviews are documented in 5-year review reports, which identify any issues found during the review and recommendations to address them.

The U.S. Navy (Navy), the lead agency for NAS Whidbey Island, is preparing this 5-year review pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP; 40 Code of Federal Regulations [CFR] Part 300). CERCLA Section 121 states:

> If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

The Navy's Naval Facilities Engineering Command Northwest (NAVFAC NW) has conducted this 5-year review of the remedial actions implemented at NAS Whidbey Island in Oak Harbor, Washington. This review was initiated in March 2007 using analytical data generated between January 2003 and June 2007.

This report covers the remedies selected in the signed RODs for all five operable units (OUs) at NAS Whidbey Island (Figures 1-2 and 1-3) (U.S. Navy, Ecology, and USEPA 1993a, 1993b, 1994, 1995, and 1996).

This is the third 5-year review performed for NAS Whidbey Island. The triggering action for this review was the execution of the second 5-year review, which was executed in April 2004. Contaminants have been left at NAS Whidbey Island above levels that allow for unlimited use and unrestricted exposure.

A statutory review is a review required under CERCLA. CERCLA requires 5-year reviews upon completion of the remedial action, when hazardous substances, pollutants, or contaminants will remain on site and the ROD for the site was signed on or after October 17, 1986 (the effective date of Superfund Amendments and Reauthorization Act [SARA]) and the remedial action was selected under CERCLA §121. Policy reviews are reviews conducted as a matter of policy. Five-year reviews generally should be conducted as a matter of policy for the following types of actions:

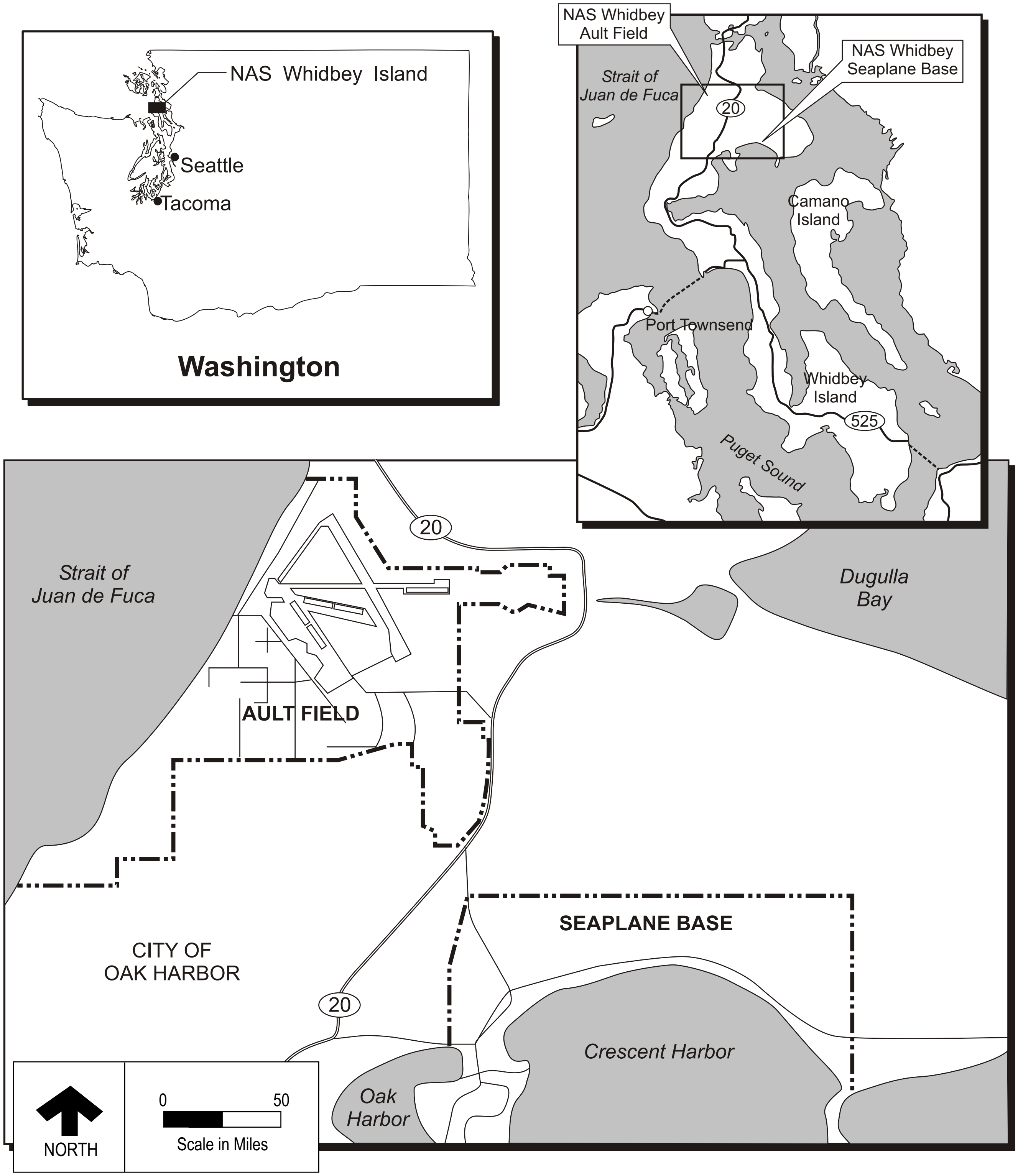
- A pre- or post-SARA remedial action that, upon completion, will not leave hazardous substances, pollutants, or contaminants on site above levels that allow for unlimited use and unrestricted exposure, but requires five years or more to complete

- A pre-SARA remedial action that leaves hazardous substances, pollutants, or contaminants on site above levels that allow for unlimited use and unrestricted exposure

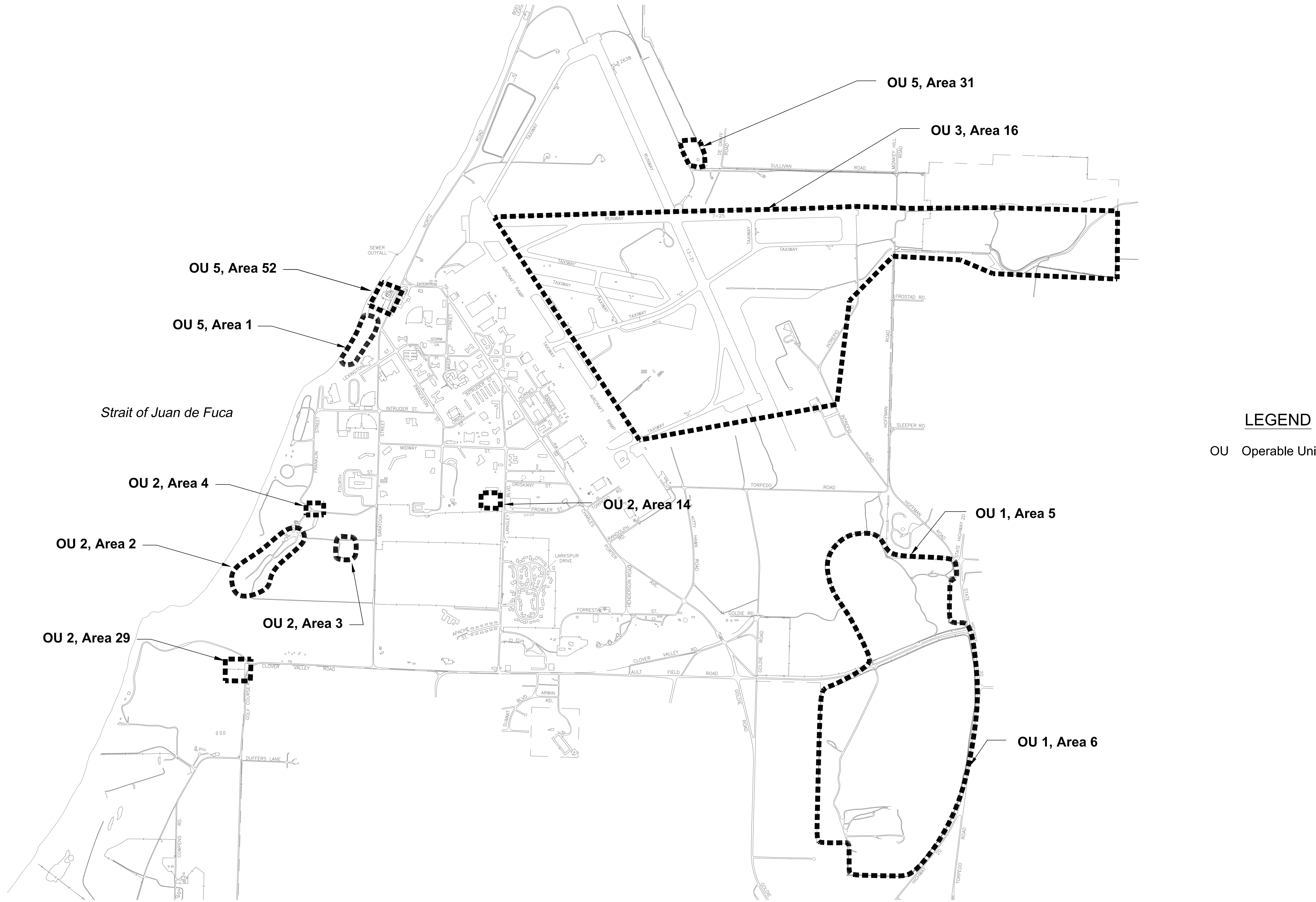
- A removal-only site on the NPL where a removal action leaves hazardous substances, pollutants, or contaminants on site above levels that allow for unlimited use and unrestricted exposure and where no remedial action has or will take place

The RODs documenting the remedies implemented at NAS Whidbey Island were signed after October 17, 1986. Therefore, this is considered a statutory, rather than a policy, review.

This report was prepared as part of the CERCLA 5-year review process using Navy and U.S. Environmental Protection Agency (EPA) guidance (U.S. Navy 2004a and USEPA 2001).



U.S.NAVY	**Figure 1-1** **Location Map for NAS Whidbey Island**	NAS Whidbey Whidbey Island, WA THIRD FIVE-YEAR REVIEW



U.S. NAVY

NAS Whidbey
Whidbey Island, WA
THIRD FIVE-YEAR REVIEW

0 500 1,000 2,000
SCALE IN FEET

Figure 1-2
NAS Whidbey
Operable Units 1, 2, 3, and 5

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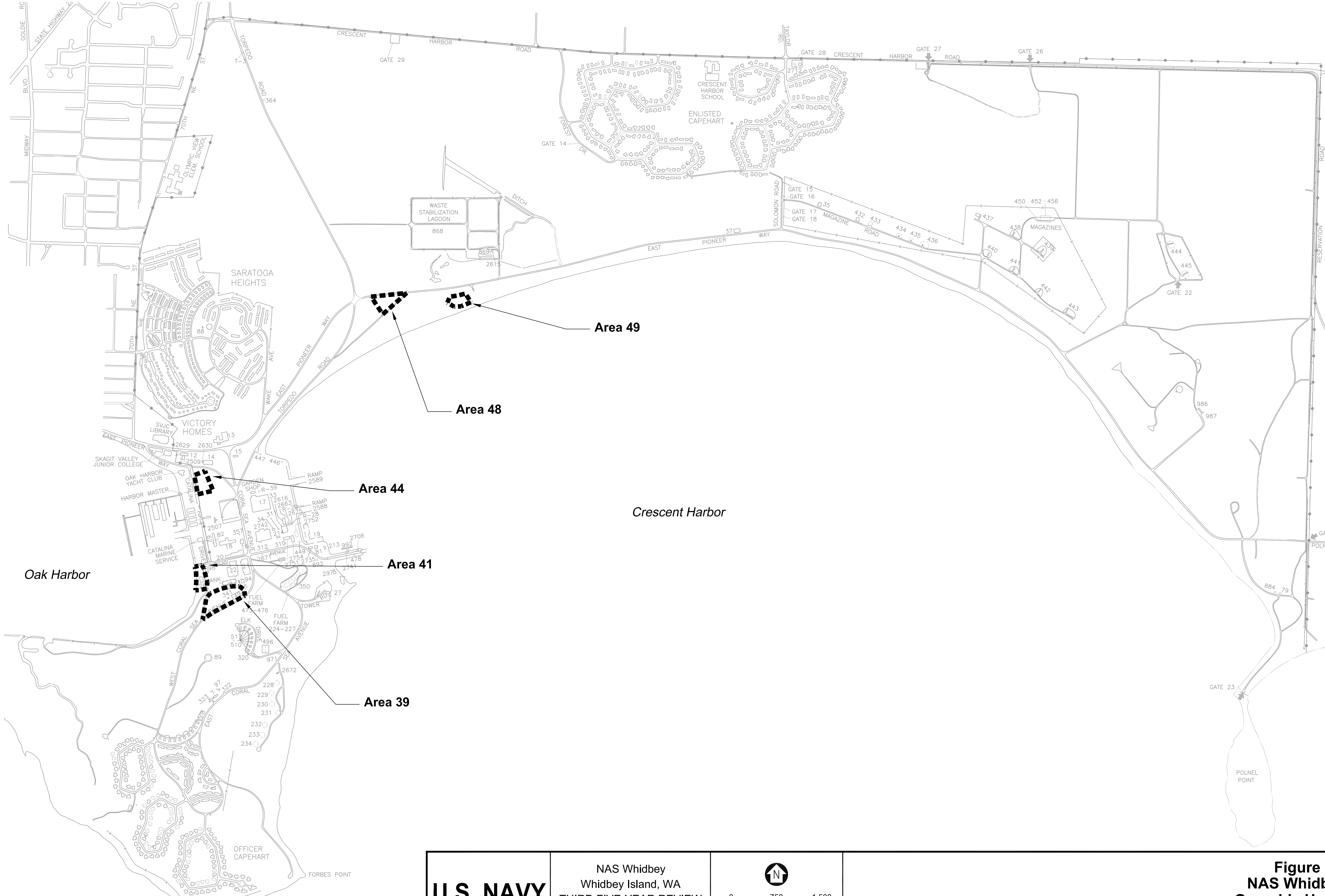

U.S. NAVY

NAS Whidbey
Whidbey Island, WA
THIRD FIVE-YEAR REVIEW

Figure 1-3
NAS Whidbey
Operable Unit 4

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2.0 SITE CHRONOLOGY

This section summarizes dates of major events such as the initial discovery of contamination, NPL listing, decision and enforcement documents, start and completion of remedial and removal actions, construction completion, and prior 5-year reviews. Table 2-1 lists by OU the primary events in the chronology of NAS Whidbey Island related to site discovery, investigation, and remediation. Additional details regarding the site activities for individual OUs are provided in the narrative of this section.

2.1 SITE DISCOVERY AND INITIAL INVESTIGATION

The Navy conducted the Initial Assessment Study, primarily consisting of a records search, at NAS Whidbey Island under the Navy Assessment and Control of Installation Pollutants (NACIP) program in 1984 (U.S. Navy 1984). A more focused follow-up investigation and report, the NAS Whidbey Island Current Situation Report (CSR), was completed in January 1988 (U.S. Navy 1988). After the CSR was completed, further investigations were proposed for areas where contamination was verified and where unverified conditions indicated further investigations were appropriate.

EPA Region 10 performed preliminary assessments at NAS Whidbey Island, using data developed by the Navy, to evaluate risks to public health and the environment. EPA used the Hazard Ranking System to evaluate the Seaplane Base and Ault Field.

In late 1985, EPA proposed that Ault Field and the Seaplane Base be nominated to the NPL. In February 1990, these sites were officially listed on the NPL, based on several factors:

- The number of waste disposal and spill sites discovered

- The types and quantities of hazardous constituents used and disposed of at the sites (including petroleum products, solvents, paints, thinners, jet fuel, pesticides, and other wastes)

- Potential impacts on domestic wells and local shellfish beds

In response to the NPL designation, the Navy, EPA, and Washington State Department of Ecology (Ecology) entered into an Interagency Federal Facilities Agreement (FFA) in October 1990. The FFA established a procedural framework and schedule for developing, implementing, and monitoring appropriate response actions at NAS Whidbey Island.

Following CERCLA and SARA guidelines, various sites and areas at NAS Whidbey Island were grouped into OUs. OUs 1, 2, 3, and 5 were groupings of areas at Ault Field. The five areas at the Seaplane Base (Areas 39, 41, 44, 48 and 49) were collectively identified as OU 4. OU 1 consisted of Areas 5 and 6 at Ault Field. OU 2 consisted of Areas 2/3, 4, 14, and 29. OU 3 originally consisted of Areas 16 and 31. However, Area 31 was later moved to OU 5. OU 5 originally consisted of Areas 1 and 52.

2.2 OPERABLE UNIT 1 CHRONOLOGY

In the summer of 1989, prior to beginning remedial investigation field efforts at OU 1, an accelerated initial investigation of Area 6 was performed. The investigation at Area 6 assessed whether groundwater contamination was present and if water supply wells in the vicinity were or could be affected. Chlorinated solvents were identified in groundwater at concentrations greater then cleanup levels. However, the investigation concluded that local water supply wells were unaffected. A potential remained for future impacts to the local water supply wells.

Also in 1989, as part of a statewide program to monitor the quality of drinking water supplies, the Washington State Department of Health (DOH) tested 13 public wells located within a 1-mile radius of Area 6 and the Oak Harbor Landfill. No volatile organic compounds (VOCs) were found. These results indicated that the drinking water supplies were unaffected.

In September 1990, the Navy began a remedial investigation/feasibility study (RI/FS) to determine the nature and extent of soil and groundwater contamination and to evaluate alternatives for the cleanup of contaminated areas.

In early 1991, during the RI/FS investigation, groundwater sampling results indicated that vinyl chloride concentrations in on-site monitoring wells exceeded maximum contaminant levels (MCLs) for drinking water and that contamination could be migrating off site. As a result, in May 1991, the Navy called upon the DOH to sample one public and six private wells in the vicinity of Area 6. The seven wells are located to the south, east, and southwest of the landfill boundary. No evidence of contamination from Area 6 was detected in these wells. Nevertheless, as a precautionary measure, the Navy began a program of voluntary water hookups to the public water supply system for landowners who were potentially affected.

In response to continued concerns about the migration of VOCs in groundwater, an interim action ROD was signed by the Navy, EPA, and Ecology in April 1992 to address a separate 1,1,1-trichloroethane (TCA) and trichloroethene (TCE) plume emanating from a former industrial waste disposal area to the northwest of the landfill disposal trenches area.

Concerns about possible off-site groundwater contamination also resulted in resampling of private wells in December 1992. Although no VOCs were detected in private wells adjacent to the landfill, the Navy offered to provide connections to an alternate water supply to owners of private wells in the vicinity of Area 6, including residents to the west of the TCA plume.

The final RI/FS for OU 1 was completed in 1993 (U.S. Navy 1993a and 1993b). The proposed plan for OU 1 was published in June 1993, and a public meeting regarding the proposed plan was held in July 1993. An additional public information meeting was held in August 1993. The ROD for OU 1 was executed on December 20, 1993 (U.S. Navy, Ecology, and USEPA 1993a).

The remedial design for OU 1 was performed in 1995 and remedial construction was completed in 1997.

2.3 OPERABLE UNIT 2 CHRONOLOGY

The final RI for OU 2 was issued in June 1993 (U.S. Navy 1993c). The final revised FS report for OU 2 was issued in November 1993 (U.S. Navy 1993d). The proposed plan was published in November 1993, and a public meeting was held in December 1993. The ROD for OU 2 was executed on May 17, 1994 (U.S. Navy, Ecology, and USEPA 1994). Remedial design was performed in 1995, and construction of the remedy was completed in 1997.

2.4 OPERABLE UNIT 3 CHRONOLOGY

An RI/FS for OU 3 was conducted in 1992, with the final RI report issued in January 1994 (U.S. Navy 1994a) and the final FS report issued in April 1994 (U.S. Navy 1994b). A proposed plan presenting the Navy's preference for remedial action was published for public comment in July 1994. Public comments on the OU 3 proposed plan included questions regarding whether the cost of the preferred alternative at Area 31 was appropriate when compared with the current and potential future risks. Because of these comments, the Navy decided to conduct further study and investigate additional remedial action alternatives for Area 31. To avoid delaying cleanup at Area 16, Area 31 was transferred from OU 3 to OU 5. The ROD for OU 3 was executed on April 20, 1995 (U.S. Navy, Ecology, and USEPA 1995). Remedial design was performed in 1995, and construction of the remedy was completed in 1997.

2.5 OPERABLE UNIT 4 CHRONOLOGY

An RI/FS was conducted for OU 4 in 1992, with the final RI report issued in June 1993 (U.S. Navy 1993e) and the final FS report issued in August 1993 (U.S. Navy 1993f). A proposed plan was published in August 1993, and a public meeting was held in September 1993. The ROD for

OU 4 was executed on December 20, 1993 (U.S. Navy, Ecology, and USEPA 1993b). Remedial design at OU 4 was conducted in 1994, and remedial construction was completed on June 29, 1995. OU 4 was deleted from the NPL on September 21, 1995.

2.6 OPERABLE UNIT 5 CHRONOLOGY

A focused RI/FS for OU 5 was conducted from 1994 to 1995, with the final focused RI/FS report issued in June 1995 (U.S. Navy 1995a). At the time of the OU 5 RI/FS, OU 5 included Areas 1 and 52, while Area 31 was still part of OU 3 (for which the RI/FS had been completed in 1992).

A final revised FS report for Area 31 was issued in September 1995 (U.S. Navy 1995b). This revised report incorporated additional data collected during two field investigations at Area 31 and evaluated two additional remedial alternatives. A proposed plan for remedial action at OU 5 (now comprising Areas 1, 31, and 52) was published for public comment in October 1995. The ROD for OU 5 was executed on July 10, 1996 (U.S. Navy, Ecology, and USEPA 1996). Remedial design for OU 5 was performed in 1996, and remedial construction was completed in 1997.

Table 2-1
Chronology of Events

Event	Date
Site-wide	
Initial Assessment Study	September 1984
NAS Whidbey Island Ault Field and Seaplane Base Proposed for NPL listing	September 18, 1985
Current Situation Report	January 1988
NAS Whidbey Island Ault Field and Seaplane Base listed separately on NPL	February 21, 1990
Federal Facilities Agreement	October 1990
First 5-Year Review	September 25, 1998
Second 5-Year Review	April 15, 2004
OU 1	
Final RI/FS for OU 1	1993
Interim Action ROD for OU 1, Area 6	April 28, 1992
Interim Action construction start at OU 1, Area 6	July 26, 1993
Interim Action at OU 1, Area 6 operation initiated	February 1995
Proposed Plan for OU 1	1993
ROD for OU 1	December 20, 1993
Remedy Design for OU 1	February 1, 1995
Remedy construction complete for OU 1	August 22, 1997
OU 2	
Final RI/FS for OU 2	November 1993
Proposed Plan for OU 2	November 1993
ROD for OU 2	May 17, 1994
Remedy Design for OU 2	January 18, 1995
Remedy construction complete for OU 2	August 22, 1997
OU 3	
Final RI/FS for OU 3	1994
Proposed Plan for OU 3	July 1994
ROD for OU 3	April 20, 1995
Remedy Design for OU 3	July 3, 1995
Remedy construction complete for OU 3	March 17, 1997
OU 4	
Final RI/FS for OU 4	1993
Proposed Plan for OU 4	1993
ROD for OU 4	December 20, 1993
Remedy Design for OU 4	June 1, 1994
Remedy construction complete for OU 4	June 29, 1995
OU 4 deleted from NPL	September 21, 1995
OU 5	
Final RI/FS for OU 5	September 1995
Area 31 moved from OU 3 to OU 5, Proposed Plan for OU 5	October 1995
ROD for OU 5	July 10, 1996

Table 2-1 (Continued)
Chronology of Events

Event	Date
Remedy Design for OU 5	November 13, 1996
Remedy Construction for OU 5	August 22, 1997

Notes:
FS - feasibility study
MTCA - Model Toxics Control Act
NAS - Naval Air Station
NPL - National Priorities List
OU - operable unit
RI - remedial investigation
ROD - Record of Decision

3.0 BACKGROUND

This section summarizes the physical characteristics of the sites that make up all five operable units at NAS Whidbey Island. These characteristics include land and resource use, history of contamination, initial responses, and the basis for taking action at each of the sites.

NAS Whidbey Island is located on Whidbey Island, Washington, at the northern end of Puget Sound and the eastern end of the Strait of Juan de Fuca (Figure 1-1). This north-south oriented island is almost 40 miles long, ranges from 1 to 10 miles wide, and lies within the Puget Sound Lowland, a topographic and structural depression between the Olympic Mountains and the Cascade Range. NAS Whidbey Island is located just north of the city of Oak Harbor (population 14,000) and has two separate operations: Ault Field and the Seaplane Base (Figure 1-1).

NAS Whidbey Island was commissioned on September 21, 1942. Ault Field is one of the two bases within the installation. Originally, NAS Whidbey Island was used for seaplane patrol operations, rocket firing training, torpedo overhaul, and both recruit and Petty Officer training. After World War II, the facility was placed on reduced operating status and, in December 1949, was upgraded to increase its Pacific Fleet support capabilities.

The Seaplane Base is located in the northern portion of the island adjacent to the city of Oak Harbor. Portions of the Seaplane Base have been converted to base housing-related activities. The Seaplane Base is located on a peninsula that was built up with material dredged from Oak and Crescent Harbors in 1942. Most of the subsurface soils present are from past dredging operations. The groundwater immediately below the site is brackish, and potable water is piped in from Anacortes to the Seaplane Base, Ault Field, and the city of Oak Harbor. Surface runoff from the Seaplane Base and a portion of OU 1 flows into Oak Harbor or Crescent Harbor. Surface runoff from Ault Field mostly flows west into the Strait of Juan de Fuca or east to Dugulla Bay.

The station’s current mission is to maintain and operate Navy aircraft and aviation facilities and to provide associated support activities. Since the 1940s, operations at NAS Whidbey Island have generated a variety of hazardous wastes. These wastes were disposed of prior to the establishment of regulatory requirements, using disposal practices that were considered acceptable at that time.

The Ault Field site has been separated into four OUs (OUs 1, 2, 3, and 5). The Seaplane Base is OU 4.

3.1 OPERABLE UNIT 1

OU 1 consists of Areas 5 and 6 (Figure 3-1).

3.1.1 Area 5

Area 5 was a small former gravel pit measuring approximately 500 feet long by 500 feet wide. It is located just north of Ault Field Road and west of State Highway 20. Although there is no documentation that hazardous wastes were disposed of at Area 5, it may have been used as a surface disposal area for a year between 1958 and 1959. Herbicides and pesticides were routinely applied in Area 5 as well as throughout NAS Whidbey Island property to control weeds and pests.

Area 5 is currently a flat open area covered by a mixture of soil, gravel, and vegetation. Surface water flows to the southwest and southeast. Groundwater flows to the west and north. Approximately 600 feet west of Area 5 is a small freshwater wetland that historically received surface water runoff from the excavation area via a small gully extending west from the northwest edge of the excavation area. Because of the runoff from the excavation area to the western wetland, the area of investigation for Area 5 was enlarged to include surface water and sediments in the vicinity of the wetland. This enabled the investigation to determine whether the suspected disposal within the excavation area released contaminants to the wetlands (U.S. Navy, Ecology, and USEPA 1993a).

A geophysical survey was conducted to establish the presence or absence of buried wastes at the site and determine, if present, the lateral extent. Six sediment and surface water samples were collected from the wetland area and analyzed during the RI to assess potential impacts from historical site operations. Data from nine wells were used to assess potential impacts to soil and groundwater at the site during the RI (U.S. Navy 1993a).

Both the carcinogenic and noncarcinogenic risks associated with potential ingestion of surface water, soil, and sediment were below EPA's acceptable risk range. Arsenic and manganese were the primary risk drivers in the shallow groundwater at Area *5,* although very low concentrations of VOCs also contributed to risk.

3.1.2 Area 6

Area 6 is a 260-acre tract in the southeast corner of Ault Field. Within Area 6, there are two areas where wastes are known to have been disposed of. Liquid wastes were disposed of at the former industrial waste disposal area at a time when regulatory requirements had not been established. These wastes reportedly consisted of solvents, oily sludges, thinners, and other compounds. Waste disposal began in 1969 and ended in the early 1980s. The former industrial waste disposal area is approximately 15 feet by 40 feet. During operation, it was a pit (also called the former waste oil pit) approximately 10 feet deep. Prior to remedy implementation, it was filled and covered with natural vegetation.

A separate portion of Area 6 was used for Navy household municipal waste from 1969 to 1992. This landfill operations area was approximately 40 acres and is now covered with a synthetic cap, soil, and natural vegetation. The synthetic cap prevents infiltration of rainwater. The presence of vinyl chloride and 1,4-dioxane in groundwater downgradient of the landfill indicates that some solvent sludges were disposed of in the landfill.

Area 6 is bordered by Ault Field Road to the north, State Highway 20 to the east, and the City of Oak Harbor Landfill on the south and southwest. Privately owned forested or logged land and a commercial sand and gravel quarry operation are located immediately west of Area 6. The City of Oak Harbor vehicle maintenance facility, an auto salvage yard, a transmission repair shop, the Auld Holland Inn, and a mobile home park are located in or near the southern boundary of the Oak Harbor landfill property. Private residences are located to the east, west, and south of the Area 6 landfill (U.S. Navy 2004b).

Geophysical and soil vapor surveys were conducted at Area 6 to evaluate the lateral extent of landfilled material and to choose soil boring and groundwater monitoring well locations. Five sediment samples and six surface water samples were collected and analyzed during the RI to assess potential impacts to the intermittent stream at the site. Data from 25 groundwater monitoring wells installed at the site were used to assess potential impacts to the shallow, intermediate, and deep aquifers at the site during the RI, and 7 soil vapor extraction wells were installed to assess soil vapor. Soil samples from borings installed during the RI suggested that the contaminant mass had migrated to the groundwater and little remained in the vadose zone to serve as a long-term source. An aquifer performance test was performed to estimate hydraulic characteristics of the shallow aquifer (U.S. Navy 1993a).

Unacceptable ecological risks were identified based on concentrations of chemicals of concern (COCs) in Area 6 soils and in sediments and surface water from the intermittent stream at Area 6. The precise location for the industrial waste disposal area(s) could not be identified, and it was determined that remedial action could cause more environmental harm than the low levels of existing chemical contaminants. It was also determined that the greatest potential risk to human health at Area 6 was posed by the future movement of organic chemicals in groundwater (U.S. Navy 2004b). The location of a disposal pit was later identified and a cleanup action was completed in 2002 (FWEC 2002).

There are two distinct groundwater plumes present at Area 6. The first plume is referred to as the western groundwater plume, which originates from the former industrial waste disposal areas (i.e., the former waste oil pit). Multiple VOCs were detected at concentrations exceeding risk levels in the western groundwater plume. The second plume is referred to as the southern groundwater plume and is in the southern part of the landfill where contaminants originate from the capped landfill (i.e., landfill leachate is the source). Vinyl chloride was detected at concentrations exceeding risk-based concentrations in the southern groundwater plume (U.S. Navy 2004b). In 2002, the solvent stabilizer 1,4-dioxane was sampled for and identified at concentrations exceeding the Washington State Model Toxics Control Act (MTCA) Method B levels in both plumes.

An interim action ROD was developed that resulted in installation of a groundwater containment and treatment system to prevent the continued spread of contaminants from the former industrial waste disposal area in the shallow aquifer beneath Area 6 and to reduce the risk of impact to existing and future groundwater users (U.S. Navy, Ecology, and USEPA 1992). The system called for in the final ROD (U.S. Navy, Ecology, and USEPA 1993a) also addresses the southern groundwater plume. The system consists of 10 groundwater extraction wells with 8 currently operating, an equalization tank, particulate filters, packed column air stripper, discharge piping, and miscellaneous pumps, controls, instrumentation, and appurtenances.

Trichloroethene, 1,1,1-trichloroethane, 1,1-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, and vinyl chloride were identified as COCs in groundwater (U.S. Navy, Ecology, and USEPA 1993a).

3.2 OPERABLE UNIT 2

OU 2 is composed of five areas located at Ault Field (Figure 3-2). These areas are identified as follows:

- Area 2, Former Western Highlands Landfill
- Area 3, Former 1969–1970 Landfill
- Area 4, Former Walker Barn Storage Area
- Area 14, Former Pesticide Rinsate Disposal Area
- Area 29, Former Clover Valley Fire School

Based upon their similar natures and close proximity, Areas 2 and 3 were considered together in the RI/FS and the ROD and collectively identified as Areas 2/3 (U.S. Navy 2004b).

3.2.1 Areas 2/3

Area 2 is a 13-acre former landfill located southwest of the current fire training school. The southern boundary of Area 2 is defined by a gravel road and a fence, and a wetland is located near the eastern boundary of the area. From 1959 to 1969, the landfill was the principal disposal area for solid wastes generated on NAS Whidbey Island. Reportedly, the landfill received industrial wastes as well as construction and demolition debris. The surface of the former landfill area is now covered with soil and is vegetated. Area 3 is a 1.5-acre parcel located east of Area 2 and southeast of the current fire training school. Area 3 was used for disposal of solid wastes between 1969 and 1970, and the materials disposed of were similar to those at the Area 2 landfill. The surface of the former landfill area is now covered with soil and is vegetated. An area of evergreen forest is located to the north of Area 3 (U.S. Navy 2004b).

Geophysical surveys were conducted at both sites to determine the lateral extent of the landfilled areas. Soil vapor surveys were conducted to prescreen both sites for the presence or absence of VOCs in the subsurface. Sediment and surface water samples were collected and analyzed during the RI to determine if chemicals had migrated to wetlands and intermittent ponds adjacent to both sites. Data from 20 groundwater monitoring wells at Area 2 and 6 wells at Area 3 were used during the RI to assess groundwater at these sites.

Antimony and arsenic were identified as COCs in soil. Antimony, arsenic, and manganese were identified as COCs in groundwater (U.S. Navy, Ecology, and USEPA 1994).

3.2.2 Area 4

Area 4 is a relatively flat parcel of land approximately 240 feet wide and 440 feet long and partially covered with native grasses. The area, which is fenced, is located approximately 400 yards west of Saratoga Street, northeast of the current fire training school, and approximately 300 yards south of the U.S. Navy hospital. A gravel parking lot is located at the area of the former Walker barn in the southern portion of Area 4. Area 4 includes a portion of the Walker Barn Storage Area, where transformers and supplies from an electrical shop, including telephone poles, were stored (U.S. Navy 1993c).

Sediment samples were collected from the wetlands identified at Area 4 and surface water samples were collected from intermittent ponds at the site. Four groundwater monitoring wells were installed to assess groundwater quality at the site.

Pentachlorophenol (PCP), polychlorinated biphenyls (PCBs), and 2-(2-methyl-4-chlorophenoxy)-propanoic acid (MCPP) were identified as COCs in groundwater at Area 4 (U.S. Navy, Ecology, and USEPA 1994).

3.2.3 Area 14

Area 14 is approximately 0.5-acre in area and is a fenced land parcel located immediately south of Building 2555 and west of Langley Boulevard. The southern and western boundaries of the area are defined by adjacent pasture lands. A dry well was installed on the north-central edge of the area in 1973. The dry well was located near an intermittent creek that originates from a spring in the northwestern corner of the area and flows southeast through Area 14 toward Langley Boulevard. The former activities at Area 14 that resulted in contamination were the disposal of pesticide rinsate solutions in the dry well (U.S. Navy 1993c).

Four sediment samples were collected and analyzed from a stream that flows east-southeast through the area. Surface water samples were also collected from this stream and analyzed. Data from five groundwater monitoring wells and three soil borings were used to assess soil and groundwater conditions at Area 14 during the RI (U.S. Navy 1993c).

Bromacil, 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD), and 2,4-dichlorophenol were identified as COCs in soil at Area 14. Bromacil and 2,4-dichlorophenol were identified as COCs in groundwater at Area 14 (U.S. Navy, Ecology, and USEPA 1994).

3.2.4 Area 29

Area 29 is the former location of the Clover Valley Fire School (U.S. Navy 1993c). It is a 4-acre parcel located west of the intersection of Clover Valley Road and Golf Course Road in the southwestern portion of Ault Field. The area is bounded by the Navy golf course to the south, Clover Valley Road to the north, and Golf Course Road to the east. A 1,600-square-foot concrete pad is located in the center of the area. A small surface drainage ditch extends northeast from the pad to another ditch along Clover Valley Road. This surface drainage ditch eventually discharges into the wetland between Areas 2 and 3.

Waste oils, fuels, solvents, and other flammable waste liquids were used at Area 29 in the fire training program. These may have included fuel oil, jet petroleum No. 4 (JP-4), aviation gasoline (AVGAS), Stoddard solvent (nonane, trimethylbenzene), carbon-removing compounds (methylene chloride, cresols), TCE, TCA, methyl ethyl ketone (MEK), and paint thinners (U.S. Navy 1993c).

Excess unburned fuel was washed onto the ground around the concrete pad used to contain the fuels during burning. An estimated 50,000 to 70,000 gallons of unburned liquids may have been discharged to the ground around the fire training school. Aerial photographs from 1965 show widespread areas of soot, as well as two areas where unburned liquids were allowed to pond. From these photographs, a culvert is evident that may have allowed unburned liquids to migrate under the road to the north. This culvert is no longer in place (U.S. Navy 1993c).

A soil vapor survey was conducted during the RI to prescreen Area 29 for the presence or absence of VOCs in the subsurface. Data from 11 surface soil/sediment sampling locations and 3 surface water sampling locations were used during the RI to evaluate surface conditions at the site (U.S. Navy 1993c).

Pentachlorophenol and polycyclic aromatic hydrocarbons (PAHs) were identified as COCs in soil at Area 29. Arsenic and manganese were identified as COCs in groundwater at this area (U.S. Navy, Ecology, and USEPA 1994).

3.3 OPERABLE UNIT 3

OU 3 consists only of Area 16, also known as the Runway Ditches, located at Ault Field (Figure 3-3).

Initially, Area 31, also known as the Former Runway Fire School, was included as a part of OU 3. However, based on the need for additional information and subsequent evaluation prior to making a decision regarding the preferred remedial action for Area 31, the decision was made to remove Area 31 from OU 3 and address it as part of OU 5 (U.S. Navy 2004b).

Area 16 comprises the eastern portion of Ault Field, including the flight-line area and the on-site drainage areas through Clover Valley. The Clover Valley Lagoon and Dugualla Bay, which are both located east of the base boundary, were also included in the investigation because they are downgradient from Area 16. The Runway Ditches consist of approximately 9 linear miles of connected ditches and 1 mile of culverts that drain the runway area and receive discharge from many of the NAS Whidbey Island storm drain inlets. The majority of the ditches eventually connect with the Clover Valley stream, which flows east toward the Clover Valley Lagoon and Dugualla Bay.

The Clover Valley Lagoon serves as a catchment basin for approximately 7,000 acres of land, including most of Ault Field and some surrounding areas. Discharge into the lagoon includes surface water from surrounding hills to the north and south, from wetlands in the southeastern portion of NAS Whidbey Island, and surface water runoff collected from Ault Field by the runway ditches and carried off-base by the Clover Valley stream. Water flow within this stream was measured at 4.6 cubic feet per second in June 1992. In the lower elevations of Clover Valley, the stream system may intersect the water table and receive groundwater input. The lagoon water surface is maintained at several feet below mean sea level (MSL) by pumping water over a dike into Dugualla Bay. Water from the uppermost portion of the lagoon is reportedly used to irrigate the surrounding agricultural fields and runoff from these fields drains into the lagoon (U.S. Navy 2004b).

One ditch, located north of Runway 7-25, discharges directly into the Strait of Juan de Fuca. This ditch only receives runoff from the runway and not from other storm drain inlets. Some of the runway ditches contain no water during the dry season.

The bottoms of the ditches near the runway vary in width from approximately 2 to 10 feet and range in elevation from slightly below MSL to 20 feet above MSL. The banks of the ditches typically have a 30- to 45-degree slope and rise to a height of 5 to 10 feet above the base of the ditch. Dense plant growth typical of wetlands is present in the base of the flowing ditches, except where the water exceeds 1 foot in depth. Sediment buildup in the ditches was greater than 1 foot in thickness near storm drain inlet discharges and was less than 6 inches in thickness within the ditches east of Runway 13-31. Until about 1981, the ditches were dredged with a dragline every 7 to 8 years. During dredging, sediment was removed from the ditch base and reportedly placed along the ditch banks. There is little or no evidence of dredged piles and the area is thickly vegetated (U.S. Navy 2004b).

Three baffles have been installed along the runway ditches with the intent of retaining sediment and preventing culverts from becoming clogged. The upstream (western-most) baffle, south of Taxiway C, is constructed of concrete. The two downstream baffles are constructed of wood. The upstream baffle is constructed and operates in such a manner as to contain any floating petroleum product that may enter the ditches if a spill occurs on the flight line. The upstream baffle used to be equipped with an oil/water separator with an electric oil skimming recovery system that removed and containerized the floating product retained by the baffle. The oil skimmer unit was inoperable at the time the ROD was issued (April 20, 1995) and remains as such. NAS Whidbey Island adopted a strategy of responding immediately to spill events if and when they occurred, with oil skimming operations being performed on an as-needed basis by a spill responder using a vacuum truck (U.S. Navy 2004b).

Because the runway ditch network is designed to handle stormwater drainage for Ault Field and the surrounding area, and because much of the land adjacent to the ditches is wetland area, Area 16 is assumed to lie within the 100-year flood plain.

Environmental media sampled during the OU 3 investigation included surface and subsurface soils, groundwater (from on-site and nearby private wells), ditch sediment, lagoon sediment, marine sediment, ditch surface water, lagoon surface water, marine surface water, and marine shellfish tissue. In general, samples were analyzed for VOCs, semivolatile organic compounds (SVOCs), pesticides, PCBs, chlorinated herbicides, total petroleum hydrocarbons (TPH), and inorganics. Analyses for VOCs and TPH were not performed on shellfish tissues. In addition, one of the soil samples and one of the ditch sediment samples were analyzed for dibenzo-p-dioxins and dibenzo-p-furans. Dioxin and furan analyses were not part of the sampling scope developed in the project work plans, but the laboratory inadvertently analyzed the two samples for these parameters (U.S. Navy 2004b).

The following COCs were identified for the sampled media at Area 16 (U.S. Navy 2004b):

- Soil: Arsenic, beryllium, and manganese in both surface and subsurface soils; dioxin (2,3,7,8-TCDD), selenium, and TPH in surface soils

- Groundwater: Arsenic and manganese

- Surface water: Copper, lead, mercury, and silver in ditch surface water

- Sediment (ditches): At the time of the OU 3 investigation (1995), no applicable or relevant and appropriate requirement (ARAR) existed for freshwater sediments. Numerous chemicals detected in the ditch sediments were identified as COCs because of their significant contributions to ecological risk. These included arsenic, lead, zinc, SVOCs (including many PAHs), pesticides (dichlorodiphenyldichloroethane [DDD], dichlorodiphenyltrichloroethane [DDT], endosulfan, fensulfothion, methyl azinphos), and PCBs.

- Sediment (lagoon): Cadmium, nickel, selenium, thallium, vanadium, and zinc in shallow area sediments; dieldrin, dimethoate, nickel, thallium, and vanadium in deep area sediments

3.4 OPERABLE UNIT 4

OU 4 is composed of the following five areas and is the sole OU at the Seaplane Base (Figure 1-3):

- Area 39, Auto Repair and Paint Shop
- Area 41, Building 25/26 Disposal Area
- Area 44, Seaplane Base Nose Hangar
- Area 48, Salvage Yard
- Area 49, Seaplane Base Landfill

Seaplane Base is located on a peninsula that was built up with material dredged from Oak Harbor and Crescent Harbor in 1942. The original connection between Maylor Point and the mainland of Whidbey Island was a narrow sand spit. Most of the subsurface soil that is present came from past dredging operations. Groundwater immediately below the area is characterized as brackish. Potable water is piped in from the City of Anacortes. Surface water runoff flows into Oak Harbor and Crescent Harbor (U.S. Navy 2004b).

Various inorganic and organic contaminants were detected in groundwater at all areas associated with OU 4. However, the potential for exposure to contaminants in groundwater near the shore was estimated to be low. The groundwater in this area is not considered potable because of saltwater intrusion. In addition, Whidbey Island County Department of Health regulations prohibit the development of private or public drinking water wells within 100 feet of the mean high tide level (U.S. Navy 2004b).

3.4.1 Area 39

Area 39 is the location of a former auto repair and paint shop that was housed in Building 49. From 1961 to 1965, an estimated 1,000 to 2,000 gallons of caustic radiator solvents were spilled on the ground northeast of Building 49. Approximately 2,000 gallons of radiator test tank water containing traces of sealant, antifreeze, soldering compounds, and acid were reportedly poured onto the ground south of Building 49 during the same period. From 1956 to 1982, wastewater from an 800-gallon paint booth was reportedly discharged up to once a week to the drainage ditch north of Building 49. The wastewater probably contained paint residues. As of 1993, the building was used as a lawn mower shop and self-service facility for base personnel. Chromium, lead, PAHs, and pesticides (4,4'-dichlorodiphenyldichloroethene [DDE] and 4,4'-DDD) were identified as COCs in surface soils and sediments. Lead and chromium were the most widespread COCs and were detected northeast of Building 49 and in the southern swale on the north side of the building. Pesticides were detected in the drainage ditch adjacent to a road culvert. The estimated volume of contaminated soil was approximately 260 yd^3 (U.S. Navy 2004b).

3.4.2 Area 41

Area 41 is located west of Area 39 and included Building 25 (which was demolished and, as of 1993, consisted of a concrete foundation), Building 26, and the rock seawall located immediately west of the buildings. Both buildings were used as paint shops in the 1940s and 1950s and later housed the pest control shop during the 1960s. Personnel reportedly discharged waste paint, thinners, solvents, and pesticides onto the seawall. Since 1993, Building 26 has been used for the storage of flammable materials. Pesticides (4,4'-DDE and 4,4'-DDT) were detected in shallow soils around the foundation of Building 25. The estimated volume of contaminated soil was 2 to 5 yd^3. Pesticides were also detected in the marine sediments at depths greater than 4 to 8 inches, below the biologically active zone. (U.S. Navy 2004b).

3.4.3 Area 44

Area 44, the Nose Hangar, which has since been demolished, is located at the northern end of a large paved apron area east of Marina Drive. In the 1940s and 1950s, the Nose Hangar was used as a service and maintenance center for seaplanes. Operations included steam cleaning and washing, fueling, lubricating, and parts cleaning. Numerous 1- to 100-gallon AVGAS spills were reported that may have been washed into Oak Harbor through the Area 44 storm drain system. As of 1993, only the foundation and concrete apron remained, and the area was used for storage of recreational boats and vehicles. Lead and arsenic were identified in the sediments in the storm drain system (catch basin, sump, and manhole), as well as in the surface soils adjacent to the sump at the north edge of the concrete apron. The estimated volume of contaminated soils was 20 to 30 yd^3. In addition, bis (2-ethylhexyl)phthalate was detected in surficial (0 to 4 inches) and subsurface (4 to 36 inches) sediment samples (U.S. Navy 2004b).

3.4.4 Area 48 and Area 49

Areas 48 and 49 are located to the east of the main Seaplane Base area immediately adjacent to Crescent Harbor. Area 48 was a salvage yard for the Seaplane Base from the 1940s to the late 1960s or early 1970s. In the mid-1960s, a fire involving stored flammable materials occurred there, which reportedly resulted in unknown quantities of solvents, thinners, strippers, and paints being spilled onto the ground and marsh area. Area 49 was a 3- to 4-acre landfill used between 1945 and 1955 to receive all of the solid waste from Seaplane Base operations. Seaplane Base repair and maintenance operations may have disposed of solvents, degreasers, paints, thinners, and strippers at this landfill. Both Area 48 and Area 49 were covered with native grasses and have been used for recreational purposes since 1993. At the salvage yard in Area 48, PAHs were detected in soil samples. At Area 49, PAHs were detected in groundwater samples and in one marine sediment sample (0- to 4-inch depth). PCBs were detected in one subsurface (4 to 36 inches) sediment sample at Area 49 (U.S. Navy 2004b).

There is an area of wetlands located just north of Areas 48 and 49, and the City of Oak Harbor operates a 20-acre wastewater stabilization lagoon within these wetlands. The outfall from the wastewater stabilization lagoon runs east of the former landfill and extends approximately 3,000 feet offshore. Historically, the wetland was a saltwater marsh. However, the beach-line has since been built up with riprap, essentially cutting off the saltwater marsh. The wetland is hydraulically upgradient of Areas 48 and 49 and is fed by off-area streams. The groundwater is brackish and is tidally influenced. The ground slopes from the built-up area along the seawall toward East Pioneer Way. There is no drainage, nor are there culverts under the road. In Areas 48 and 49, rainwater ponds during heavy rains and eventually infiltrates the ground.

3.5 OPERABLE UNIT 5

OU 5 is composed of the following three areas located on Ault Field (Figure 3-4):

- Area 1, Beach Landfill

- Area 31, Runway Fire Training Area
- Area 52, Jet Engine Test Cell

Area 31 was originally included as part of OU 3. However, based upon the need for further study and evaluation and to avoid delaying the cleanup at the other OU 3 area (Area 16), Area 31 was transferred to OU 5 (U.S. Navy 2004b).

Both Areas 1 and 52 are located adjacent to the Strait of Juan de Fuca, a tidally influenced saltwater body. Groundwater occurs under unconfined conditions within the beach deposits and glacial sands and gravels beneath the fill at both areas. During seasonal wet periods, groundwater may rise into the bottom of the fill materials. Groundwater beneath Areas 1 and 52 generally moves northwesterly to the strait. However, water table fluctuations may cause variations in the direction of flow where seasonal water table and daily tidal fluctuations affect the groundwater gradient (U.S. Navy 2004b).

3.5.1 Area 1

Area 1 is a 6-acre landfill located west of the intersection of Saratoga Street and Princeton Street and running parallel to the Strait of Juan de Fuca. The area originally consisted of low-lying beach ridges with several salt marshes seaward of the historical bluff located west of Saratoga Street. The area is now at an elevation similar to that of the former bluffs and has been completely filled in by Navy construction activities. Two small marsh areas remain: the central marsh, located in the middle of the landfill, which serves as a retention pond for a storm drain from Saratoga Street, and the southern marsh, located at the southwestern end of the landfill. The topography of Area 1 consists of a series of manmade terraces descending approximately 30 feet from Saratoga Street to the beach. The landfill is located in the terraced area. Vegetation covers Area 1, with the exception of locations where wave actions have eroded the toe of the bluff. Area 1 was used for disposal of demolition and construction debris from the construction of Seaplane Base between the 1940s and 1970s. Some of the waste was not only deposited, but burned at the landfill from 1945 to 1958. Because the waste was burned, products of incomplete combustion may exist in the fill material. Erosion along the beachfront has exposed the fill in many areas. Timbers, refuse, metal, and concrete blocks are present in the exposed areas along the shoreline bluff. The approximately 10-foot-high shoreline bluff that bounds the western edge of the landfill is situated above the high tide line. The bluff descends to a narrow beach consisting of fine to coarse sand and cobbles.

Fresh surface water and sediment samples were collected from three locations and analyzed during the RI. Soil samples were collected at four soil boring locations and two test pit locations during the RI. Groundwater samples were collected from two wells and five sand point wells during the RI. Sand point wells were installed along the edge of the landfilled area in beach deposits (U.S. Navy 1995a).

The screening level risk assessment found no potential for significant human health risks, and no human health COC was defined at Area 1. Chemicals exceeding ecological risk-based screening levels in Area 1 surface water were Aroclor 1260, cadmium, chromium, copper, bis(2-ethylhexyl)phthalate, mercury, 2-methylnaphthalene, vanadium, and zinc. Chemicals exceeding ecological risk-based screening levels in Area 1 sediments were Aroclor 1254, copper, bis(2-ethylhexyl)phthalate, lead, nickel, and zinc (U.S. Navy, Ecology, and USEPA 1996).

3.5.2 Area 31

Area 31, which occupies approximately 20 acres on the northern perimeter of the base, is located approximately 400 yards northeast of the intersection of Runways 13-31 and 7-25. The area was used for firefighting training from 1967 to 1982. Waste fuels such as AVGAS and JP-5, waste oil, solvents, thinners, and other flammable materials were ignited and extinguished in a shallow concrete burn pad. The entire area encompasses 1 to 2 acres, sloping gently southwest. The burn pad, roughly 50 by 50 feet, consists of a retaining lip around the perimeter and a floor that slopes toward a drain in the center. A mixture of flammable liquids used for firefighting training was stored in an underground storage tank (UST) in the southeast corner of the area, approximately 175 feet from the burn pad. Oily water from the burn pad was drained through underground piping to an oil/water separator located in the southwest corner of the drill area, approximately 200 feet from the burn pad. After water was separated from floating product in the oil/water separator, it was discharged to a small earthen ditch that led to a depression in the southwest portion of Area 31 and subsequently drained to the runway ditches. The remains of some of the materials burned on the pad were removed from the pad and piled in various areas on or near the perimeter of the drill area. The piles consisted of ash and metal debris, including landing gear components and other aircraft parts (U.S. Navy 2004b).

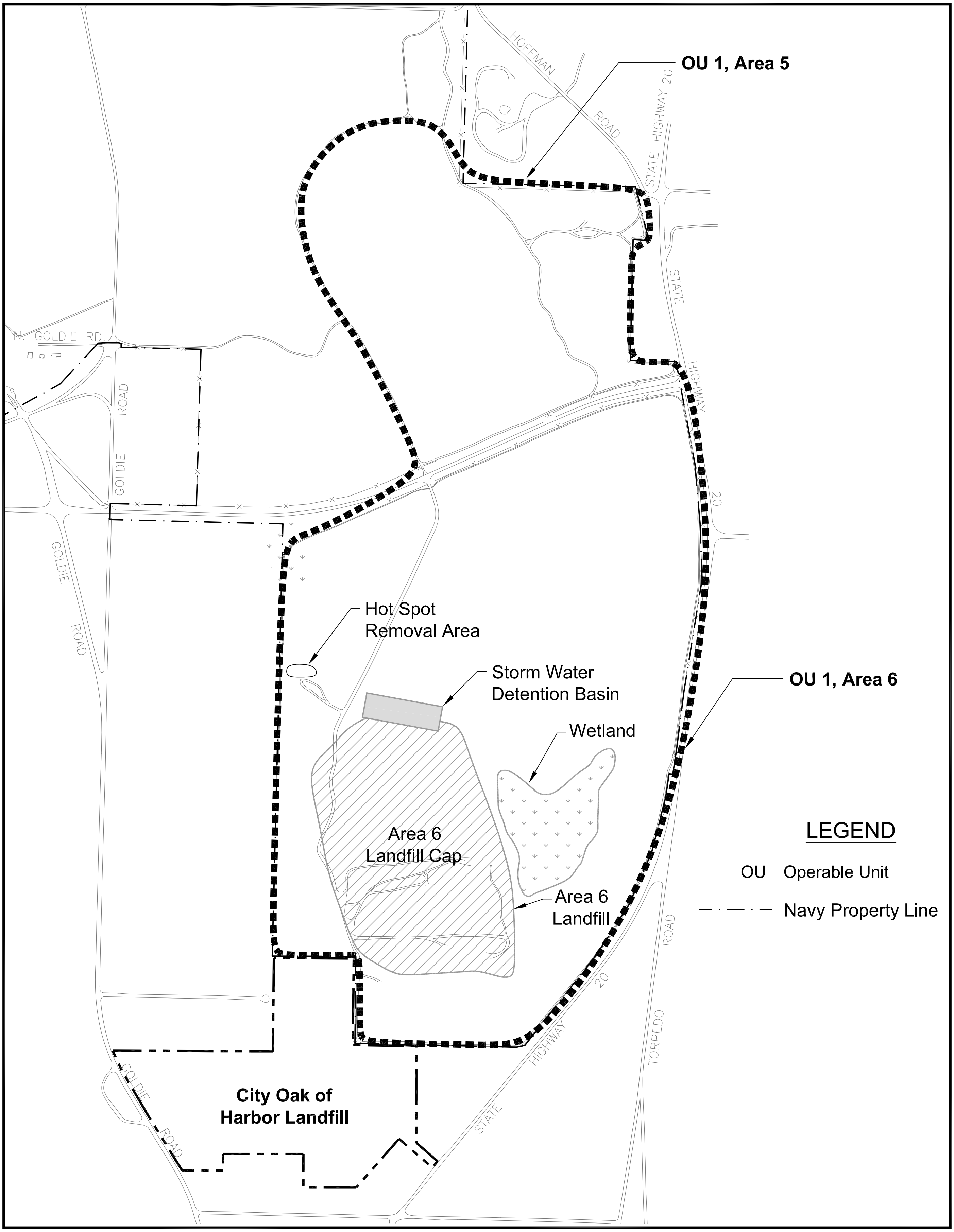
Three phases of environmental sampling have occurred at Area 31. During the OU 3 RI Phase I (June to August 1992) and RI Phase II (December 1992), environmental sampling was conducted that involved the collection of surface and subsurface soil, groundwater, and ditch sediment samples. Phase III environmental sampling consisted of three separate investigations (September to October 1994, January to February 1995, and Fall 1995) and involved the removal of one 4,000-gallon UST; collection of subsurface soil samples near the UST and associated piping; surface soil sampling near the burn pad and oil/water separator; subsurface soil sampling near the oil/water separator; removal of PCB-contaminated surface soils and confirmation sampling of surface soils; groundwater sampling near the oil/water separator; and collection of soil and groundwater samples from three monitoring wells/boreholes in the vicinity of the former UST.

Manganese, chloroform, 1,2-dichloroethane, styrene, vinyl chloride, and floating petroleum product on the groundwater surface were identified as COCs in groundwater at Area 31 (U.S. Navy, Ecology, and USEPA 1996).

3.5.3 Area 52

Area 52 is an active facility where jet engines are tested. The area is located southwest of the intersection of Saratoga Street and Enterprise Road (U.S. Navy 2004b). The jet engine test cell area is paved, and the test cell building and associated support facilities are located in the center of the area. The vegetation at Area 52 consists of grasses and shrubs, and the unpaved western portion of the area was maintained as a volleyball court. Area 52 has also been elevated to its current topography by the historical placement of fill materials into a low marsh area. Two 10,000-gallon underground jet fuel storage tanks were located east of Saratoga Street. The aboveground ancillary equipment is enclosed within a chain link fence. An underground fuel supply line runs from the tanks to the engine test facilities. Several buried utilities, a large storm drain, and other underground pipelines exist in the vicinity. Product releases associated with Area 52 include jet fuel, waste oil, and solvents. Two major releases of jet fuel were documented in 1986 and 1987, and the spills reportedly occurred when the two USTs were being filled. It was estimated that approximately 1,200 gallons of jet fuel was released from each spill and an unquantified portion of the spilled product was recovered at the time of the spill event. Another potential source of non-jet fuel waste was identified near the northwest corner of Building 2610, which was identified as a suspected dry well. Investigations at the site identified floating petroleum product on the groundwater surface at Area 52 (U.S. Navy 2004b).

The screening level risk assessment found no potential for significant human health risks, and no human health COC was defined at Area 52. Floating product on the groundwater was identified to present a potential risk to the adjacent marine environment.



FILENAME: T:\WHIDBEY\DO 27_5 YR REVIEW\FIG 3-1 OU 1.dwg
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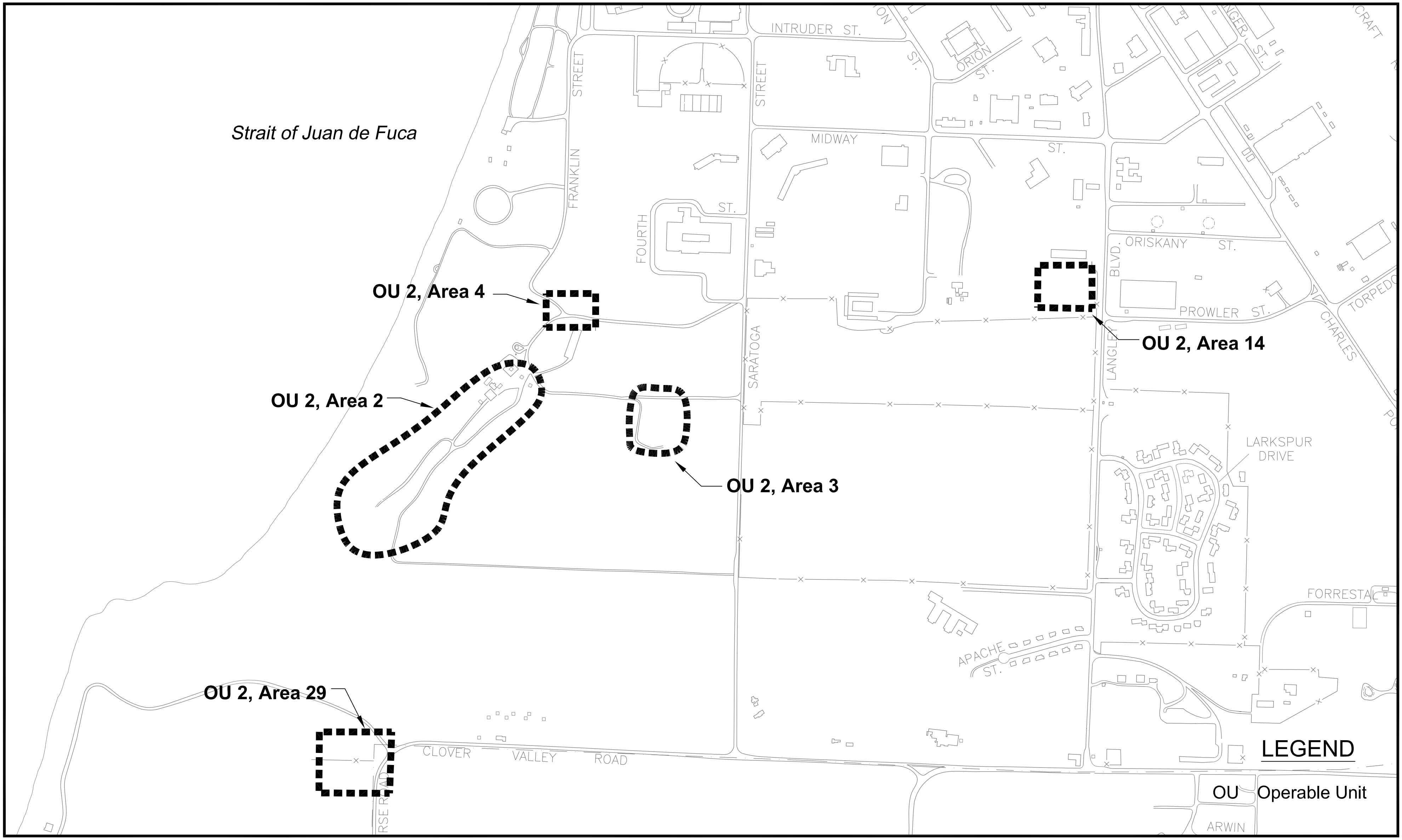
U.S. NAVY	NAS Whidbey Whidbey Island, WA THIRD 5-YEAR REVIEW	N 0 250 500 1,000 SCALE IN FEET	**Figure 3-1** **NAS Whidbey, OU 1**



U.S. NAVY

0 250 500 1,000
SCALE IN FEET

Figure 3-2
NAS Whidbey, OU 2

NAS Whidbey
Whidbey Island, WA
THIRD 5-YEAR
REVIEW

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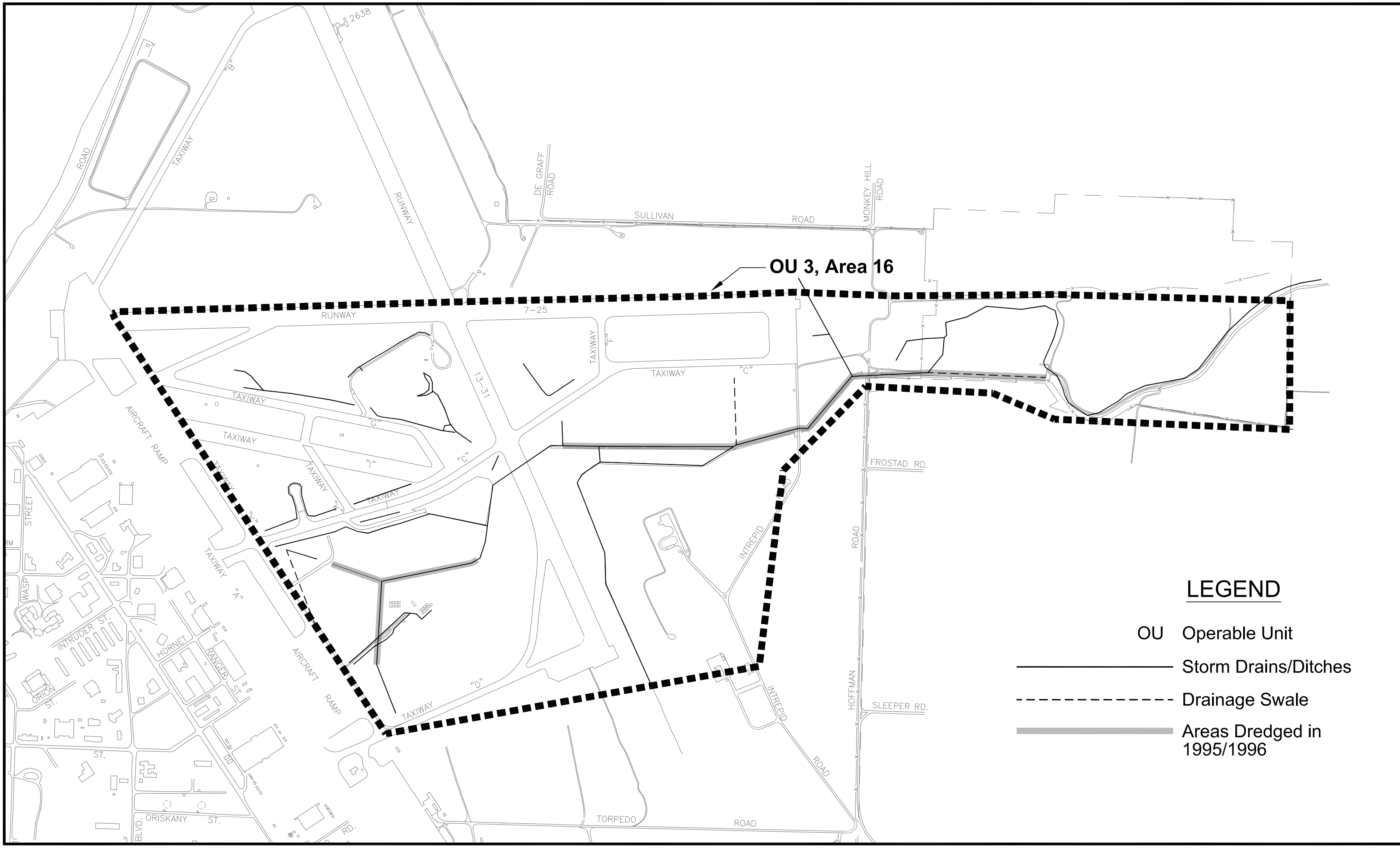

U.S. NAVY

0 750 1,500
SCALE IN FEET

Figure 3-3
NAS Whidbey, OU 3

NAS Whidbey
Whidbey Island, WA
THIRD 5-YEAR REVIEW

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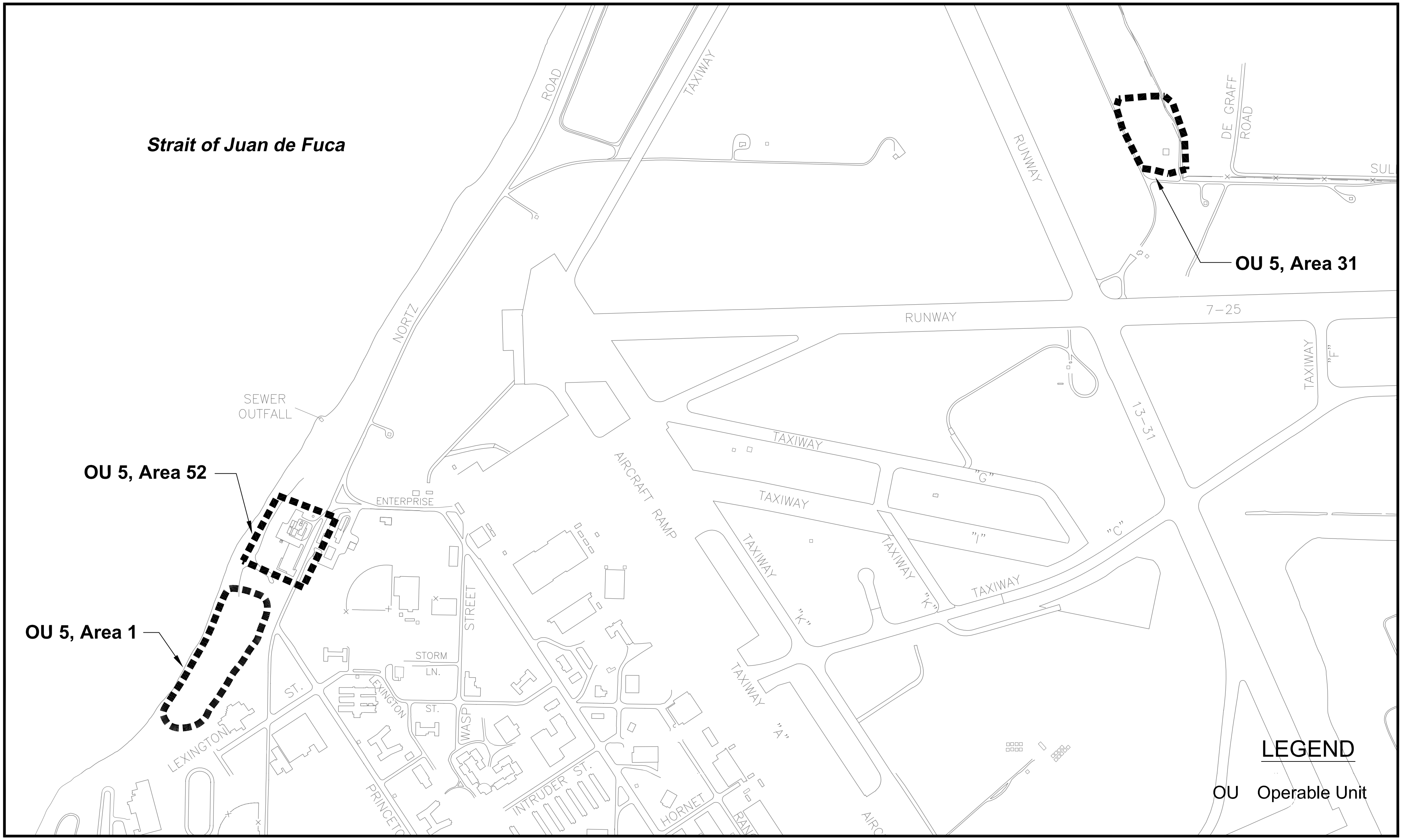

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SCALE IN FEET

Figure 3-4
NAS Whidbey, OU 5

NAS Whidbay
Whidbey Island, WA
THIRD 5-YEAR
REVIEW

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4.0 REMEDIAL ACTIONS

The RODs for NAS Whidbey Island required remedial actions for OUs 1 through 5. This section summarizes the ROD-specified remedial action objectives (RAOs), ROD-specified remedies, remedy components and implementation, current, ongoing, operation, maintenance, and monitoring requirements for each of the OUs.

4.1 OPERABLE UNIT 1

4.1.1 OU 1 Remedial Action Objectives

Area 5

Ecological risk was identified for sediments and surface water in the wetlands adjacent to Area 5. No source area was identified, and it was determined that remedial action would cause more environmental harm than the low levels of existing chemical contaminants (U.S. Navy 1998). As a result, no RAOs were established for OU 1, Area 5.

Area 6

The primary RAOs established in the ROD for OU 1, Area 6 are the following:

- Reduce concentrations of contaminants that have already migrated into the shallow aquifer with the ultimate goal of meeting state and federal drinking water standards at point of compliance locations.

- Prevent the further spread of VOCs in the shallow aquifer and treat extracted water to meet state and federal standards prior to discharge.

- Reduce the potential risk to existing and future groundwater users downgradient of the site.

- Minimize infiltration of rainwater in the Area 6 landfill operations area to prevent leachate generation and migration into groundwater.

- Prevent potential impacts to downgradient surface water bodies and aquatic organisms as a result of stormwater erosion of the surface soils at the Area 6 landfill operations area.

- Prevent exposure to contaminants within subsurface soil and debris in the landfill operations area.

4.1.2 OU 1 Selected Remedy

Area 5

Since no source area was identified at Area 5 and it was determined that remedial action would cause more environmental harm than the low levels of existing chemical impacts, no action was deemed necessary for Area 5. The U.S. Navy decided to conduct additional sampling and monitoring to assess whether metals concentrations in groundwater were consistent with background levels, or elevated above levels of concern for human health (U.S. Navy, Ecology, and USEPA 1992).

Area 6

The final remedy selected for Area 6 was a combination of landfill capping and groundwater control actions (i.e., groundwater extraction, treatment by air stripping, and groundwater recharge). Significant components of the selected remedial action included the following:

- Capping the landfill operations area trenches with a minimum functional standards (MFS) cap
- Assessing the interim action extraction system to ensure that it achieves aquifer cleanup levels and to determine the need for additional source area extraction wells
- Extracting groundwater from the shallow aquifer at the western boundary of the landfill, treating it by air stripping, and returning the treated groundwater to the shallow aquifer at an on-site location
- Monitoring groundwater in the shallow, intermediate, and deep aquifers to assess the effectiveness of the groundwater treatment system
- Monitoring private drinking water wells in the vicinity of the landfill
- Implementing institutional controls

4.1.3 OU 1 Remedy Components and Implementation

Area 5

Groundwater monitoring was conducted at Area 5 in support of the first 5-year review. Based on those results, it was concluded that groundwater use restrictions that prohibit installation of potable water wells at Area 5 should be implemented (U.S. Navy 1998 and U.S. Navy 2004b). An Explanation of Significant Difference has been prepared to clarify implementation of land use controls at NAS Whidbey Island (see Section 5).

Land use controls implementation is described in Section 4.6.

Area 6

The groundwater containment/treatment system began operation in 1996 as an interim action at the site. The system includes the following major elements:

- Groundwater extraction wells (PW-1 through PW-10)
- Equalization tank
- Sodium hypochlorite injection system (not used)
- Particulate filters
- Packed column air stripper
- Discharge piping
- Miscellaneous pumps, controls, instrumentation, and appurtenances

Groundwater is pumped from the extraction wells into an approximately 91,000-gallon-capacity, single-walled steel, aboveground equalization tank (25 feet in diameter and 25 feet high) for subsequent filtration and treatment by an air stripper system. Treated groundwater is discharged to a low lying area for surface re-infiltration. The system extracted and treated between 16,000,000 and 18,000,000 gallons per month during the first quarter of 2007 (U.S. Navy 2007a).

Site conditions and containment system performance is monitored using 34 groundwater monitoring wells. The final remedy incorporated the interim groundwater extraction and treatment system (U.S. Navy, Ecology, and USEPA 1993a). Extraction wells PW-1 through PW-7 were installed as part of the interim remedy. Extraction wells PW-8, PW-9, and PW-10 were installed as part of the final remedy.

Construction of the landfill cap began in May 1996 and was completed in October 1996 when the final cover soil was hydroseeded. The cap consists of several layers as follows (from bottom to top):

- Structural fill
- Support layer—high-strength woven geotextile
- Gas collection layer—sand with perforated high-density polyethylene (HDPE) gas collection and vent pipes
- Secondary liner—geosynthetic clay liner (GCL)
- Primary liner—polyvinyl chloride (PVC) membrane
- Drainage layer—geocomposite liner with perforated HDPE drainage pipe
- Soil cover layer

Together these layers make up the landfill cap that is designed to limit the infiltration of stormwater through the waste, thereby preventing contamination of the aquifer from waste within the landfill (FWEC 1997b).

An interim removal action was conducted during 2001. The interim removal action was performed to address vadose zone contamination from the industrial waste disposal area. The objective of the interim removal action was to reduce the source of contamination potentially affecting groundwater at the site, thereby shortening the duration of the groundwater containment/treatment remedy component. The interim action included excavation, transport, and treatment and/or disposal of contaminated soils from the former waste oil pit. Excavation activities started on September 24, 2001, and continued through November 8, 2001. The removal action was limited by the reach of excavation equipment. As a result, not all of the COCs identified in subsurface soil were removed.

Approximately 1,360 yd^3 (2,040 tons) of soil was excavated and designated as nonhazardous waste. This soil was treated off site at TPS Technologies, Inc. of Tacoma, Washington, using thermal desorption and then disposed of. Approximately 600 yd^3 (901 tons) of soil was excavated and designated as hazardous waste and was sent to Chemical Waste Management for direct landfill disposal. Approximately 354 yd^3 (531 tons) of soil was excavated and designated as hazardous and landfill disposal (land ban) restricted. This soil was sent to Chemical Waste Management for pretreatment (bioremediation) and disposal in a permitted landfill (FWEC 2002).

4.1.4 OU 1 Ongoing Operation, Maintenance, Monitoring, and Land Use Controls

Area 5

One-time groundwater monitoring was conducted at Area 5 to determine whether metals levels were consistent with background, or elevated above levels of concern for human health. Based on these results, it was concluded that groundwater use restrictions that prohibit installation of potable water wells at area should be implemented (U.S. Navy 1998 and U.S. Navy 2004b). No additional action or monitoring was recommended in the second 5-year-review (Navy 2004b).

Inspections for land use controls are conducted and reported as described in Section 4.6. An Explanation of Significant Difference (U.S. Navy 2007e), finalized in October, formalizes land use controls at NAS Whidbey Island.

Area 6

Operation of the extraction wells, treatment plant, and recharge system is currently performed in accordance with the operations and maintenance manual. Inspection and maintenance for the low permeability cap covering the landfilled area are also performed in accordance with the operations and maintenance manual (FWEC 2003).

Treatment plant system influent and effluent is monitored monthly for VOCs and quarterly for 1,4-dioxane. A groundwater extraction well and groundwater monitoring well sampling schedule is shown as Table 4-1. The monitoring schedule shown on Table 4-1 was implemented in February 2008. Shallow, intermediate, and deep wells are regularly monitored to evaluate treatment system performance and track VOCs. Intermediate and deep wells are monitored to assess the possibility of vertical migration between these units. Private wells located around the Area 6 landfill were monitored for VOCs from 2005 to 2006. Other private wells to the southeast were monitored quarterly in 2005 and 2006 for 1,4-dioxane (U.S. Navy 2007a).

1,4-Dioxane was not identified in the ROD as a COC. As such, the treatment plant was not designed to treat extracted water containing this compound. Treated water with concentrations of 1,4-dioxane greater than the Model Toxics Control Act (MTCA) Method B cleanup level is being reinfiltrated into the subsurface. This also may extend site restoration time.

Inspections for land use controls are conducted and reported as described in Section 4.6. An Explanation of Significant Difference (U.S. Navy 2007e), finalized in October, formalizes land use controls at NAS Whidbey Island.

4.2 OPERABLE UNIT 2

4.2.1 OU 2 Remedial Action Objectives

The primary RAOs established in the ROD for OU 2 are the following (U.S. Navy, Ecology, and USEPA 1994):

- Reduce risks to hypothetical future residents from groundwater contaminants at Areas 2/3.
- Reduce the health risk to hypothetical future residents and the environmental risk to small mammals by remediating surface and near-surface soil containing PCBs, PCP, and MCPP at Area 4 to meet state and federal standards.
- Reduce risks to hypothetical future residents by removing the sources of organic contamination (i.e., the dry well and surrounding soils) at Area 14.
- Reduce future exposure to Area 29 soil containing residual organic compounds that exceed state regulatory limits or present ecological risks.
- Reduce risks to hypothetical future residents from inorganic groundwater contaminants at Areas 4 and 29 by implementing residential use deed restrictions and, if necessary, implementing groundwater use restrictions.
- Minimize the potential for migration of contaminants from surface soils to surface water or other media at Areas 4, 14, and 29.

4.2.2 OU 2 Selected Remedy

Areas 2/3

A combination of land use controls and a 6-month groundwater monitoring program was selected as the remedy for Areas 2/3. The intent of the groundwater monitoring program was to confirm that concentrations of inorganics in groundwater were within background levels and below risk-based levels. Two rounds (one in wet season, one in dry season) of groundwater samples were to be collected from OU 2 background wells and Areas 2/3 monitoring wells for analysis of total and dissolved metals. In addition, the ROD specified that groundwater was to be monitored for VOCs, concurrent with the inorganic sampling, and annually until the initial 5-year review (U.S. Navy, Ecology, and USEPA 1994).

Area 4

Excavation and off-site disposal of approximately 1,750 yd^3 of PCB-contaminated soil was the selected remedy for Area 4. The excavation was to be extended to an approximate depth of 3 feet; samples of the excavated soils were to be analyzed by toxicity characteristics leaching procedure (TCLP) to determine whether stabilization was required; and the soils were to be transported off site to a Toxic Substances Control Act-permitted landfill for final disposal. Confirmatory sampling was to be conducted to verify that cleanup levels had been met for the COCs (PCBs less than or equal to 1 ppm; PCP less than or equal to 8.33 ppm; and MCPP less than or equal to 80 ppm), and the excavated area was to be backfilled with clean soil and seeded. In addition, low-stress groundwater monitoring was to be conducted to determine the level of inorganics in the groundwater for both on-area and background wells. It was determined that if the concentrations of inorganics exceeded established cleanup level objectives, then further actions such as land use controls might be required (U.S. Navy, Ecology, and USEPA 1994).

Area 14

The selected remedies for Area 14 were the following:

- Pumping out of the dry well and monitoring well 14-MW-1
- Treatment of the extracted water (approximately 1,000 gallons) by carbon adsorption
- Disposal of the treated water to a publicly owned treatment work
- Excavation of the dry well, monitoring well, and approximately 420 yd^3 of surrounding contaminated soil
- Off-site disposal of the excavated soils and decontaminated well casings

Samples of the excavated soil were to be analyzed by TCLP to determine if solidification (treatment to immobilize contaminants within a solid mass such as concrete) was required prior to disposal. Confirmatory sampling was to be conducted to determine whether cleanup levels had been met for the COCs (dioxin less than or equal to 0.0067 ppb and bromacil less than or equal to 7.0 ppm), and the excavated area was to be backfilled and revegetated. Following soil removal, monitoring well 14-MW-1 was to be reinstalled downgradient of its original location and groundwater sampled during the wet season to confirm that the remediation effectively reduced 2,4-dichlorophenol and bromacil in the groundwater to below cleanup levels (less than or equal to 48 ppb and less than or equal to 70 ppb, respectively).

Area 29

Excavation and disposal of approximately 1,400 yd^3 of PCP- and PAH-contaminated soil from several locations surrounding the burn pad was the selected remedy for Area 29. The soil was to be excavated to a depth of approximately 3 feet and transported to the NAS Whidbey Island landfill at Area 6 for final disposal. The timing of disposal was to be coordinated such that it would be placed in the Area 6 landfill prior to installation of an MFS cap at Area 6. Confirmatory sampling was to be conducted to verify that cleanup levels had been reached (PCP less than or equal to 8.33 ppm and PAH less than or equal to 1 ppm), and the excavation was to be backfilled with clean soil and reseeded. In addition, low-stress groundwater monitoring was to be conducted to determine the level of inorganics in the groundwater for both on-site and background wells. If it was determined that concentrations of inorganics in the groundwater exceeded established cleanup level objectives, then further actions such as land use controls might be required.

4.2.3 OU 2 Remedy Components and Implementation

Approximately 5,000 yards of soil was excavated from Areas 4, 14, and 29 during October 1995 (U.S. Navy 1998). Excavated soil was disposed of at an off-site CERCLA facility based on the waste designation. EPA conducted an inspection on July 11, 1996 and confirmed by letter on July 24, 1996 that all cleanup actions required by the OU 2 ROD had been completed (U.S. Navy 1998).

4.2.4 OU 2 Operation, Maintenance, Monitoring, and Land Use Controls

Post-ROD groundwater monitoring indicated the need for additional groundwater monitoring at the time of the second 5-year review at Areas 2/3 (inorganics and VOCs), Area 4 (inorganics), and Area 29 (inorganics). Groundwater monitoring has been conducted at Areas 2/3, 4, and 29 in 5-year cycles. No additional action was required for Area 14 (U.S. Navy 1998).

Inspections for land use controls are conducted and reported as described in Section 4.6. An Explanation of Significant Difference (U.S. Navy 2007e), finalized in October, formalizes land use controls at NAS Whidbey Island.

4.3 OPERABLE UNIT 3

4.3.1 OU 3 Remedial Action Objectives

The baseline risk assessment did not demonstrate a need to take remedial action at Area 16 (the runway ditches) to protect human health. It did identify ecological risks relative to sediments (U.S. Navy, Ecology, and USEPA 1995).

The primary RAOs established in the ROD for OU 3 are the following:

- Reduction of current ecological risks posed by COCs in the ditch sediments
- Reduction of future human health risks that may occur if contaminated sediments are dredged for ditch maintenance purposes and placed on the ditch banks, where the sediments will become soil and could result in human exposures to COCs via soil exposure pathways

4.3.2 OU 3 Selected Remedy

The components of the selected remedy for OU 3 are the following (U.S. Navy, Ecology, and USEPA 1995):

- Sample and analyze sediments in the ditch segments identified as contaminated during the RI to determine the extent of contamination that needs to be removed.
- Compare the sample results to Resource Conservation and Recovery Act (RCRA) criteria for toxicity characteristic wastes (i.e., TCLP criteria in 40 CFR 261.24) to determine whether the dredged sediments would need to be treated and disposed of as hazardous waste or dangerous waste.
- Dredge the sediments from those portions of the ditch segments determined by the sampling to be contaminated above with the selected cleanup levels.
- For those sediments determined to be non-hazardous waste, haul and place the dredged sediments at the Area 6 landfill so they will be incorporated under the final cover.
- For any sediment determined to be hazardous waste, haul the dredged sediments to a permitted off-area facility for appropriate treatment and disposal.

4.3.3 OU 3 Remedy Components and Implementation

The initial 5-year review noted that remediation was completed in April 1996 as designed and no modifications were required. Approximately 6,000 yd^3 of sediment were excavated and transported to the Area 6 landfill (FWEC 1997c). The OU 3 remedies were considered complete, and the initial 5-year review concluded that OU 3 would not be subject to future 5-year reviews because no hazardous substances, pollutants, or contaminants remained on site above levels that would not allow for unlimited use and unrestricted exposure (U.S. Navy 1998).

Current EPA guidance (USEPA 2001) requires that 5-year reviews at NAS Whidbey Island include OU 3 because of land use controls encompassing Area 16 that do not allow for the unlimited use of Area 16. As a result, Area 16 was included in the second 5-year review and is included in this review (U.S. Navy 2004b). The Navy has been allowed to place material dredged from ditches during routine maintenance on the ditch banks. In order to do this, areas 50 feet from either side of bank centerlines have been designated as industrial areas. As a result, land use controls have been implemented at OU 3 to maintain this industrial designation.

4.3.4 OU 3 Operation, Maintenance, Monitoring, and Land Use Controls

Six sediment samples were collected in December 2002 along the centerlines of selected Area 16 drainage ditches. All samples were analyzed for TPH, PAHs, arsenic, and lead (U.S. Navy 2004b).

Sixteen sediment samples and 4 stream bank soil samples were collected at Area 16 during September 2006 and analyzed for the same constitutes (U.S. Navy 2006a). The intent of this sampling was to determine whether the prior (2002) sampling results, completed as part of the second 5-year review, indicated potential recontamination within the ditches.

In addition to the confirmatory nature of this sampling, bank soils were also sampled to determine if recently dredged materials stored on the banks of the ditches would exceed standards as an MTCA Industrial Soil and would require disposal off site (U.S. Navy 2006d). Maintenance dredging is routinely conducted in selected areas to remove vegetation and to maintain unrestricted water flow within the runway ditch system. This maintenance dredging program is generally aimed at periodically removing vegetation from choke points in the drainage system, primarily in and around culverts. Long-term dredging is conducted on a much less frequent interval to remove sediments throughout the drainage system. Neither dredging is a requirement of the ROD, but is conducted to maintain water flow through the system.

Inspections for land use controls are conducted and reported as described in Section 4.6. An Explanation of Significant Difference (U.S. Navy 2007e), finalized in October, formalizes land use controls at NAS Whidbey Island.

4.4 OPERABLE UNIT 4

4.4.1 OU 4 Remedial Action Objectives

The primary RAOs established in the ROD for surface soils at OU 4 Areas 39, 41, 44, 48, and 49 are the following (U.S. Navy, Ecology, and USEPA 1993b):

- Minimize contamination of surface soil.
- Minimize direct contact of humans and animals with COCs in soil/sediment.
- Reduce concentrations of contaminants in the surface soil and Area 44 storm drain system sediments to comply with applicable state and federal regulations.
- Prevent further migration of the contaminants.

The ROD concluded that no action was necessary for groundwater at OU 4.

The ROD concluded that the marine environment would be harmed more by marine sediment cleanup activities than if the contaminated marine sediments were left in place; therefore, it was decided that marine sediments would not be remediated.

The ROD concluded that damage to the environment from remediation of the wetland north of Areas 48 and 49 would be greater than the potential benefit of such remediation. Therefore, it was decided that the wetland would also not be remediated. In an effort to establish that no contaminant migration pathways exist between Areas 48 and 49 and the wetland, it was decided that surface water samples would be collected at five locations and groundwater samples would be collected from four existing monitoring wells.

4.4.2 OU 4 Selected Remedy

Area 39, Area 41, and Area 48

The selected remedy for Areas 39, 41, and 48 was excavation of contaminated soils and on-station disposal at the NAS Whidbey Island Ault Field Area 6 landfill. The soil removal from Areas 39, 41, and 48 was intended to meet regulatory soil cleanup standards established under the MTCA for the COCs (U.S. Navy, Ecology, and USEPA 1993b).

Area 44

The remedy selected from Area 44 was excavation, treatment if needed, and off-area disposal at an approved landfill of 1 yd^3 of sediment and approximately 30 yd^3 of surface soil and catch basin cleaning.

Area 49

The remedy for Area 49 is inclusion of notification regarding the existence of a historical construction and demolition debris landfill on the deed when and if the Navy disposes of the property.

4.4.3 OU 4 Remedy Components and Implementation

The remedial actions at OU 4 were conducted in accordance with the final remedial design report and remedial action work plan, (U.S. Navy 1994c). The remedial action report documents the remedial actions at OU 4 (Ebasco 1995). Approximately 456 yd^3 of surface soil were removed from Area 39, 5 yd^3 of shallow soil were removed from Area 41, and approximately 1,000 yd^3 of surface soil were removed from Area 48.

The storm drain sumps, catch basins, and manhole in Area 44 were visually inspected to confirm that they were clean following removal of approximately 1 yd^3 of accumulated sediment (Ebasco 1995). The removal was conducted in compliance with standards established under MTCA for the identification and disposal of soils classified as dangerous waste. The surface soils and sediments from the storm drain system were treated prior to disposal if they were designated as dangerous or extremely dangerous waste.

4.4.4 OU 4 Operation, Maintenance, Monitoring, and Land Use Controls

Except for land use control inspections, there are no maintenance or monitoring requirements for the sites in OU 4. Inspections for land use controls are conducted and reported as described in Section 4.6. An Explanation of Significant Difference (U.S. Navy 2007e), finalized in October, formalizes land use controls at NAS Whidbey Island.

4.5 OPERABLE UNIT 5

4.5.1 OU 5 Remedial Action Objectives

The primary RAOs established in the ROD for OU 5 Areas 1, 31, and 52 are presented below (U.S. Navy, Ecology, and USEPA 1996).

Area 1

Based on the human health risk assessment, the ROD concluded that no action was required at Area 1 for protection of human health. Exposure to chemicals in groundwater was not evaluated because groundwater is not a potential source of drinking water. RAOs were not developed for Area 1 soils because the soils did not pose current or potential future human health risks exceeding the CERCLA risk range, and no clear ecological risk was present.

The ecological risk assessment indicated no significant potential for adverse impacts to aquatic animals attributable to Area 1 surface water. Several COCs (lead, mercury, zinc, Aroclor 1254, Aroclor 1260, and diesel-range petroleum hydrocarbons) have been identified whose concentrations in surface water exceed regulatory criteria. However, no COCs exceed regulatory criteria in surface water from the drainage downgradient of the wetland in the middle of the Area 1 landfill. The source of these chemicals appears to be upgradient stormwater drainage, and the wetland functions to remove these chemicals from surface water before it discharges to the marine environment. Because no risks are associated with these chemicals and the wetland naturally removes these chemicals from surface water, no RAOs have been developed for Area 1 surface water. The ecological risk assessment indicated no significant potential for adverse impacts to birds and mammals attributable to Area 1 sediments. COCs (lead and Aroclor 1254) have been identified whose concentrations in sediments exceed state soil cleanup levels. However, the MTCA Method B soil cleanup levels were used in the RI for comparison purposes. As a result, RAOs were not developed for Area 1 sediments (U.S. Navy, Ecology, and USEPA 1996).

Based upon human health and ecological risk assessments, the RAO for Area 1 was to confirm protection of ecological receptors in the marine environment by determining compliance with the water quality standards for marine surface waters at the point of groundwater discharge (U.S. Navy, Ecology, and USEPA 1996).

Area 31

The baseline risk assessment estimated that current and future human health risks were within the acceptable CERCLA risk range for soil at Area 31. However, lead concentrations in an isolated area of ash and adjacent ditch surface sediment could pose a potential human health risk. The ecological risk assessment indicated the potential for adverse ecological effects because of COCs in the upper 2 feet of Area 31 surface soil. Subsurface soil (below 2 feet) was not evaluated in the ecological risk assessment. The ecological risk assessment identified lead and dioxin in surface soil as COCs that may cause potential adverse effects to the masked shrew. No significant ecological risks were identified for other mammals, raptors (e.g., hawks and owls), or herbivorous birds. The ecological risk assessment concluded that potential risks to the shrew are highly uncertain. Therefore, RAOs based on protecting the masked shrew were not developed (U.S. Navy, Ecology, and USEPA 1996).

Exceedances of chemical-specific ARARs (MTCA cleanup levels) were identified for beryllium, lead, Aroclor 1260, dioxins, indeno(l,2,3-cd)pyrene, and petroleum hydrocarbons in soil at Area 31. Lead also exceeded the MTCA cleanup level in one ash sample and in one ditch sediment sample. Beryllium is widely distributed in surface and subsurface soil at Area 31. However, because the concentration is not significantly above background, beryllium is not considered a target chemical for remediation (U.S. Navy, Ecology, and USEPA 1996).

RAOs were not developed to address these exceedances of chemical-specific ARARs because soils at Area 31 did not pose current or potential future human health risks exceeding the CERCLA risk range, and potential ecological risks were uncertain and limited to the masked shrew. However, petroleum hydrocarbons found in subsurface soils near the oil/water separator are a source of groundwater contamination. To address this impact to groundwater quality, the ROD specified an RAO for Area 31 soil to reduce the sources of petroleum hydrocarbons in subsurface soils that may cause groundwater contamination (U.S. Navy, Ecology, and USEPA 1996).

To address potential human health risks due to lead in ash and adjacent ditch surface sediment, the ROD specified an RAO of preventing human exposure to lead in ash at concentrations above the EPA soil action level. Two additional remedial action objectives were established for groundwater at Area 31 (U.S. Navy, Ecology, and USEPA 1996):

- Prevent migration of floating petroleum product and dissolved COCs that are present above ARARs in groundwater.

- Prevent human exposure under the future residential scenario to the COCs in groundwater that are present at concentrations above state and federal cleanup levels.

Area 52

Based upon the results of the risk assessments, the following RAOs were established for groundwater at Area 52:

- Prevent the migration of floating petroleum product from groundwater to marine surface water.

- Confirm protection of ecological receptors in the marine environment by determining compliance with the water quality standards for marine surface waters at the point of groundwater discharge.

4.5.2 OU 5 Selected Remedy

Area 1

The components of the selected remedy for OU 5 Area 1 are the following (U.S. Navy, Ecology, and USEPA 1996):

- Establish land use controls to prevent potential future human exposure to landfill contents or groundwater by preventing future development that may disturb the landfill and to prevent the installation of drinking water wells.

- Establish an environmental monitoring program that includes groundwater sampling and biological surveys of the beach.

- Conduct visual inspections of the physical condition of the landfill bluff annually for the first 5 years and document the results.

Area 31

Institutional controls, removal of the oil/water separator, bioventing, and oil skimming were the selected remedy components at Area 31. Land use controls were to be used to prevent human exposure to surface soil, subsurface soil, and groundwater containing COCs above cleanup levels. The oil skimming, oil/water separator removal, and bioventing actions were intended to meet the RAOs of reducing the sources of petroleum hydrocarbons that may cause groundwater contamination and stopping the spread of contaminants. In addition, the Navy was to remove the ash piles at Area 31 and dispose of them in accordance with state and federal regulations. No confirmation sampling was to be conducted for the ash pile removal.

Area 52

Oil skimming was selected as the Area 52 remedy, together with institutional controls and environmental monitoring. Removal of free product was intended to meet the remedial action objective of preventing migration of floating petroleum product from groundwater to marine surface water.

4.5.3 OU 5 Remedy Components and Implementation

Area 1

Land use controls and monitoring, including annual visual inspections of the landfill bluff, were implemented as described in Section 4.5.4 and 4.6, prior to the initial 5-year review. An Explanation of Significant Difference (U.S. Navy 2007e), finalized in October, formalizes land use controls at NAS Whidbey Island. Land use restrictions were entered into the installation restoration area database that is part of the NAS Whidbey Island planning and management model. These include special requirements for any construction activities that may disturb the landfill, including the development of activity-specific health and safety plans, environmental protection plans, and waste management plans. In the event of property transfer, restrictive covenants on the property will be recorded with the Whidbey Island County register of deeds.

Area 31

Removal of the oil/water separator and the ash pile was completed in April 1996. Approximately 32 cubic yards of ash were removed and disposed of in the Area 6 landfill. Five oil skimming wells were installed around the oil/water separator to remove floating product during July 1996. Passive skimming system operation was initiated on July 22, 1996. Ten 2-inch air-injection wells were installed for the bioventing system. Injection well and equipment installation was completed by October 27, 1996. System operation started soon thereafter. Semiannual groundwater monitoring was conducted to confirm system performance (FWEC 1997d). Land use controls limiting site access and prohibiting groundwater use were also implemented at Area 31. An Explanation of Significant Difference (U.S. Navy 2007e), finalized in October, formalizes land use controls at NAS Whidbey Island.

Area 52

During 1996, the Navy removed the 6-inch steel casing (5 feet in length) previously reported as a potential dry well. During the removal, it was determined that the casing was embedded in a 4- by 4-foot reinforced concrete block and capped at the base. The bulk of the concrete was removed and no visible signs of contamination were present in the adjacent soil. On November 13, 1996, the materials were sampled for disposal purposes. A concrete and steel casing rinsate sample was collected and analyzed. Based on the removal and analytical results, it was concluded that the casing was not a dry well used for disposal purposes (U.S. Navy 2004b).

Two active, pneumatically operated product recovery systems were installed during November and December 1996 to recover fuel on the groundwater surface. The two systems were installed to recover product from a total of six wells at the site (FWEC 1997d). Environmental monitoring and land use controls were initiated as discussed in Sections 4.5.4 and 4.6.

4.5.4 OU 5 Operation, Maintenance, Monitoring, and Land Use Controls

Area 1

Annual visual monitoring of shoreline stability was required at Area 1 for a period of 5 years beginning in calendar year 1998. This shoreline stability monitoring was been conducted by NAS Whidbey Island Environmental Affairs Office personnel and properly documented. The final shoreline stability monitoring event was completed in July 2002**.** This monitoring indicated that relatively minor shoreline erosion is occurring along the coastline of Area 1 (U.S. Navy 2004b).

Post-ROD groundwater monitoring was performed in 1996 to determine whether cyanide was present at concentrations that could adversely affect the marine environment (ecological risk from cyanide in groundwater was the only identified risk associated with Area 1). Two inland groundwater monitoring wells and six intertidal groundwater seeps along the shoreline were sampled and analyzed for cyanide and inorganics (total and dissolved metals). Inorganics were not detected sufficiently in excess of the ROD cleanup levels to require annual monitoring of groundwater or groundwater seeps. However, because detectable concentrations of copper and nickel were identified (coupled with the previous identification of elevated detectable concentrations of cyanide), the initial 5-year review recommended that monitoring for inorganics and cyanide at Area 1 groundwater seeps be conducted at the time of the second 5-year review.

The recommended second groundwater seep sampling event was conducted in December 2002. A total of five seep samples were collected from Area 1. All samples were analyzed for cyanide and inorganic compounds (total and dissolved metals). Documentation of this seep sampling is provided in the second 5-year review (U.S. Navy 2004b). Results showed only trace concentrations of arsenic and low levels of manganese. There were no detections of cyanide in any of the seep samples.

No specific recommendations were made in the second 5-year review relative to additional monitoring at Area 1.

Inspections for land use controls are conducted and reported as described in Section 4.6. An Explanation of Significant Difference (U.S. Navy 2007e), finalized in October, formalizes land use controls at NAS Whidbey Island.

Area 31

The soil venting and product recovery system operations were terminated in the spring of 2000 after the EPA agreed that the RAOs had been successfully met and the recovery system had removed fuel to the practicable endpoint. EPA concurrence with the termination of soil venting was provided in a letter dated May 19, 2000. In this letter, EPA requested final confirmation sampling around Area 31. Confirmation sampling results were reported to EPA on November 21, 2000. Data collected at that time were compared to chemical-specific ARARs. Sampling has been continued as a good management practice and to confirm that chemicals are not migrating off site.

Groundwater monitoring is currently conducted on a quarterly basis at seven Area 31 wells to demonstrate that contaminants in groundwater are attenuating over time and are not migrating off site (U.S. Navy 2007b).

Inspections for land use controls are conducted and reported as described in Section 4.6. An Explanation of Significant Difference (U.S. Navy 2007e), finalized in October, formalizes land use controls at NAS Whidbey Island.

The 2007 third quarter monitoring report (U.S. Navy 2007f) recommended reducing sampling frequency to once every 5 years. Monitoring will continue pending approval of this change.

Area 52

Passive product recovery continued at the site using either canisters or absorbent socks through June 2007. Product recovery volume, product thickness, and depth to water are currently monitored and reported on a quarterly basis (U.S. Navy 2007c). Product recovery was terminated in June 2007 with EPA concurrence. Shoreline groundwater sampling was conducted in July 2007 to confirm that petroleum constituents have not migrated to the adjacent marine environment.

4.6 LAND USE CONTROLS IMPLEMENTATION

An Explanation of Significant Difference document was completed in October 2007 to clarify land use controls at NAS Whidbey Island, establish a formal institutional control management process, and define reporting requirements. In accordance with the requirements of that ESD, the Navy is in the process of preparing an Institutional Control Implementation Plan that will document and specify how the land use controls and institutional controls will be managed and implemented at NAS Whidbey Island.

NAS Whidbey Island is an access-limited facility and meets the intent of the access restrictions for land use controls at the affected sites. The limited access and oversight of construction projects by base environmental staff also restricts installation of drinking water wells at the installation. Area 6 is routinely visited to monitor and maintain the groundwater extraction and treatment system. The integrity of the landfill cap is observed during these visits. Landfills at other sites are observed during monitoring conducted on 5-year cycles. There have been no property transactions at sites for which for which deed notifications are required.

Island County has established a 1,000 foot drilling restriction zone around the Area 6 landfill and posted it on their website. The Navy will contact the County annually during the IC inspection and confirm that the restriction is still in place and no additional wells have been installed.

Table 4-2 lists the source documents under which land use controls are currently maintained and monitored.

Table 4-1
Current Area 6 Groundwater Monitoring Schedule

Well	Volatile Organic Compounds Method 524.2	1, 4-Dioxane Method SW8270C
PW-1	Semiannual	Annual
PW-3	Semiannual	Semiannual
PW-4	Annual	Semiannual
PW-5	Semiannual	Annual
PW-6	Annual	Semiannual
PW-7	Annual	Annual
PW-8	Annual	Annual
PW-9	Annual	Annual
MW-3	-	Semiannual
MW-5 [a, b]	Semiannual	Annual
MW-7 [a, b]	Semiannual	Semiannual
MW-9 [b]	Annual	Annual
MW-10 [b]	Semiannual	Semiannual
6-S-1	No sampling	Semiannual
6-S-2	Annual	No sampling
6-S-3	Annual	Semiannual
6-S-6 [a]	Annual	Annual
6-S-7	Annual	No sampling
6-S-10	-	Annual
6-S-14	-	Semiannual
6-S-16	-	Semiannual
6-S-17	-	Semiannual
6-S-19 [a]	Annual	Annual
6-S-24	Semiannual	-
6-S-25 [a]	Semiannual	-
6-S-26	-	Annual
6-S-27 [a]	Annual	-
6-S-29	Semiannual	Semiannual
6-S-30	Annual	Annual
6-S-31	Semiannual	Semiannual
N6-37	Semiannual	Annual
N6-38	Semiannual	Annual

[a]Well used for trend analysis
[b]Measured quarterly for water levels only

Table 4-2
NAS Whidbey Island Land Use Controls

Source Document	Land Use Controls			
	Access Control	**Groundwater Restriction**	**Excavation Management**	**Land Use Restrictions**
Naval Air Station Whidbey Island Instruction, 11013.2A, Site Approval Procedures		X	X	
Naval Air Station Whidbey Island Security Procedures	X			
Explanation of Significant Difference October 2007		X	X	X

5.0 PROGRESS SINCE LAST FIVE-YEAR REVIEW

This section summarizes the status of recommendations and follow-up actions from the last review, the results of implemented actions, including whether they achieved the intended purpose, and the status of any other prior issues. The Navy has completed all of the actions recommended by the last 5-year review, finalized in April 2004, with the exception of those expected to be ongoing. An Explanation of Significant Difference document has been completed that will formalize a land use controls implementation plan for OUs 1 through 5. The recommended actions and notes regarding their completion are summarized in Table 5-1. Although EPA has developed a database for tracking 5-year review recommendations and their completion, the database does not currently include the recommendations from the NAS Whidbey Island second 5-year review (Harney 2007).

In addition to addressing the recommendations from the last 5-year review, the Navy completed the actions discussed below.

OU 1, Area 6 Health Consultation

At the request of the Navy, the Agency for Toxic Substances and Disease Registry (ATSDR) performed a Health Consultation in 2005 to assess whether concentrations of 1,4-dioxane in downgradient drinking water wells were likely to present a health concern to residents drinking that water (ATSDR 2005). In performing this evaluation, ATSDR:

- Evaluated the detected 1,4-dioxane concentrations in off-site wells using the May 2005 groundwater data collected from 13 off-base wells (1,4-dioxane was detected in only one well) and the August 2005 groundwater data where 9 of the original 13 wells were resampled (1,4-dioxane was detected in 3 wells). Subsequent to the ATSDR report, quarterly sampling of 12 wells through November 2006 has shown only one well with a method reportable concentration greater than 1.0 µg/L.

- Estimated potential concentrations of 1,4-dioxane in downgradient wells prior to 2005 by using Analytical Contaminant Transport Analysis System software and with on-base well data (available from 2003 forward), chemical-specific solubility, groundwater flow direction and speed, and pumping rates for off-base wells.

Based on their analysis, the ATSDR concluded that current concentrations of 1,4-dioxane in off-base wells were 50,000 times lower than concentrations that produced adverse health effects in animal studies. While uncertainty (safety) factors are generally applied to animal data to arrive at safe exposure concentrations for humans (i.e., safe concentrations recommended for humans would be lower than the “no adverse effect levels” noted in animal studies), there still appears to be a significant margin of safety between off-site concentrations and those associated with adverse health effects. In particular, the maximum off-base concentration does not represent an unacceptable cancer risk. The off-site concentration of 2.7 µg/L is slightly below both the EPA tap water screening level of 3 µg/L and the MTCA Method B value of 4 µg/L, both representing a cancer risk of 1 in a million (the more protective end of the target risk range).

Private Well Monitoring

Fifteen private wells in proximity to Area 6 have been sampled for 1,4-dioxane. Most of these wells were sampled quarterly beginning in May 2005. Private well 1,4-dioxane sampling will change to a semiannual frequency in 2008 (U.S. Navy 2007a).

A meeting was held on October 26, 2005 in a school district conference room to discuss 1,4-dioxane impacts and results of the ATSDR Health Consultation. Private well owners whose wells were sampled for 1,4-dioxane were invited to hear results of the sampling effort. The Navy and ATSDR presented information at the meeting to the private well owners. The EPA and Island County Health Department were also in attendance.

Computer Monitoring System Upgrades at Area 6

The computer system used to monitor and document the Area 6 extraction and treatment was significantly upgraded to enhance monitoring and response capabilities. The upgrades included both hardware and software improvements and new program logic controls.

Explanation of Significant Difference

An Explanation of Significant Difference document was completed to clarify land use controls monitoring, inspection, and reporting.

Table 5-1
Summary of Progress Since Last 5-Year Review

Recommendation/Follow-up Action From Second 5-Year Review (April 2004)	Completion Date	Notes Regarding Completion	References
General. Continue with the implementation of institutional controls at OU 1 through OU 5.	Ongoing		NA
General. Finalize the draft ESD addressing institutional controls at OU 1 through OU 5 at NAS Whidbey Island. Implement institutional controls in accordance with the final ESD.	December 2007		NA
General. Evaluate the continued implementation of institutional controls at OU 1 through OU 5 at NAS Whidbey Island at the time of the next 5-year review.	Ongoing		NA
OU 1, Area 6. Continue the operation of the groundwater extraction, treatment, and recharge system (and the associated monitoring and reporting).	Ongoing		U.S. Navy 2007a
OU 1, Area 6. Further investigate the presence and migration of the compound 1,4-dioxane in groundwater at Area 6 as soon as possible. Evaluate the compound 1,4-dioxane as a chemical of concern at Area 6, conduct a human health and ecological risk assessment, and evaluate necessary remedial alternatives based on the findings of the assessment as soon as possible.	Ongoing	Agency for Toxic Substances and Disease Registry concluded that current concentrations of 1,4-dioxane in off-base wells were 50,000 times lower than concentrations that produced adverse health effects in animal studies. While uncertainty (safety) factors are generally applied to animal data to arrive at safe exposure concentrations for humans (i.e., safe concentrations recommended for humans would be lower than the no adverse effect levels noted in animal studies), there still appears to be a significant margin of safety between off-site concentrations and those associated with adverse health effects. In particular, the maximum off-base concentration does not represent an unacceptable cancer risk. The off-site concentration of 2.7 µg/L is	ATSDR 2005

Table 5-1 (Continued)
Summary of Progress Since Last 5-Year Review

Recommendation/Follow-up Action From Second 5-Year Review (April 2004)	Completion Date	Notes Regarding Completion	References
		slightly below both the EPA tap water screening level of 3 µg/L and the Model Toxics Control Act Method B value of 4 µg/L, both representing a cancer risk of 1 in a million (the more protective end of the target risk range).	
	Ongoing	The Navy continues to monitor 1,4-dioxane concentrations in groundwater on and downgradient of the site. Four monitoring wells were installed off site along Highway 20 in December 2007.	U.S. Navy 2007a
OU 1, Area 6. Conduct additional monitoring of VOC concentrations in vadose zone soils to evaluate the effect of the DNAPL source removal action and to evaluate the migration of VOC compounds. As part of the Navy's plan to optimize the pump-and-treat system, consider additional source removal.	Not complete	VOC concentrations in groundwater near the source area continued to decrease during much of this review period and began to level off towards the end of the period. This monitoring will be conducted during the next 5-year period.	
OU 2, Areas 2/3. Continue groundwater use restrictions.	Ongoing		NA
OU 2, Areas 2/3. Collect an additional round of groundwater samples at the time of the next 5-year review. Groundwater samples should be analyzed for VOCs, total arsenic, and total manganese.	July 2007		U.S. Navy 2007d
OU 2, Area 4. Continue groundwater use restrictions.	Ongoing		NA
OU 2, Area 4. Collect an additional round of groundwater samples at the time of the next 5-year review. Groundwater samples should be analyzed for total arsenic.	July 2007		U.S. Navy 2007d
OU 2, Area 14. Continue groundwater use restrictions.	Ongoing		NA
OU 2, Area 29. Continue groundwater use restrictions.	Ongoing		NA

Table 5-1 (Continued)
Summary of Progress Since Last 5-Year Review

Recommendation/Follow-up Action From Second 5-Year Review (April 2004)	Completion Date	Notes Regarding Completion	References
OU 2, Area 29. Collect an additional round of groundwater samples at the time of the next 5-year review. Groundwater samples should be analyzed for total arsenic.	July 2007		U.S. Navy 2007d
OU 3, Area 16. Identify sources of recontamination and conduct an evaluation to determine what, if any, additional measures can be taken to prevent or limit recontamination.	Ongoing	Evaluation of potential sources of recontamination is ongoing.	U.S. Navy 2006d
	September 2006	Based on the results of the 2006 sediment sampling, no additional sampling was recommended. It was recommended that a specific catch basin be cleaned out.	U.S. Navy 2006d
OU 5, Area 31. Continue with groundwater monitoring at Area 31 until the EPA and Navy jointly agree that additional monitoring is no longer necessary. The Navy and the EPA should evaluate whether or not additional treatment may be necessary. Monitoring well MW31-11 should be added to the monitoring schedule for the parameter manganese.	Monitoring ongoing	Monitoring continued during the review period. Manganese monitoring needs to be added at well MW31-11.	U.S. Navy 2007b
	Ongoing	New wells MW31-34 and MW31-35 were installed.	U.S. Navy 2003
OU 5, Area 52. Continue the operation of the product recovery system (and the associated monitoring and reporting).	System operated until June 2007	System operation was terminated in June 2007 with EPA concurrence. Confirmatory shoreline sampling was conducted in July 2007.	U.S. Navy 2007d

Notes:
EPA - U.S. Environmental Protection Agency
DNAPL - dense nonaqueous-phase liquid
ESD - Explanation of Significant Difference
μg/L - microgram per liter
NA - not applicable
OU - operable unit
ppb - part per billion
VOC - volatile organic compound

6.0 FIVE-YEAR REVIEW PROCESS

This section identifies 5-year review team members, community notification and involvement in the 5-year review process, and documents reviewed. An evaluation is presented of data generated during the past 5 years, together with the results of site inspections and site interviews.

6.1 FIVE-YEAR REVIEW TEAM

The Navy is the lead agency for this 5-year review. Personnel from NAVFAC NW and NAS Whidbey Island represented the Navy in this 5-year review. Project managers and other staff from the EPA and other stakeholder groups have also participated in the review process. Both the EPA and Ecology are cosignatories of the RODs for NAS Whidbey Island.

6.2 COMMUNITY NOTIFICATION AND INVOLVEMENT

There are specific requirements pursuant to CERCLA Section 117(a), as amended, for certain reports to be released to the public and for the public to be notified of proposed cleanup plans and remedial actions. The Navy's community notification and involvement activities related to NAS Whidbey Island are described in the sections that follow.

6.2.1 History of Community Involvement

Community relations activities have established communication between the citizens living near the site, other interested organizations, the Navy, EPA, and Ecology. The actions taken to satisfy the statutory community involvement requirements have also provided a forum for citizen involvement and input to site remedial activities. The community involvement activities at the site have included the following:

- Development of a community relations plan
- Periodic meetings of the Technical Review Committee (TRC) and later the Restoration Advisory Board (RAB) that replaced the TRC in February 1994
- Public meetings and open houses
- Newspaper advertisements

The RAB (or its predecessor, the TRC) was involved in the review and comment process for all project documents. The RAB included representatives from the Navy and regulatory agencies as well as civic, private, city government, and environmental activist groups. Currently the RAB meets on an ad hoc basis.

6.2.2 Community Involvement During the Five-Year Review

A notice of intent was published by the Navy on July 18, 2007, in the *Whidbey News – Times* informing the public of the Navy's intent to perform the third 5-year review, when, where, and how they could receive information, and how to provide comments on the protectiveness of the remedy. Available community members from the RAB were interviewed as part of the site interview process described in Section 6.6.

A notice of availability and fact sheet was published in the *Whidbey News – Times* on April 9, 2008, informing the public of the availability of the draft third 5-year review, establishing a 30-day public comment period, and providing direction as to how to provide comments on the protectiveness of the remedy. At the conclusion of the 5-year review process, a notice of completion will be published in the *Whidbey News – Times*.

6.3 DOCUMENT REVIEW

Documents reviewed during this 5-year review were primarily those that established the remedies and those describing the progress on construction and monitoring of the selected remedies during the time period January 2003 through June 2007. Earlier documents were reviewed as needed to establish a complete summary of the site history. The primary documents that were reviewed were:

- The RODs (U.S. Navy, Ecology, and USEPA 1992, 1993a, 1993b, 1994, 1995, and 1996)
- The first and second 5-year review reports (U.S. Navy 1998 and 2004b)
- The current and previous long-term monitoring plans (U.S. Navy 2006a, 2006b, and 2006c)
- The recent monitoring reports (U.S. Navy 2006d, 2007a, 2007b, 2007c, and 2007d)
- Other relevant reports

6.4 DATA REVIEW

This section summarizes trends in chemical data collected through the various monitoring programs at NAS Whidbey Island from January 2003 through June 2007. The monitoring programs are described in Section 4, and the implications of the data regarding the functionality and protectiveness of the remedies are discussed in Section 7. Site inspection results are discussed separately in Section 6.5.

6.4.1 OU 1 Groundwater Monitoring Data

Area 6

The groundwater monitoring schedule shown in Table 4-1 was adopted during the first quarter of 2008. Groundwater monitoring locations are shown on Figure A-1 (Appendix A). Surface water and private well sampling locations are shown on Figure A-2. The distribution of VOCs has generally been described as comprising two plumes: the western plume located along the western property boundary, which consists primarily of TCE, 1,1,1-TCA, 1,1-dichloroethane (1,1-DCA), cis-1,2-dichloroethene (cis-1,2-DCE), and 1,1-DCE, and the southern plume located in the southern and southeastern portion of the site, which consists primarily of vinyl chloride and 1,4-dioxane.

Groundwater surface elevation contours for May 2007 are shown on Figure A-3. Groundwater elevation data from the production wells (i.e., PW-1 through PW-9) are excluded from contouring of elevation values for Figure A-3 because levels within pumping wells are not representative of the potentiometric surface in the aquifer. The groundwater flow direction (southerly) and gradient (0.0044) observed during May 2007 is similar to observations over the many years of operation (U.S. Navy 2007a).

To summarize the detailed discussion that follows, VOC concentrations in groundwater have generally decreased over the past 5 years, and the overall magnitude of VOC concentrations have decreased an order of magnitude since installation of the extraction and treatment system. Some VOCs have migrated beyond the western and southern boundaries of the site, but do not currently threaten potential groundwater users. It is expected that the hydraulic gradient induced by pumping groundwater from PW-5 will capture those VOCs that have migrated across the western property boundary as they migrate south in groundwater. The southern boundary infringement is controlled by pumping at PW-5, and the target drawdown in this area must be carefully maintained to ensure plume capture.

Cumulative summaries of analytical results for influent, effluent, production well, and monitoring well samples are provided in Tables A-1 through A-4 (Appendix A). Cumulative summaries of analytical results for 1,4-dioxane in production well, monitoring well, private well, and surface water samples are provided in Tables A-5 through A-7.

Treatment Plant Data. VOC concentrations in the treatment plant effluent and swale samples for all of the six monitored compounds (TCE, 1,1,1-TCA, 1,1-DCA, cis-1,2-DCE, 1,1-DCE, and vinyl chloride) did not exceed the effluent limits specified in the sampling and analysis plan and ROD during the review period (U.S. Navy 2007a). These results indicate that the treatment plant is operating as intended. Since 1,4-dioxane was not identified as a COC in the ROD, the treatment plant was not designed to treat water for this compound. 1,4-Dioxane is currently cycling through the system untreated.

Concentration trends for the six monitored VOCs in treatment plant influent samples are plotted on Figure A-4. With the exception of vinyl chloride, the plots show that influent concentration trends have been relatively consistent during the review period, with minor fluctuations. The vinyl chloride concentration in influent samples has fluctuated significantly during the review period. A spike in the remaining monitored VOC influent concentrations occurred in the July to September 2006 influent samples. This spike is believed to be due to pumping rate adjustments (U.S. Navy 2007a).

COC Distribution. The May 2007 distributions of monitored VOCs and 1,4-dioxane in groundwater are shown on Figures A-5 through A-11. The May 2007 TCE (Figure A-5), 1,1,1-TCA (Figure A-6), 1,1-DCA (Figure A-7), cis-1,2-DCE (Figure A-8), and 1,1-DCE (Figure A-9) distributions in groundwater are very similar in areal extent.

1,1-DCA and cis-1,2-DCE were not measured at concentrations greater than their respective remediation goals (RGs) of 800 and 70 µg/L in any of the February or May 2007 groundwater samples (Figures A-7 and A-8). With the exception of samples from MW-7, 1,1-DCA and cis-1,2-DCE have not been measured at concentrations greater than their cleanup levels since monitoring was initiated in 1995. The last sample from MW-7 to contain cis-1,2-DCE at a concentration greater than the cleanup level was collected in 1999. Samples from MW-7 have never contained 1,1-DCA at a concentration greater than the cleanup level.

The cleanup level for TCE in groundwater is 5 µg/L. The 2007 distribution of TCE in groundwater is shown on Figure A-5. TCE is present in groundwater along the western site boundary. The central core of the TCE plume (greater than 100 µg/L) has migrated south and decreased an order of magnitude (1,500 to less than 150 µg/L) since the treatment system was installed. A tongue of the TCE plume is projected to extend beyond the southwest corner of the Area 6 boundary onto the Oak Harbor Landfill on Figure A-5. A small segregated core of TCE in groundwater is centered on PW-5 where TCE concentrations were measured at 120 µg/L in May 2007. PW-5 is located immediately adjacent to the southwestern Area 6 boundary.

The 10 µg/L contour for TCE in this area is projected to extend onto the Oak Harbor Landfill. Monitoring wells 6-S-25, 6-S-27, MW-5, 6-S-29, 6-S-19, and 6-S-3 monitor the southern property boundary from west to east. TCE concentrations have not been measured in groundwater samples from these wells at concentrations greater than the cleanup level during the current review period. The only well along the southern property boundary to yield water containing TCE at a concentration greater than the cleanup level is extraction well PW-5, which is positioned to intercept the groundwater plume at the southern property boundary. TCE does extend off property to the west as indicated by samples collected from monitoring wells 6-S-21, MW-07, and 6-S-6 (Figure A-5) at a concentration above the cleanup level. However, there is no evidence that the plume is expanding or continuing to migrate. This portion of the plume is being addressed by pumping from well PW-5.

The cleanup level for 1,1,1-TCA in groundwater is 200 µg/L. The May 2007 distribution of 1,1,1-TCA in groundwater (Figure A-6) is similar to the TCE distribution. The central core of the 1,1,1-TCA plume has also migrated south and decreased an order of magnitude (12,000 to 560 µg/L) since the treatment system was installed. Similar to TCE, a tongue of the 1,1,1-TCA plume is projected to extend beyond the southwest corner of the Area 6 boundary onto the Oak Harbor Landfill (Figure A-6) at a concentration above the cleanup level. The May 2007 data indicate that 1,1,1-TCA also extends across the site boundary to the west at a concentration above the cleanup level. However, there is no evidence that the plume is expanding or continuing to migrate.

The “compliance level” row of Table 4-5 in U.S. Navy 2007a indicates that the “action level” for 1,1-DCE was increased to the MCL of 7 µg/L “as agreed by EPA in the June 6, 2006 meeting.” Subsequent discussion will use this as the cleanup level. The May 2007 distribution of 1,1-DCE in groundwater (Figure A-9) is generally similar to the TCE and 1,1,1-TCA distributions. The central core of the 1,1-DCE plume has also migrated south and decreased an order of magnitude (1,900 to 240 µg/L) since the treatment system was installed. Similar to TCE and 1,1,1-TCA, a tongue of the 1,1-DCE plume is projected to extend beyond the southwest corner of the Area 6 boundary onto the Oak Harbor Landfill (Figure A-9) at a concentration above the cleanup level. The May 2007 data indicate that 1,1-DCE also extends across the site boundary to the west at a concentration above the cleanup level. However, there is no evidence that the plume is expanding or continuing to migrate.

The cleanup level for vinyl chloride in groundwater is 0.1 µg/L. The May 2007 distribution of vinyl chloride in groundwater is shown on Figure A-10. Vinyl chloride is present in groundwater along the south-central boundary of the site and has not migrated since the system was installed. However, the maximum concentration has decreased from over 50 µg/L at the time of the RI to 1.7 µg/L. The May 2007 data indicate that vinyl chloride does extend beyond the southern property boundary at concentrations greater than the cleanup level. However, there is no evidence that the plume is expanding or continuing to migrate.

A cleanup level for 1,4-dioxane was not established in the ROD. The MTCA Method B groundwater cleanup level for 1,4-dioxane is 4 µg/L. The May 2007 1,4-dioxane distribution in groundwater, shown on Figure A-11, extends off site to the south at a concentration greater than the MTCA Method B groundwater cleanup level. 1,4-Dioxane was not detected in samples taken quarterly between May 2005 and November 2006 from approximately a dozen private wells off site to the south and east (Figure A-2) at concentrations greater than the MTCA Method B groundwater cleanup level. 1,4-dioxane was consistently measured at a concentration greater than the method detection limit (0.27 to 0.47 µg/L) in samples from one well 6-DW-38. Surface water samples were collected from locations SW-1 and SW-2 (Figure A-2) in May 2005 and May 2006 for 1,4-dioxane analyses. 1,4-dioxane was measured at 6.9 and 6.4 µg/L in the 2005 and 2006 samples from SW-1, respectively, and at 8.2 and 6.1 µg/L in the samples from SW-2.

COC Concentration Trends in Monitoring Wells. Well 6-S-21 monitors the northern extent of the western plume along the western property boundary. Concentration trends in groundwater from 6-S-21 are shown on Figure A-12. None of the monitored VOCs were measured at concentrations greater than their cleanup levels in samples collected from well 6-S-21 during the review period.

Wells MW-7 and 6-S-6 generally monitor the core of the western plume. These wells are also located along the central portion of the western property boundary (Figure A-1). Concentration trends for these wells are shown in Figures A-13 and A-14, respectively. TCE concentrations have decreased from 200 µg/L (2002) to 110 µg/L (2007) in groundwater samples from MW-7. 1,1,1-TCA, 1,1-DCA, and cis-1,2-DCE concentrations measured during this review period were below their respective cleanup levels in samples from MW-7. 1,1-DCE concentrations have decreased from 38 µg/L (2002) to 16 µg/L (2007) in samples from MW-7. TCE concentrations have decreased from 310 µg/L (2002) to 130 µg/L (2007) in groundwater samples from 6-S-6 and 1,1,1-TCA concentrations have decreased from 3,700 µg/L (2002) to 710 µg/L (2007). 1,1-DCA and cis-1,2-DCE concentrations measured during this review period were below their respective cleanup levels in samples from 6-S-6. 1,1-DCE concentrations have decreased from 510 µg/L (2003) to 220 µg/L (2007) in samples from 6-S-6.

The data from wells MW-7 and 6-S-6 suggest that plume core concentrations have decreased and migrated to the south.

Wells 6-S-25, MW-5, 6-S-27, and 6-S-19 monitor concentrations in the western plume along the southern property boundary from west to east. Concentration trends in samples from these wells are shown on Figures A-15 through A-18 (Appendix A). 1,1,1-TCA and 1,1-DCE were measured at concentrations greater than their cleanup levels in samples collected from 6-S-25 during the review period. 1,1,1-TCA decreased from 330 µg/L (2002) to 65 µg/L (2004) and then increased to 510 µg/L in 2006 samples from 6-S-25. 1,1,1-TCA decreased to 220 µg/L in the May 2007 sample from 6-S-26. 1,1-DCE concentrations have fluctuated during the review period, starting at 34 µg/L in 2002. 1,1-DCE has fluctuated from a low of 18 µg/L in 2005 to a high of 55 µg/L in 2006. 1,1-DCE was measured at 24 µg/L in the May 2007 sample from 6-S-6 (U.S. Navy 2007a).

The monitored VOCs were not measured at concentrations greater than their cleanup levels in samples from wells MW-5 and 6-S-27 during the review period. These wells are located south of PW-5 (Figure A-1).

Well 6-S-19 monitors the southern plume along the southern boundary. TCE, 1,1,1-TCA, 1,1-DCA, cis-1,2-DCE, and 1,1-DCE were not measured at concentrations greater than cleanup levels in samples collected from 6-S-19 during this review period. Vinyl chloride concentrations have decreased from 3.2 µg/L (2003) to 1.4 µg/L (2007) in samples from 6-S-19.

COC Concentration Trends in Production Wells. COC concentrations in groundwater samples from production wells (PW-1 through PW-9) have decreased substantially since the interim system was installed in 1993. Concentration trends in production wells can be useful but must be viewed with the understanding that trends are strongly tied to pumping rates not only of the monitored locations, but also to the pumping rates of the adjacent wells.

COC concentration trends in samples from production wells collected during this 2003 to 2007 review period are described below. The results are presented in Table A-3 (Appendix A) (U.S. Navy 2007a). TCE concentrations have increased slightly in groundwater samples from PW-1, while cis-1,2-DCE concentrations increased and then decreased. The remaining COCs were reported at concentrations below RGs in groundwater samples from PW-1, during this time frame. Samples have not been collected from PW-2 since 1998. TCE, 1,1,1-TCA, 1,1-DCE, and vinyl chloride concentrations decreased in groundwater samples from PW-3 and PW-5. Vinyl chloride concentrations also decreased in groundwater samples from PW-4, PW-6, PW-7, PW-8, and PW-9. The remaining COCs were reported at concentrations below RGs in groundwater samples from these five production wells during this time frame.

Soil Vapor Survey Results. Soil vapor monitoring was conducted in 2003 (U.S. Navy 2004c). When compared to results of soil vapor surveys conducted in 1991 and 2000, it was concluded that the data indicate strong stability in VOC concentrations at Area 6 overall. However, VOC vapor concentrations dropped sharply at shallow monitoring locations in the area in which the 2001 hotspot removal was conducted. Modeled flux estimates using the measured soil vapor VOC concentrations implies that vadose contamination could be a residual source of VOC concentrations in the shallow aquifer, and the observations pointed to the likely presence of residual dense nonaqueous-phase liquid (DNAPL) in the vadose zone (U.S. Navy 2004c). However, the groundwater data evaluated during this 5-year review suggest that the core of the plume has migrated south and decreased by an order of magnitude since installation of the treatment system. If significant vadose zone impacts are present, including DNAPL, they do not appear to be acting as a significant source of contamination to groundwater in the former core of the plume as suggested by the model. However, it is still unclear whether enough mass remains in the vadose zone to require extended operation of the groundwater extraction system.

Off-Site 1,4-Dioxane Evaluation. Four monitoring wells (6-S-40, 6-S-41, 6-S-42, and 6-S-43) were installed off site along Highway 20 in December 2007. Samples were collected from these four wells in February 2008 to quantify 1,4-dioxane content in groundwater at these locations. 1,4-Dioxane was measured at concentrations below the MTCA Method B cleanup level of 4 µg/L in samples from the northern wells 6-S-40 and 6-S-41 and the southernmost well 6-S-43. 1,4-Dioxane was measured at 5.3 µg/L in the sample from well 6-S-42.

Area 6 Monitoring Recommendations

Future contouring of COC concentrations in groundwater at Area 6 should be conducted by hand, out to the analyte-specific RG or cleanup level. This will ensure that the plume definition reflects the RG values. Results will be documented on the appropriate figure at locations where target analytes were measured below the analyte-specific RG or cleanup level, but above the reporting limits. Additionally, contour maps should show the site boundaries. This will allow for assessment of potential containment problems.

The monitoring program implemented in February 2008 (Table 4-1) should be maintained and amended, with EPA concurrence, as deemed appropriate by subsequent data.

6.4.2 OU 2 Groundwater Monitoring Data

Areas 2/3

Post-Rod groundwater sampling was conducted at Areas 2/3 in 1995, 2002, and July 2007 (U.S. Navy 2007d). Seven groundwater monitoring wells were sampled in July 2007. The wells sampled in 2007 were 3-MW-2, N2-3, N2-6C, N2-7S, N2-8, N2-9, and N3-12. Well locations are shown on Figure 6-1. Groundwater samples collected in 2007 were analyzed for VOCs according to EPA Method 8260B, vinyl chloride according to 8260B—selected ion monitoring (SIM), and total arsenic and total manganese according EPA Method 6010. Post-ROD results for analytes and wells sampled in 2007 are summarized in Table 6-1.

To summarize the detailed discussion that follows, dichloroethene (1,1-DCE) and 1,4-dichlorobenzene have not been measured at concentrations greater than their cleanup levels in the 1995, 2002, or 2007 groundwater samples collected from these seven monitoring wells. Vinyl chloride was measured in the samples from well N3-12 at decreasing concentrations over the same time period. Total arsenic was measured at concentrations greater than the cleanup level in the 2007 samples from four of the monitored wells (N2-3, N2-7S, N2-8, and N3-12). Total arsenic increased from 2002 to 2007 in samples from wells N2-3, N2-7S, and N2-8 and decreased from 2002 to 2007 in samples from N3-12. Total manganese was measured at concentrations greater than the cleanup level in the 2007 samples from three of the monitoring wells (N2-6C, N2-7S, and N3-12). Total manganese has decreased from 1995 to 2007 in samples from these three wells.

The VOC 1,1-DCE has not been measured at a concentration greater than reporting limits from the wells sampled in 2007. The reporting limits have ranged from 0.12 to 1 µg/L. The MCL for 1,1-DCE is 7 µg/L. A cleanup level was not established for 1,1-DCE in groundwater. The VOC 1,4-dichlorobenzene was not measured at a concentration greater than the cleanup level of 63 µg/L in post-ROD samples collected from these wells. The highest post-ROD 1,4-dichlorobenzene concentration of 0.55 µg/L was measured in the 2007 sample from well N2-7S.

The cleanup level for vinyl chloride in groundwater at Areas 2/3 is 1 µg/L. Vinyl chloride has been measured above the reporting limit in groundwater samples from one well, N3-12. Vinyl chloride was not measured at a concentration greater than 0.2 µg/L in the 2007 samples from wells N2-3, N2-8, and N2-9 using 8260B. Vinyl chloride was not measured at a concentration greater than the SIM reporting limit of 0.02 µg/L in the 2007 groundwater samples from wells 3-MW-2 and N2-6C. The vinyl chloride SIM results for samples from wells 3-MW-2 and N2-6C were below the cleanup level. Vinyl chloride was measured in the 1995, 2002, and 2007 samples from well N3-12 at 12, 11 and 5.84 µg/L, respectively, all of which are greater than the cleanup level. However, these results show a decrease of vinyl chloride concentration in this well since 1995.

The total arsenic cleanup level in groundwater at Areas 2/3 is 7.7 µg/L. Total arsenic was measured at concentrations greater than the cleanup level in the 2007 samples from wells N2-3, N2-7S, N2-8, and N3-12. The highest 2007 total arsenic concentration of 80.5 µg/L was measured in the sample from well N2-7S. Total arsenic concentrations increased from 1995 to 2007 in samples from wells N2-3 (8.8 to 38.6 µg/L), N2-7S (25.2 to 80.5 µg/L), N2-8 (5 to 9.86 µg/L), and N2-9 (6.4 to 7.55). Total arsenic concentrations decreased or remained consistent from 1995 to 2007 in samples from wells 3-MW-2 (less than 6.4 to 6.56 µg/L), N2-6C (8.9 to 5.92 µg/L), and N3-12 (71.5 to 47.9 µg/L).

The total manganese cleanup level in groundwater at Areas 2/3 is 125 µg/L. Total manganese was measured at concentrations greater than the cleanup level in the 2007 samples from wells N2-6C, N2-7S and N3-12. The highest 2007 total manganese concentration of 3,670 µg/L was measured in the sample from well N3-12. Total manganese concentrations decreased from 318 µg/L in 2002 to 250 µg/L in 2007 in the sample from well N2-6C. Total manganese concentrations decreased from 1995 to 2007 in the samples from wells N2-7S (4,250 to 3,510 µg/L) and N3-12 (8,270 to 3,670 µg/L). Total manganese was not measured at concentrations greater than the cleanup level in the remaining wells sampled in 2007.

Areas 2/3 Monitoring Recommendations

The VOCs 1,1-dichloroethene and 1,4-dichlorobenzene were not detected at concentrations greater than the MCL and cleanup level, respectively, in the 2002 and 2007 samples from Areas 2/3 wells. Based on these results, it is recommended that monitoring for these compounds be discontinued. Groundwater monitoring should be conducted during the next 5-year-review period for total arsenic, total manganese, and vinyl chloride. Vinyl chloride analysis should be conducted using SIM or other analytical method capable of producing a reporting limit less than the cleanup level of 1 µg/L.

Area 4

Post-ROD groundwater sampling was conducted at Area 4 in 1995, 2002 and July 2007. Two monitoring wells were sampled in July 2007 (U.S. Navy 2007d). The wells sampled in 2007 were 4-MW-1 and 4-MW-3. Well locations are shown on Figure 6-1. Groundwater samples collected in 2007 were analyzed for total arsenic according to EPA Method 6010B. Post-ROD arsenic results for wells sampled during 2007 are summarized in Table 6-2.

Total arsenic was measured in the 1995, 2002, and 2007 samples from both wells at concentrations greater than the cleanup level of 7.7 µg/L. Total arsenic decreased from 1995 to 2007 in groundwater from well 4-MW-1 (11 to 9.04 µg/L) and increased from 1995 to 2007 in groundwater from well 4-MW-3 (11.2 to 19.1 µg/L).

Area 4 Monitoring Recommendations

Groundwater monitoring should be conducted during the next 5-year-review period for total arsenic.

Area 29

Post-ROD groundwater sampling was conducted at Area 29 in 1995, 2002, and July 2007. Three groundwater monitoring wells were sampled in July 2007 (U.S. Navy 2007d). The wells sampled in 2007 were 29-MW-4, N29-20, and N29-22D. Well locations are shown on Figure 6-1. Groundwater samples collected in 2007 were analyzed for total arsenic according EPA Method 6010B. Post-ROD arsenic results for wells sampled during 2007 are summarized in Table 6-3.

Total arsenic was measured in the 1995, 2002 and 2007 samples from all three wells at concentrations greater than the cleanup level of 7.7 µg/L. Total arsenic increased from 1995 to 2007 in groundwater from well N29-20 (12 to 17.4 µg/L) and well N29-22D (19.4 to 23.5 µg/L). Total arsenic decreased from 1995 to 2007 in groundwater from well 29-MW-4 (10 to 8.72 µg/L).

Area 29 Monitoring Recommendations

Groundwater monitoring should be conducted during the next 5-year-review period for total arsenic.

6.4.3 OU 3 Sediment Sampling Data

OU 3 consists entirely of Area 16 (Runway Ditches). Post-ROD ditch sediment sampling was conducted during this review period in September 2006.

The 2002 and 2006 sampling was not ROD required. The intent of the 2006 sampling event was to confirm whether prior sampling results (completed as part of the second 5-year review) at various locations throughout the ditch complex showed potential recontamination, or the prior sampling reported one-time, anomalously high data. Sampling conducted as part of the second 5-year-review was completed in December 2002. In addition to the confirmatory nature of this sampling, NAVFAC NW also requested that bank soils be sampled to determine if recently dredged materials stored on the banks of the ditches would exceed standards as an MTCA Industrial Soil that would require disposal off site (U.S. Navy 2006d).

Seventeen sediment locations were sampled in 2006 as shown on Figure B-1 (Appendix B). Sediment and bank samples were analyzed for TPH—diesel (TPH-D) and residual-range organics (RRO); TPH—gasoline (TPH-G); benzene, toluene, ethylbenzene, and xylenes (BTEX); PAHs; and arsenic. Four bank samples (Figure B-1) were analyzed for BTEX and PAHs for comparison to ROD cleanup levels. These four bank samples were also analyzed for RCRA eight metals using the TCLP method to allow for comparison of the results to on-site disposal criteria.

Sediment sampling results are included in Tables B-1 and B-2 (Appendix B). Detections where the ROD cleanup levels were exceeded are bolded in the tables. Detections where the on-site soil disposal criteria were exceeded are shaded. The following results were reported (U.S. Navy 2006d):

- No gasoline or BTEX compounds were detected above the ROD cleanup levels.

- Only three locations were reported at or above the ROD cleanup levels for diesel and RRO. These included locations 16-2, 16-12, and 16-38. Location 16-2 (Figure B-1) was collected in the catch basin where only a thin layer of sediment was present. Locations 16-12 and 16-38 are located at the farthest northeast points of the ditch complex. Location 16-38 is upstream of a baffle that forms a sump or collection point. Only sampling results from location 16-2 exceeded the disposal criteria for diesel and residual oil.

- No SVOCs were reported above the ROD cleanup levels.

- Two lead detections were reported above the cleanup level (18 mg/kg), but below the on-site disposal criteria (location 16-2, the catch basin, at 48.5 mg/kg and location 16-12 at 51.9 mg/kg).

- Arsenic was reported at 27.1 mg/kg in the sample from location 16-12, which is above the cleanup level of 16 mg/kg.

- No other detections were reported above the ROD cleanup levels.

Bank soil sampling results are included in Table B-3. No detections were reported above any RCRA hazardous waste (off-site disposal criteria) or ROD on-site disposal criteria (U.S. Navy 2006d).

The report concluded that the detections for arsenic and lead reported during the 2006 sampling event were below background values (U.S. Navy 2006d). The report also stated that the ROD specifies a TPH cleanup level of 200 mg/kg. However, Section 8.1.3 of the ROD indicates that "… TPH can serve as an ecological risk indicator in the sediments and that a concentration of about 4,000 mg/kg may be an appropriate cleanup level for this purpose." The U.S. Navy 2006d report concluded that "no locations during this sampling event exceeded this 4,000 mg/kg value and the only sample close to this level was from an enclosed sediment catch basin at location 16-2. No other locations were reported near this level."

The sampling results showed that the majority of the runway ditch complex east of Charles-Porter Road is in compliance with the ROD. The exception is TPH in sediment from the northernmost ditch that trends east-west (represented by sampling locations 16-2, 16-12, and 16-38). The sediment in this ditch may not pose an ecological risk based on an evaluation described in Section .1.3 of the ROD. However, the sediment in the northernmost ditch poses a threat to human health based on the ROD-prescribed MTCA industrial cleanup level of 200 mg/kg. The limited bank soils sampled during 2006 are in compliance with the ROD standards and do not pose a threat to human health.

OU 3 Monitoring Recommendations

Location 16-2 is a catch basin that appears to be a confluence for multiple surface drainage areas of the airfield and is downgradient of Site 31, Fire Fighting School. The highest TPH concentrations were reported for this location. Based on the nature of the catch basin, it is recommended that this basin be cleaned to prevent the downgradient migration of sediment during high runoff events (U.S. Navy 2006d).

Due to the exceedances of the ROD-specified MTCA Method A health cleanup level for TPH in the 2006 sediment sample results, it is recommended that sediment samples be collected from the northernmost ditch (represented by 2006 sampling locations 16-2, 16-12, and 16-38) during the next 5-year review period. This sampling is recommended to assess the longer term effectiveness of the recommended catch basin cleanup in the area of location 16-2, to assess trends in TPH data along this ditch, and to determine if additional sampling or further action is warranted.

6.4.4 OU 4 Monitoring Data

No monitoring was conducted at OU 4 during this review period.

6.4.5 OU 5 Monitoring Data

Area 1

Water samples were collected at five seep locations in 2002 and 2007. The 2007 sampling locations are shown on Figure 6-2. The 2007 sampling locations were placed as close as possible to the 2002 locations using a hand held Global Positioning System unit. Locations had to be adjusted, in some cases, because of the distribution of gravel and coarse material (U.S. Navy 2007d). Five locations were sampled in 2007 with one of these locations (5YRSP) being amenable to “PushPoint” sample collection. The PushPoint equipment allows for collection of sediment pore water below the ground surface.

Chemical-specific ARARs for Area 1 groundwater were specified in Table 12 of the OU 5 ROD (U.S. Navy, Ecology, and USEPA 1996). Cleanup levels were selected for cyanide, dissolved zinc, 1,1-DCE, and bis(2-ethylhexyl)phthalate. The first 5-year review (U.S. Navy 1998) concluded that groundwater seep monitoring should be conducted for copper, nickel, and cyanide during the second five-year review. Groundwater samples were collected from five seeps during the second 5-year review (U.S. Navy 2004b) for inorganics and cyanide.

Based on the second 5-year review results, groundwater samples were collected from five locations (5YRSP-1 through 5YRSP-5) in 2007 for cadmium, chromium, copper, cyanide, mercury, vanadium, and zinc. Analytical results are summarized for 2002 and 2007 in Table 6-4. Cadmium concentrations in the 2002 samples ranged from 4 to 7.4 µg/L. Cadmium was not measured at a concentration greater than the reporting limit in the 2007 samples from these locations. The reporting limit for cadmium in the 2007 sample from location 5YRSP-1 was 10 µg/L. Cadmium was reported at an estimated concentration of 0.35 µg/L in the 2007 sample from 5YRSP-2. A cleanup level for cadmium in groundwater was not established in the OU 5 ROD. Chromium was measured in seep groundwater samples at concentrations ranging from 2.23 to 22.4 µg/L, and copper was measured at concentrations ranging from 11.3 to 26.6 µg/L. Mercury was reported at an estimated concentration of 0.0266 µg/L in the sample from 5YRSP-2. Mercury was reported as not detected at an estimated reporting limit of 0.2 µg/L in the remaining samples. Vanadium was measured at estimated concentrations ranging from 1.72 to 22 µg/L. The OU 5 ROD did not establish cleanup levels for cadmium, chromium, copper, mercury, and vanadium in groundwater.

Zinc was not measured in the 2002 or 2007 samples at concentrations greater than the cleanup level 76.6 µg/L. Cyanide was not measured at concentrations greater than reporting limits in the 2002 or the 2007 samples. However, the 2002 and 2007 reporting limits were 3 and 5 µg/L, respectively. These reporting limits are above the cleanup level of 1 µg/L. If cyanide had been detected in the 2007 samples below the reporting limit but above the method detection limit of 0.9 µg/L, the results would have been reported as an estimated detection. It is, therefore, reasonable to conclude that cyanide was not present in the 2007 samples above the method detection limit of 0.9 µg/L, which is below the cleanup level of 1 µg/L.

Area 1 Monitoring Recommendations

Monitoring of seep/pore water in beach sediment is complete at OU 5 Area 1 and no future monitoring is necessary. The first 5-year review (U.S. Navy 1998) recommended that inorganics and cyanide in OU 5 Area 1 groundwater seeps be monitored by the time of the next 5-year review. The recommended monitoring was completed for the second 5-year review (U.S. Navy 2004b), which concluded that the remedial actions implemented at Area 1 are complete and RAOs have essentially been met; all exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection are still valid; and no other information has come to light that could call into question the protectiveness of the remedy. This conclusion was based in large part on results of the seep monitoring, conducted in 2002, as recommended in the first 5-year review. ROD-specified COCs were not measured at concentrations greater than ROD-specified cleanup levels in seep/sediment pore water samples collected in 2007.

Area 1 was used for disposal of demolition and construction debris from the construction of Seaplane Base between the 1940s and 1970s. The landfilled material is not expected to contain hazardous material that could pose a risk to human health or the environment. During ongoing erosion of the landfill over time, no hazardous material has been observed. This conclusion is also supported by seep/sediment pore water monitoring conducted in 2002 and 2007. Based on these conditions and observations, this 5-year review is in concurrence with past 5-year reviews regarding Area 1 that no further monitoring of seep/pore water in beach sediment is necessary.

Area 31

Groundwater samples have been collected from six wells (OWS-1, OWS-3, OWS-4, MW31-9A, MW31-34, and MW31-35) at Area 31 on a quarterly basis since 2002. The most recent monitoring event was conducted in May of 2007. Sampling locations are shown on Figure C-1 (Appendix C). Samples have been analyzed for diesel-range organics (DRO), gasoline-range organics (GRO), and RRO on a quarterly basis and benzene, manganese, naphthalene, styrene, toluene, and vinyl chloride on an annual basis. A cumulative summary of laboratory-reported analytical results is provided on Table C-1 in Appendix C (U.S. Navy 2007b).

The May 2007 data indicate that no free product is present in any of the monitored wells. In addition, the residual fuel contaminants are contained in the vicinity of OWS-1 and MW31-9A and are not migrating downgradient off site. Field parameters indicate natural attenuation is occurring at the site (U.S. Navy 2007b).

DRO and GRO have remained below the cleanup level of 1,000 µg/L in groundwater samples from OWS-3, OWS-4, MW31-34, and MW31-35 since at least November 2004. GRO in groundwater samples from OWS-1 dropped below the cleanup level in March 2007.

DRO concentrations have remained consistently above the cleanup level in samples from wells OWS-1 and MW31-9A over the review period. DRO concentrations have fluctuated over this time period. DRO concentrations in samples from OWS-1 have ranged from 1,200 µg/L in the November 2003 sample to 24,000 µg/L in the February 2005 sample. DRO concentrations in samples from MW31-9A have ranged from 3,100 µg/L in the November 2002 sample to 19,000 µg/L in the July 2005 sample. Figure C-2 shows no distinct increasing or decreasing DRO concentration trends in samples from wells OWS-1 and MW31-9A over this review period (data from U.S. Navy 2007b).

The distribution of GRO has been similar to DRO at this site in that it has been measured at concentrations greater than the cleanup level of 1,000 µg/L in wells OWS-1 and MW31-9A. However, samples collected from OWS-1 during the last two quarterly events (March and May 2007) did not contain GRO at concentrations greater than the cleanup level. GRO concentrations in samples from MW31-9A have ranged from 900 µg/L in November 2003 to 4,200 µg/L in May

2007. Figure C-3 shows fluctuating concentrations over time, similar to DRO. DRO has increased from 1,900 to 4,200 µg/L in the last three samples from MW31-9A.

RRO concentrations have generally remained below the cleanup level of 1,000 µg/L in all samples collected during the review period, with minor exceedances occurring on a sporadic basis (Table B-1). RRO has not been measured at a concentration greater than the cleanup level in any of the samples collected over at least the last six monitoring events.

Benzene has not been measured at concentrations greater than the cleanup level of 5 µg/L in samples from OWS-3, OWS-4, MW31-34, and MW31-35 during this review period. Benzene concentrations have increased in MW39-9A samples from 62 µg/L in 2002 to 190 µg/L in 2007. However, this increase has been inconsistent with a decrease from 2003 to 2004 and from 2005 to 2006. The lowest benzene concentration observed during this period (21 µg/L) for MW31-9A was measured in the 2006 sample. Benzene in samples from OWS-1 increased from 20 µg/L in 2002 to 150 µg/L in 2004 and decreased to 11 µg/L in 2007.

Dissolved manganese concentrations have remained consistently above the cleanup level of 142 µg/L in annual samples collected from wells OWS-1, OWS-3, MW31-9A, and MW31-34. The highest manganese concentration measured during the review period (9,670 µg/L) was observed in the 2007 sample from MW31-9A. Dissolved manganese concentrations have increased in MW31-9A samples from 5,600 µg/L in 2002 to 9,670 µg/L in 2007. The dissolved manganese concentration in the 2002 OWS-1 sample was 3,040 µg/L, increased to 7,750 µg/L in 2005, and decreased to 3,400 µg/L in 2007.

OWS-1 was the only location from which samples containing naphthalene at concentrations greater than the cleanup level of 320 µg/L. Naphthalene has decreased from 420 µg/L in the 2002 sample to 4.5 µg/L in the 2007 sample. Styrene was measured in only one sample, the 2002 sample from OWS-1, at a concentration greater than the cleanup level of 1.46 µg/L during the review period. Toluene was not measured at a concentration greater than the cleanup level of 1,000 µg/L in any of the samples collected from Area 31 during the review period.

Vinyl chloride was not measured at a concentration greater than the cleanup level of 0.1 µg/L in the samples from OWS-3, OWS-4, MW31-34, and MW31-35. Vinyl chloride concentrations have generally decreased in MW31-9A groundwater samples from 1.4 µg/L in 2002 to 0.61 µg/L in 2007. Vinyl chloride has also decreased in OWS-1 samples from 3.6 µg/L in 2003 to an estimated 0.34 µg/L in 2007.

Area 31 Monitoring Recommendations

Based on the results collected over the last 5 years, it appears that residual fuel constituents are contained in the vicinity of OWS-1 and MW31-9A and are not migrating downgradient off site.

Furthermore, field parameters suggest natural attenuation is occurring at the site (U.S. Navy 2007b). The U.S. Navy 2007b report recommended reducing the monitoring frequency to once every 5 years. However, the persistence and magnitude of DRO, GRO, benzene, and dissolved manganese concentrations in samples from wells MW31-9A and OWS-1 suggests that annual monitoring until the next 5-year review is more appropriate. This monitoring frequency will enable confirmation of plume stability, confirm that natural attenuation is occurring, and provide data sufficient to monitor COC concentration trends across the site.

Based on a review of the data during this 5-year review and conclusions presented in U.S. Navy 2007b, it is recommended that RRO, styrene, and toluene monitoring be discontinued at OU 5 Area 31. It is further recommended that DRO, GRO, benzene, naphthalene, and vinyl chloride monitoring be conducted on an annual basis at MW31-9A and OWS-1 over the next 5 years. Dissolved manganese monitoring should be conducted on an annual basis at MW31-11. The monitoring frequency should be reevaluated during the next 5-year review.

Area 52

Water samples have been collected periodically at two Area 52 seep locations. Samples were collected at SP-4 in 1997, 1998, 1999, and 2007. Samples were collected at SP-6 in 1997 and 2007. Sampled locations are shown on Figure 6-2. During 2007, sediment pore water samples were collected from approximately 36 inches below the ground surface at both sampled locations using PushPoint equipment. The purpose of the 2007 sampling was to confirm that dissolved petroleum hydrocarbons were not migrating to the marine environment at concentrations greater than groundwater cleanup levels following closure of the product recovery system at Area 52 in June 2007. Analytical results for Area 52 seep sampling are provided in Table 6-5.

Seep samples were analyzed for TPH in the diesel range (TPH-D) and heavy oil range (TPH-Dx). The cleanup level for TPH-D and TPH-Dx is 1,000 µg/L. TPH-D has been measured in water samples from SP-4 at concentrations ranging from less than 270 to 1,100 µg/L, with the highest concentration measured in the 1999 sample. TPH-D was measured at 306 µg/L in the 2007 sample from SP-4, which is less than the cleanup level. TPH-Dx was not measured in the 1997 sample from SP-4 and was not detected above the reporting limits of 1,000 µg/L and 720 µg/L in the 1998 and 1999 samples from SP-4. These reporting limits were equal to or below the cleanup level. TPH-Dx was measured at an estimated concentration of 154 µg/L in the 2007 sample from SP-4, which is less than the cleanup level.

TPH-D was not measured at a concentration greater than the reporting limit of 250 µg/L in the 1997 sample from SP-6. TPH-D and TPH-Dx were measured at estimated concentrations of 76.2 and 115 µg/L in the 2007 sample from SP-6. Both of these concentrations are less than the cleanup level. TPH-Dx was not measured in the 1997 sample from SP-6.

Area 52 Monitoring Recommendations

Sediment pore water samples should be collected from the 6 established seep sampling locations using push probe methods in support of the next 5-year review. The samples should be analyzed for TPH-D and TPH-Dx.

6.5 RESULTS OF SITE INSPECTIONS

Site inspection checklists and photographs are provided in Appendix D. This section contains a summary of the site inspection findings. The site visit occurred on September 10, 2007 and was conducted by the following personnel:

- Michael Carsley, NAVFAC NW Contracting Officer's Representative
- Greg Burgess, URS Group, Inc.

The site visit included verifying that remedial actions were completed and operational (for those items that could be visually inspected) and inspecting all portions of the site covered by institutional controls. Sites within flightline and operating runways (OUs 3 Area 16 and OU 5 Area 31) could not be visited due to ongoing flight operations.

At OU 1, a visual inspection of Area 5 was conducted. There is no active remedy at this site, but the perimeter fencing was in good condition. The site has been overgrown by native vegetation, but there were no signs of unauthorized access or well installation.

At OU 1 Area 6, site inspections are generally conducted during regular monitoring and or maintenance events. A visual inspection was conducted at OU 1 Area 6 for this review. The treatment system at OU 1 Area 6 appeared to be in good working condition and was operating normally. Operation and maintenance (O&M) manuals and records and the health and safety plan were available at the site and were up to date. Documentation of O&M activities is performed through quarterly technical reports. All existing wells that require monitoring as part of routine performance or compliance monitoring are in serviceable condition and require no specific maintenance (U.S. Navy 2007a). The landfill cap appeared to be in good condition. Some settlement was observed in the southeast section of the landfilled area. Photographs are provided in Appendix D. During routine inspections, the system operator identified this settlement as having occurred prior to 2002 and reports that no additional settlement has occurred since that time. No cracks or other signs of compromise to the cap integrity were observed.

Visual evidence indicated that the institutional control requirements at OU 1 are generally being met. The perimeter fence along the southwest boundary is damaged and needs repair to maintain access controls. In 2006, a retired Navy person rode his bicycle around the landfill perimeter road. When stopped by on-site personnel and asked to leave, he indicated that since he was retired Navy he was authorized to be on the site. After further discussion, the individual left without incident. The Navy has replaced the signs to clarify access limits. No other incidents of trespassing are known.

At OU 2, visual inspections were conducted at Areas 2/3, 4, and 29. Signage was in good condition and the monitoring wells were reported to be serviceable (U.S. Navy 2007d). The station perimeter fence is in good working order to restrict access to Areas 2/3 and 4 and the fence at Area 29 is in similar condition. Two bung-top drums were observed in Area 2. It is not known if the drums are empty. A photograph of the drums is provided in Appendix D. The approximate location of the drums is shown on Figure 6-1. The Navy will remove these drums. Native vegetation has overgrown the areas within OU 2. Other than the presence of the drums, there was no visual evidence of unauthorized access or use. Visual evidence indicated that land use control requirements at OU 2 are generally being met.

OU 3, Area 16 was not visited. It is located in and around the runways at NAS Whidbey Island and operations were heavy on the day of the visit. No wells are associated with the site and there was no known installation of groundwater wells during the review period. The ditches are periodically inspected to maintain flows. Vegetation and accompanying sediment is periodically removed from the ditches and placed on the adjacent banks to maintain flow. Anecdotal evidence and general NAS Whidbey access controls suggest that land use control requirements at OU 3 are generally being met.

Visual inspections were conducted at OU 4 Areas 39, 41, 44, 48, and 49. Access is controlled through manned gates. Native vegetation has overgrown Areas 39, 41, 48, and 49. Area 44 remains paved. There were no visual indications of unauthorized use or well installation. Visual evidence indicated that land use control requirements at OU 4 are being met.

Visual inspections were conducted at OU 5 Areas 1 and 52. Signage at Areas 31 and 52 were in good condition. Slumping has occurred along the bluff of the landfill at Area 1 and has exposed some debris. Photographs of the slumping and exposed debris are provided in Appendix D. The location of the slumping and exposed debris is shown on Figure 6-2. Area 31 is located adjacent to the runway at NAS Whidbey Island and the area was not accessible at the time of the inspections. Site inspections are generally conducted during regular monitoring and or maintenance events at Area 31. All existing wells that require monitoring as part of routine performance or compliance monitoring are in serviceable condition (U.S. Navy 2007b). There was no visual evidence that unauthorized land use had occurred at Areas 1 and 52 and no unauthorized use has been reported at Area 31 (U.S. Navy 2007b). Visual evidence indicated that land use control requirements at OU 5 are generally being met.

6.6 RESULTS OF INTERVIEWS

As part of the 5-year review, interviews were conducted with persons familiar with the CERCLA actions at NAS Whidbey Island. Interview candidates were identified from a variety of organizations and groups, including the Navy (including NAVFAC NW and NAS Whidbey Island), EPA, Island County Health Department, City of Oak Harbor, and community RAB members. A set of interview questions and instructions were transmitted to interview candidates by e-mail or post. Not all interview candidates chose to respond to the interview request.

The interview responses are included in Appendix E. Highlights of the interviews are summarized below.

6.6.1 Navy Personnel

The Navy's Remedial Project Manager for the last 8 years provided responses to interview questions. His overall impression is that the remedies are in place and functioning as intended. He indicated that changes to the program at NAS Whidbey Island included suspension of fuel recovery and quarterly groundwater monitoring at Area 52, with transition to natural attenuation. The EPA concurred with this transition. Also, quarterly groundwater monitoring has been suspended at Area 31. Specific interview questions and responses are provided in Appendix E.

6.6.2 Environmental Protection Agency Personnel

The EPA Project Manager for NAS Whidbey Island and the EPA hydrogeologist familiar with NAS Whidbey Island provided responses to interview questions (Appendix E).

The EPA Project Manager's overall assessment was that things seem to be going well, based on the data that EPA has received. In general, EPA is not aware of any major issues, violations, complaints, or incidents that have occurred during the last 5 years. The EPA noted that most of the recommendations made in the second 5-year review have been implemented, with the exception of the recommendation to conduct additional monitoring of VOC concentrations in vadose zone soils to evaluate the effect of the DNAPL source removal action and to evaluate the migration of VOC compounds. This was supposed to be completed in June of 2005. Vadose zone vapor monitoring for VOCs has been identified as an incomplete recommendation in Table 5-1 and has been included as a recommendation in Table 8-1.

Relative to community concerns, the EPA was contacted by a local resident who was concerned about the possibility of his drinking water well being contaminated from activities related to NAS Whidbey Island. The individual was referred to the Navy's environmental office, and the Navy worked closely with him to provide information and determine if there could potentially be any connection. There was no evidence to suggest that this property owner's well could be contaminated from operations at NAS Whidbey Island. The only other concern has been related to the 1,4-dioxane off-site well sampling at private wells close to NAS Whidbey Island. However, that sampling was initiated by the Navy.

The EPA hydrogeologist felt that remedy operation, maintenance, and monitoring have been revised in accordance with recommendations made in the second 5-year review and that the remedies continue to be effective. The EPA hydrogeologist noted that at OU 1 Area 6, there have been issues with 1,4-dioxane throughout the plumes and apparently migrating from the southeast end of the landfill. So far, however, concentrations in off-base domestic wells are well below acceptable risk levels and Washington State's MTCA Method B value, but the EPA hydrogeologist expressed concerns about future trends and monitoring. As long as Island County enforces the buffer that prevents well drilling, the EPA hydrogeologist felt that the remedy should remain protective.

The EPA hydrogeologist noted that soil resampling at OU 3 has identified some recontamination issues that have ecological protectiveness implications. Additional sediment sampling is recommended in Table 8-1.

The EPA hydrogeologist felt that the ongoing monitoring program meets the goals of the ROD, with some periodic tweaking to add 1,4-dioxane sampling points. There may be a need for additional monitoring points between the southeast corner of the Area 6 landfill and off-base domestic wells if concentrations in on-base wells are still rising. That area is not captured by the OU 1 pump-and-treat system.

The EPA hydrogeologist indicated there were two recommendations for OU 1 that have not been implemented to the EPA's satisfaction. One was to conduct additional monitoring of VOC concentrations in vadose zone soils from existing multilevel vapor monitoring wells in the general vicinity of the "acid pit.," The second part of that recommendation was to consider additional source removal as part of the pump-and-treat optimization study that was already planned. The Navy hired a contractor to perform a remedial process optimization. The EPA hydrogeologist believes that this study was neither a robust optimization of the pump-and-treat system, nor a robust re-evaluation of whether there was a significant VOC source remaining in the vadose zone in the vicinity of the acid pit to act as a long-term source that would preclude shutting the system off in the future. The EPA felt it was mainly an attempt to justify adopting an "alternative remedial strategy," involving turning off the pump-and-treat system (allowing contamination above the clean up levels to leave the site) and counting on some unknown amount of “enhanced” attenuation capacity to remediate the plume as it migrated under the Oak Harbor Landfill.

To clarify the Navy’s position on the optimization report (U.S. Navy 2006e), the optimization evaluation recommended conducting targeted mass removal via in situ chemical oxidation while maintaining pump-and-treat system operation. Natural attenuation was recommended only after reduction of concentrations to a predetermined level that would not result in excess risk to potential downgradient receptors.

An additional concern from the EPA hydrogeologist is that 1,4-dioxane is simply being recycled through the groundwater system, and not remediated. Ecology needs to be engaged to determine whether infiltration of water containing a contaminant at concentrations greater than MTCA B levels is acceptable. The EPA hydrogeologist felt that it might be necessary to add 1,4-dioxane treatment and to better characterize 1,4-dioxane concentrations that may be leaving the southeast corner of the site. In response to the concern, sampling does not indicate that 1,4-dioxane has reached any downgradient receptors at concentrations greater than the MTCA cleanup level. The Navy is evaluating the applicability and cost effectiveness of treatment alternatives for 1,4-dioxane.

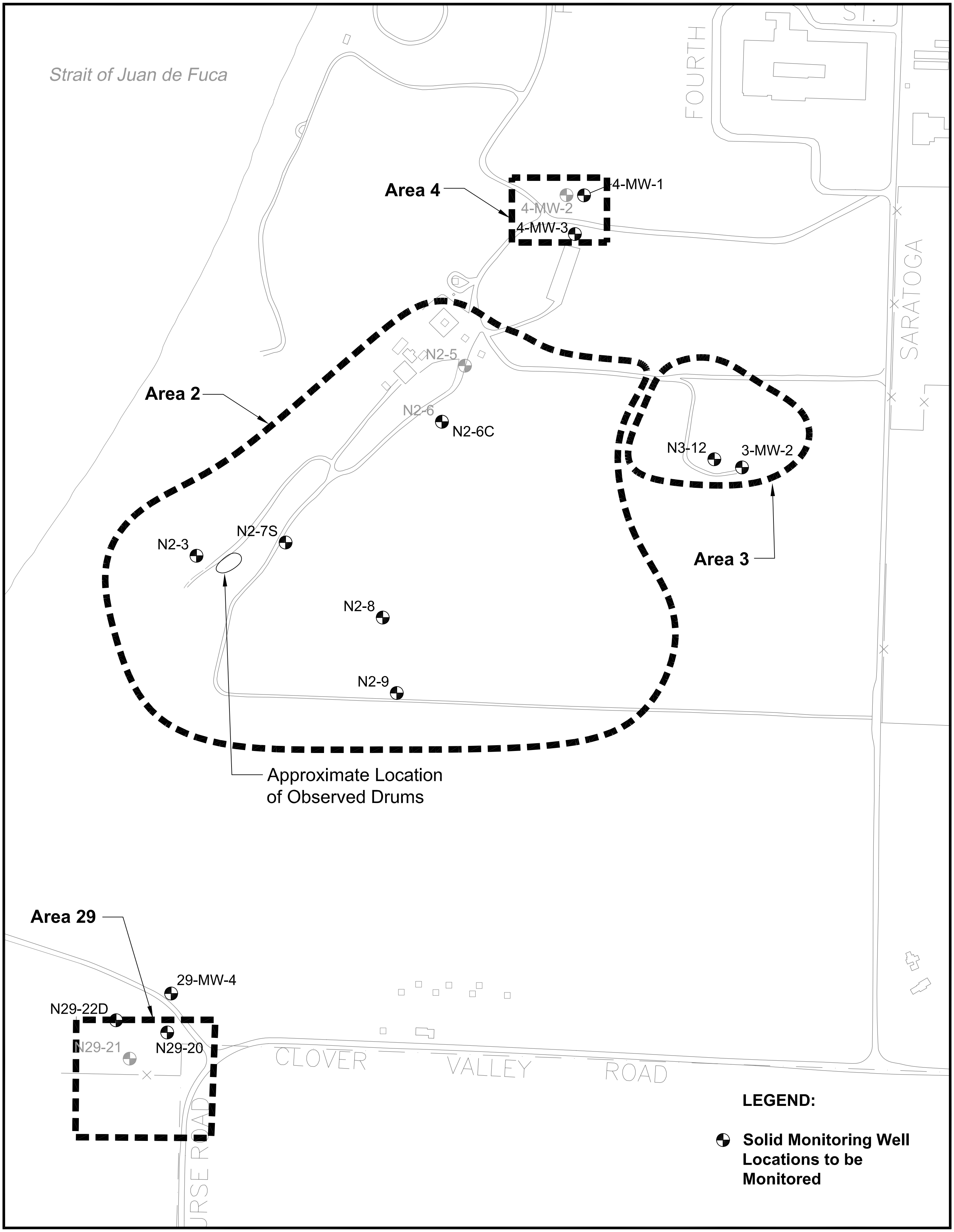
There was also a recommendation for OU 5 that called for post-shutdown seep sampling at Area 52. The EPA hydrogeologist thought that this may have happened last summer, because there was some indication that plans were being developed. However, she never saw the plans and doesn’t know if it actually happened. Post-shutdown seep sampling was conducted during July 2007 and the results are summarized in Section 6.4 of this document.

6.6.3 Island County Health Department

The Island County Health Department representative who has participated in the NAS Whidbey Island program in the past indicated that the department has a good working relationship with NAS Whidbey Island representatives and is not aware of any concerns within their organization or the community regarding implementation of the remedies at the five NAS Whidbey Island OUs.

6.6.4 Community Members

A community member who has attended RAB meetings also provided responses to interview questions. He indicated that it was difficult to assess what effects post-ROD remedy implementation have had on the surrounding community. He indicated that community members who initially presented concerns to the RAB have not presented follow-up information that allows response to this question. The absence of ongoing dialogue was taken as a positive sign that problems presented have been addressed. The community member felt that overall the program was very good. However, the amount of tax dollars spent on many projects appears excessive. He felt that future projects need to be examined closely for "the most cost-effective approach."



U.S. NAVY	NAS Whidbey Whidbey Island, WA THIRD 5-YEAR REVIEW	0 125 250 500 SCALE IN FEET	**Figure 6-1** **Areas 2, 3, 4, and 29**

FILENAME: T:\WHIDBEY\DO 27_5 YR REVIEW\FIG 6-1 Areas 2,3,4,29.dwg
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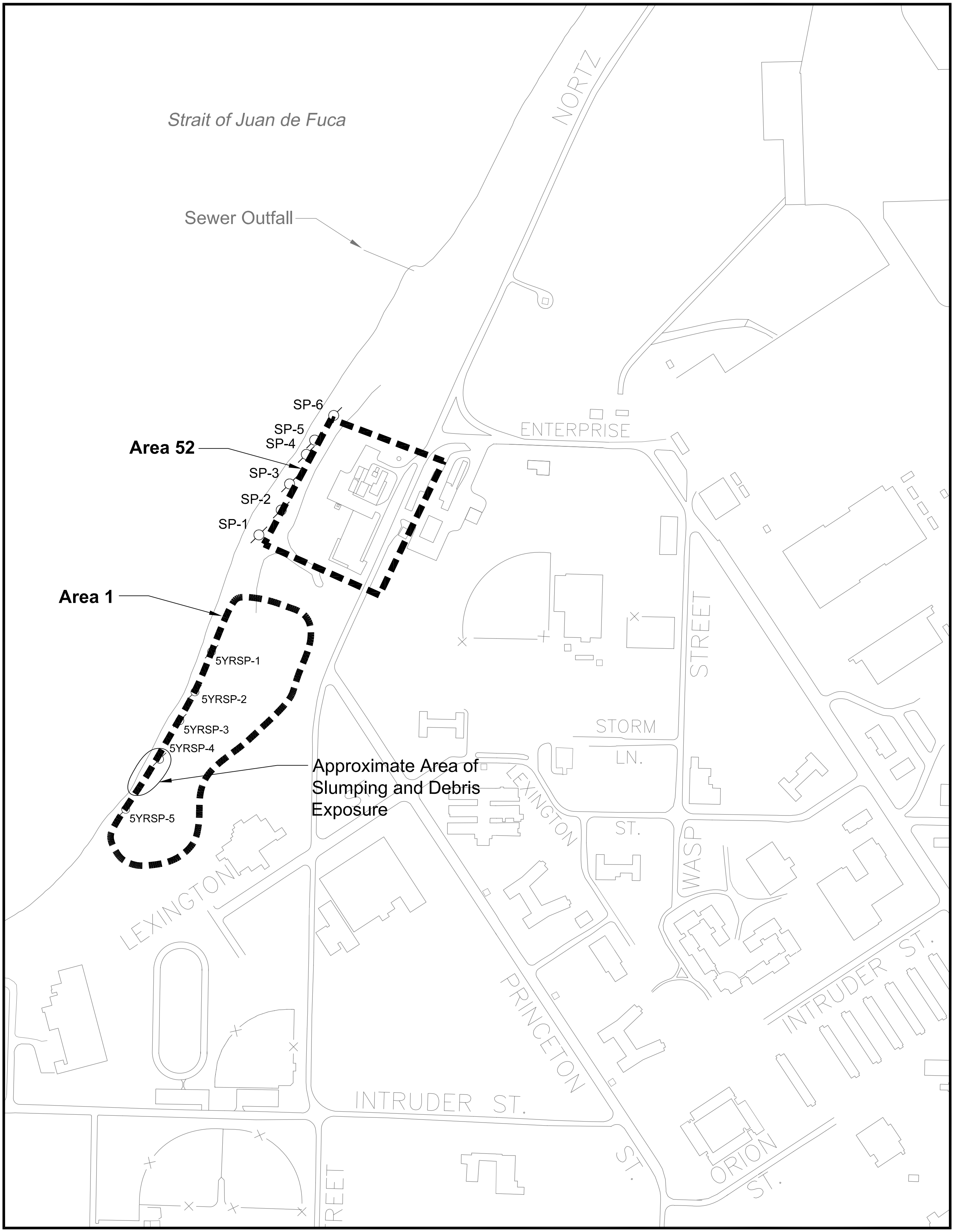

FILENAME: T:\WHIDBEY\DO 27_5 YR REVIEW\FIG 6-2 Areas 1,52.dwg
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U.S. NAVY	NAS Whidbey Whidbey Island, WA THIRD 5-YEAR REVIEW	N 0 125 250 500 SCALE IN FEET	**Figure 6-2** **Areas 1 and 52**

Table 6-1
Summary of Post-ROD Groundwater Analytical Results for OU 2 Areas 2/3

Location ID	Date	Volatile Organic Compounds				Total Inorganics	
		1,1-Dichloroethene (µg/L)	1,4-Dichlorobenzene (µg/L)	Vinyl Chloride (µg/L)	Vinyl Chloride SIM (µg/L)	Total Arsenic (µg/L)	Total Manganese (µg/L)
3-MW-2	1995	1U	1U	1U	NA	6.4	**153**
	2002	0.12U	0.098U	0.22U	NA	**8.9U**	65.7
	2007	0.2U	0.2U	NA	0.02U	6.56	121
N2-3	1995	NS	NS	NS	NS	**8.8**	50.6
	2002	0.12U	0.098U	0.22U	NA	**31.6**	61.8
	2007	0.2U	0.2U	0.2U	0.02R[a]	**38.6**	84.9
N2-6C	1995	NS	NS	NS	NS	NS	NS
	2002	0.12U	0.098U	0.22U	NA	**8.9**	**318**
	2007	0.2U	0.2U	0.2U	0.02U	5.92	**250**
N2-7S	1995	1U	1U	1U	NA	**25.2**	**4,590**
	2002	0.12U	0.46J	0.22U	NA	**25.6**	**4,250**
	2007	0.2U	0.55	0.2U	0.021	**80.5**	**3,510**
N2-8	1995	NS	NS	NS	NS	5J	118
	2002	0.12U	0.098U	0.22U	NA	5U	2.5
	2007	0.2U	0.2U	0.2U	0.02R[a]	**9.86**	55.2
N2-9	1995	NS	NS	NS	NS	6.4	44.8
	2002	0.12U	0.098U	0.22U	NA	4.9U	2.1
	2007	0.2U	0.2U	0.2U	0.02R[a]	7.55	40.5

Table 6-1 (Continued)
Summary of Post-ROD Groundwater Analytical Results for OU 2 Areas 2/3

Location ID	Date	Volatile Organic Compounds				Total Inorganics	
		1,1-Dichloroethene (µg/L)	1,4-Dichlorobenzene (µg/L)	Vinyl Chloride (µg/L)	Vinyl Chloride SIM (µg/L)	Total Arsenic (µg/L)	Total Manganese (µg/L)
N3-12	1995	1U	1U	**12**	NA	**71.5**	**8,270**
	2002	0.12U	0.098U	**11**	NA	**55.6**	**5,270**
	2007	0.2U	0.2U	NA	**5.84**	**47.9**	**3,670**
Cleanup level		7[b]	63	1	1	7.7	125

[a]Result "U" qualified but rejected during validation
[b]Maximum contaminant level

Notes:
Bolded value exceeds cleanup level
J - associated result considered to be an estimate
NA - not analyzed
R - result rejected by data validator
ROD - Record of Decision
U - analyte not detected above specified reporting limit
µg/L - microgram per liter

Table 6-2
Summary of Post-ROD Groundwater Analytical Results for OU 2 Area 4

Location ID	Date	Total Arsenic (µg/L)
4-MW-1	1995	**11**
	2002	**8.8**
	2007	**9.04**
4-MW-3	1995	**11.2**
	2002	**10.6**
	2007	**19.1**
Cleanup level		7.7

Notes:
Bolded value exceeds cleanup level
ROD - Record of Decision
µg/L - microgram per liter

Table 6-3
Summary of Post-ROD Groundwater Analytical Results for
OU 2 Area 29

Location ID	Date	Total Arsenic (µg/L)
29-MW-4	1995	**10**
	2002	**10.4**
	2007	**8.72**
N29-20	1995	**12**
	2002	**12**
	2007	**17.4**
N29-22D	1995	**19.4**
	2002	**20.6**
	2007	**23.5**
Cleanup level		7.7

Notes:
Bolded value exceeds cleanup level
ROD - Record of Decision
µg/L - microgram per liter

Table 6-4
Summary of Post-ROD Seep and Sediment Pore Water Analytical Results for OU 5 Area 1

Location ID	Date	Cadmium (µg/L)	Chromium (µg/L)	Copper (µg/L)	Cyanide (µg/L)	Mercury (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
5YRSP-1	2002[a]	7.2	3.1	18.1	3U	0.3J	15.2J	35.5
	2007[a]	10U	2.23	11.3	5U	0.2UJ	1.72J	22.5J
5YRSP-2	2002[a]	5.8	4.3	27.8	3U	0.4J	18.9J	39.5
	2007[a]	0.35J	4.15	15.8	5U	0.0266J	7.2J	25.6J
5YRSP-3	2002[a]	6.6	35.3	41.7	3U	0.2J	38.2J	58.2
	2007[a]	1U	9.85	19.6	5U	0.2UJ	10.7J	29.5J
5YRSP-4	2002[a]	4	7.7	18.1	3U	0.1R	18.4J	30
	2007[a]	1U	15.5	26.6	5U	0.2UJ	22J	34.3J
5YRSP-5	2002[a]	7.4	15.2	48.7	3U	0.1J	45.1J	35.4
	2007[b]	1U	22.4	18.9	5U	0.2UJ	9.73J	33.9J
ROD-specified cleanup level		NE	NE	NE	1	NE	NE	76.6

[a]Seep sample
[b]Sediment pore water collected with "PushPoint" sampler

Notes:
J - associated value considered an estimate
NE - not established
µg/L - microgram per liter
ROD - Record of Decision
U - analyte not detected at a concentration above the specified reporting limit

Table 6-5
Summary of Post-ROD Surface Water Analytical Results for
OU 5 Area 52

Location ID	Date	TPH—Diesel (µg/L)	TPH—Heavy Oil (µg/L)
SP-4	1997	270	NA
	1998	250U	1,000U
	1999	**1,100**	720U
	2007	306	154J
SP-6	1997	250U	NA
	2007	91.9J	127J
Cleanup level		1,000	1,000

Notes:
Bolded value exceeds cleanup level
J - associated results considered an estimate
µg/L - microgram per liter
NA - not analyzed
TPH - total petroleum hydrocarbons
U - analyte not detected at a concentration greater than specified reporting limit

7.0 TECHNICAL ASSESSMENT

This section answers three questions:

- Is the remedy functioning as intended by the decision documents?
- Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy still valid?
- Has any other information come to light that could call into question the protectiveness of the remedy?

Based on the answers to these questions discussed in this section, a technical assessment of the remedies is summarized.

7.1 FUNCTIONALITY OF REMEDY

This section answers the question, "Is the remedy functioning as intended by the decision documents?" Each component of the remedy for each OU is discussed in the sections that follow, generally in the order that the components were described in Section 4.

7.1.1 Functionality of Remedy for OU 1

No action was the selected remedy for OU 1 Area 5. The Navy decided to conduct a one-time sampling and monitoring event to assess whether metals concentrations in groundwater were consistent with background levels, or elevated above levels of concern for human health (U.S. Navy, Ecology, and USEPA 1992). Groundwater use restrictions were implemented because of the potential presence of landfilled material at this site. As described below, institutional controls are effectively enforced base-wide and the remedy is functioning as intended.

An Explanation of Significant Difference was completed and finalized to formalize implementation, monitoring, and reporting of institutional controls base-wide at NAS Whidbey Island. Institutional controls monitoring is currently conducted during routine monitoring at active sites and on a 5-year basis at the remaining sites at NAS Whidbey Island. Institutional controls are effectively enforced by Navy instruction and perimeter fencing, security related access controls, and the requirement for environmental review of all construction activities at NAS Whidbey Island, including well installation.

Area 6

Based on observations made during the site inspection, the landfill cap is functioning as intended. The landfill cap is intact and appears to be well maintained. The groundwater extraction and treatment system has been successful at reducing COC concentrations in groundwater as evidenced by an order of magnitude decrease in COC concentrations in the highest concentration areas. The lateral extent of COCs in the shallow groundwater appears to be decreasing. COCs in groundwater continue to extend off site to the west and the southwest, but there is no evidence that the plume is expanding either to the west or to the south. The system has successfully reduced concentrations in these areas, but continued reliable extraction from well PW-5 is necessary to maintain control of the plume extending off site to the southwest. Well PW-5 is also important for capturing COCs that have extended across the western border as they migrate south with groundwater flow. Flow rates and target drawdowns must be carefully maintained at PW-5 in order to maintain remedy functionality. Groundwater monitoring indicates that 1,4-dioxane has reached one private well at a concentration below MTCA Method B cleanup levels. 1,4-Dioxane is not a ROD-identified COC, but was established as a chemical to be addressed at the site through the “new information” review during the second 5-year review. The monitoring program implemented at the site is functioning as intended by the ROD. Institutional controls are effectively enforced through the Explanation of Significant Difference and the Navy instruction and are functioning as intended by the ROD. To maintain institutional control functionality, some minor repairs to the fence in the southwestern portion of the site are required to continue maintaining access control. The gate sign language was revised to further limit access.

7.1.2 Functionality of Remedy for OU 2

Areas 2/3

A combination of institutional controls and a groundwater monitoring program for the first 5 years was selected as the remedy for Areas 2/3. The intent of the groundwater monitoring program was to confirm that concentrations of inorganics in groundwater were within background levels and below risk-based levels. Based on results of the first and second 5-year reviews, groundwater monitoring continues on a 5-year basis, and the need for continued monitoring is assessed on the same cycle. Institutional controls are effectively enforced through Navy instruction. Based on the site inspection, 2007 monitoring results, and performance of institutional controls, the remedy for OU 2 Areas 2/3 is functioning as intended by the ROD.

Area 4

Excavation and off-site disposal of approximately 1,750 yd^3 of PCB-contaminated soil has been completed at Area 4. Low-stress groundwater monitoring has been conducted to determine the level of inorganics in the groundwater for both on-area and background wells. Institutional controls (groundwater use restrictions) and continued groundwater monitoring were implemented based on the results of the initial groundwater monitoring. Groundwater monitoring continues on a 5-year basis, and the need for continued monitoring is assessed on the same cycle. Institutional controls are effectively enforced through Navy instruction. Based on the site inspection, 2007 monitoring results, and performance of institutional controls, the remedy for OU 2 Area 4 is functioning as intended by the ROD.

Area 14

The dry well and monitoring well 14-MW-1 were pumped out and approximately 1,000 gallons of water was treated and disposed of. The dry well and monitoring well were removed and approximately 420 yd^3 of surrounding contaminated soil was excavated and disposed of. Well 14-MW-1 was reinstalled downgradient of its original location and groundwater sampled during the wet season to confirm the effectiveness of the remediation effort. A groundwater use restriction was placed on the site following completion of the confirmatory groundwater monitoring event. The EPA confirmed, via letter, that all cleanup actions required by the ROD have been implemented and the remedy was complete (U.S. Navy 1998). The institutional controls are effectively enforced at this site and the remedy remains functional.

Areas 29

Excavation and disposal of approximately 1,400 yd^3 of PCP- and PAH-contaminated soil from several locations surrounding the burn pad has been completed at Area 29. Low-stress groundwater monitoring has been conducted to determine the level of inorganics in the groundwater for both on-site and background wells. Institutional controls (groundwater use restriction) and continued groundwater monitoring were implemented based on results of the initial monitoring event. Groundwater monitoring continues on a 5-year basis, and the need for continued monitoring is assessed on the same cycle. Institutional controls are effectively enforced through Navy instruction. Based on the site inspection, 2007 monitoring results, and performance of institutional controls the remedy for OU 2 Area 29 is functioning as intended by the ROD.

7.1.3 Functionality of Remedy for OU 3

The initial 5-year review noted that remediation was completed in April 1996 as designed and no modifications were required. The OU 3 remedies were considered complete, and the initial 5-year review concluded that OU 3 would not be subject to future 5-year reviews because no hazardous substances, pollutants, or contaminants remained on site above levels that would not allow for unlimited use and unrestricted exposure (U.S. Navy, 1998).

Current EPA guidance (USEPA 2001) requires that 5-year reviews at NAS Whidbey Island include OU 3 because of institutional controls encompassing Area 16 that do not allow for the unlimited use of Area 16. The institutional control for this area consists of an industrial land use designation for areas 50 feet from either side of the ditch centerlines to allow the Navy to place material dredged from ditches on the ditch banks during routine maintenance.

Results from the 2002 and 2006 sediment monitoring indicate that the removal action was successful in achieving cleanup levels. Institutional controls are effectively enforced by Navy instruction. Based on site observations and sediment monitoring data, the remedy for OU 3 is functioning as intended by the ROD.

7.1.4 Functionality of Remedy for OU 4

Excavation and on-station or off-area disposal of contaminated soil at Areas 39, 41, 44, and 48 have been completed. OU 4 was deleted from the NPL on September 21, 1995. A notification regarding the existence of a historical construction and demolition debris landfill will be placed on the deed for Area 49 when and if the Navy disposes of the property. Transfer of any Navy property is conducted through a Finding of Suitability for Transfer process, during which the notification would be placed on the deed. As such, the remedy is functioning as intended by the OU 4 ROD.

7.1.5 Functionality of Remedy for OU 5

Institutional controls and monitoring, including annual visual inspections of the landfill bluff, were implemented as prescribed in the ROD. Annual inspections were performed prior to the initial 5-year review and then discontinued after satisfying the ROD requirement. Currently, it appears that construction debris from the landfilled area is exposed along the western bluff as a result of shoreline erosion. Base personnel report that this condition has been noted for some time. Seep monitoring conducted in 2007 showed COC concentrations in sediment pore water did not exceed ROD cleanup levels. Institutional controls are effectively enforced through Navy instruction. Based on site observations and the 2007 seep monitoring data, the remedy for Area 1 OU 5 is currently functioning as intended by the ROD. However, regular inspections of the bluff area should be conducted to monitor erosion of the western edge of the landfilled area. If erosion rates increase or materials with potentially hazardous chemical characteristics are exposed, the functionality of the remedy could be called into question.

Area 31

Removal of the oil/water separator and the ash pile was completed in April 1996. Oil skimming and bioventing was conducted from 1996 through June 2007. Semiannual groundwater monitoring was conducted to confirm system performance (FWEC 1997d). Institutional controls limiting site access and prohibiting groundwater use are effectively enforced through Navy instructions. Based on monitoring results, the remedy at OU 5 Area 31 has functioned as intended.

Area 52

A suspected dry well was removed from the site in 1996 as part of the remedy. Based on the removal and analytical results, it was concluded that the casing was not a dry well used for disposal purposes (U.S. Navy 2004b). The dry well removal component of the remedy is complete.

The product recovery system was operated from 1996 through June 2007. Based on product recovery rates, operation of the system was discontinued in June 2007 with EPA concurrence. Sediment pore water sampling was conducted in July 2007 at 2 of 6 previously established seep sampling locations. Results of the 2007 sampling event demonstrated that petroleum hydrocarbons had not migrated in groundwater from the site to the marine environment at concentrations greater than cleanup levels at the sampled locations.

The remedy at Area 52 is considered complete and institutional controls are effectively enforced through Navy instruction. It is recommended that sediment pore water sampling be conducted at all 6 previously established seep sampling locations, in support of the next 5-year review, to demonstrate that petroleum hydrocarbons are not migrating in groundwater from the site to the marine environment at concentrations greater than cleanup levels. This will confirm that the remedy is functioning as intended.

7.2 CONTINUED VALIDITY OF ROD ASSUMPTIONS

This section answers the question, "Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of remedy selection still valid?" Therefore, this section reviews any changes to ARARs used to establish cleanup levels in the RODs and reviews any changes to risk assessment assumptions (exposure and toxicity) to evaluate the protectiveness of the remedy.

The findings documented in this section are that changes in the exposure and toxicity assumptions of ARARs that have occurred since the RODs were signed do not affect the protectiveness of the remedies at OU 1 (Areas 5 and 6), OU 2 (Areas 2/3, 4, 14, and 29), OU 3 (Area 16), OU 4 (Areas 39, 41, 44, 48, and 49), and OU 5 (Areas 1, 31, and 52).

Concentrations of chemicals in groundwater remain above the cleanup levels at some locations in OU 1, OU 2, OU 3, OU 4, and OU 5 resulting in the need for continued institutional controls to prevent exposure and the need for ongoing monitoring. Although some of the cleanup levels might be lower if calculated today, the remedy components continue to protect against exposures, just as they did at the time the RODs were signed. Institutional controls preventing exposure and ongoing monitoring will need to continue until COC concentrations in groundwater and surface water are below the cleanup levels.

7.2.1 Review of Applicable or Relevant and Appropriate Requirements

In the preamble to the NCP, EPA states that ARARs are generally "frozen" at the time of ROD signature, unless new or modified requirements call into question the protectiveness of the selected remedy. Five-year review guidance (USEPA 2001) indicates that the question of interest in developing the 5-year review is not whether a standard identified as an ARAR in the ROD has changed in the intervening period, but whether such a change to a regulation calls into question the protectiveness of the remedy. If the change in the standard would be more stringent, the next stage is to evaluate and compare the old and the new standards and their associated risk. This comparison is done to assess whether the currently calculated risk associated with the standard identified in the ROD is still within EPA's acceptable excess cancer risk range of 10^{-4} to 10^{-6}, or below a hazard index of 1 for noncancer effects. If the old standard is not considered protective, a new cleanup standard may need to be adopted after the 5-year review through CERCLA's processes for modifying a remedy. The risk comparison is provided in Section 7.2.2 where the risk assessment assumptions are discussed.

The first 5-year review for OU 1 (Areas 5 and 6), OU 2 (Areas 2/3, 4, and 29), and OU 5 (Areas 1, 31, and 52) reported there were no substantive changes to ARARs that would call into question the protectiveness of the remedy (U.S. Navy 1998). It is presumed that during the second 5-year review for OU 1 (Areas 5 and 6), OU 2 (Areas 2/3, 4, 14, and 29), OU 3 (Area 16), OU 4 (Areas 39, 41, 44, 48, and 49), and OU 5 (Areas 1, 31, and 52), no substantive changes were found to ARARs that would call into question the protectiveness of the remedy (U.S. Navy 2004b). However, ARARs were not explicitly discussed in the second 5-year review report.

As part of this third 5-year review, all of the ARARs identified in the RODs were reviewed for changes that could affect the assessment of whether the remedy is protective. Based on this review, it was concluded that the following regulations listed as ARARs have changed:

- Washington State MTCA regulations
- Washington State marine surface water quality standards for protection of aquatic life

In addition to establishing risk-based cleanup levels, MTCA also allows for use of background or the laboratory practical quantitation limit (PQL) as a cleanup level when the MTCA cleanup level is lower than these values. Based on new analytical techniques, laboratories now are able to readily achieve lower PQLs for some COCs. When cleanup levels are established as PQLs and the PQLs decrease with improved technology, the 5-year review process does not typically recommend revising the cleanup levels during every 5-year review. Instead, the 5-year review includes an assessment of whether the latest PQLs are being used for monitoring and decision making.

The result of the amendments to the regulations is sometimes the lowering of a numeric ARAR. In these instances, the revised ARAR must be evaluated to determine whether there is a negative effect on the protectiveness of the remedy. This evaluation is discussed below. In other instances, the ARAR remains unchanged or has increased. In these instances, no further discussion is provided, because the protectiveness of the remedy is not affected.

Operable Unit 1

OU 1 consists of Areas 5 and 6. No cleanup levels were established for Area 5. For Area 6, the cleanup levels are based on future residential land use. These areas were reviewed separately for potential revisions to ARAR values that could affect the protectiveness of the remedies.

Area 5. Institutional controls including groundwater use restrictions remain in place at Area 5. No ARAR review was conducted for Area 5, because there were no ROD cleanup levels identified. All exposure assumptions and RAOs used at the time of the remedy selection are still valid. No other information has come to light since the last 5-year review that could call into the question of the protectiveness of the remedy.

Area 6. For Area 6, no cleanup levels were established for soil. Groundwater cleanup levels were based on the protection of human health, assuming groundwater is used as drinking water. For the COCs in groundwater listed in the OU 1 ROD, no revisions to the ARARs were found that would affect the protectiveness of the remedy.

The selected cleanup levels for Area 6 are generally based on MTCA Method B potable groundwater cleanup levels. Table 7-1 compares current ARAR values with those presented in the OU 1 ROD (U.S. Navy 1993, Table 17). The ARAR values for 1,1-dichloroethene and vinyl chloride have changed since the signing of the ROD. The MTCA Method B 1,1-dichloroethene value increased from 0.07 to 400 µg/L, because the EPA (USEPA 2007a) no longer considers this chemical a carcinogen (see Section 7.2.2). The vinyl chloride ARAR value increased from 0.02 to 0.029 µg/L. The lower ROD cleanup levels for both of these chemicals remain protective of human health**.**

The last 5-year review of April 2004 identified a new chemical, 1,4-dioxane, in the influent to the groundwater treatment system at Area 6 in 2003. Though 1,4-dioxane is not specified in the ROD or the second 5-year review for Area 6 as a COC, it has become a COC at other sites that are similar to Area 6 (U.S. Navy 2004b). Because it is a new chemical, no cleanup level was established in the ROD. However, there is a current MTCA Method B value and it is included on Table 7-1.

Operable Unit 2

For OU 2, soil and groundwater cleanup levels for Areas 2/3, 4, 14, and 29 were based on future residential use. For the COCs in soil and groundwater listed in the OU 2 ROD, no revisions to the ARAR values were found that would affect the protectiveness of the remedy.

Soil. The selected cleanup levels for Areas 4, 14, and 29 are based on MTCA Method A and Method B unrestricted land use. Table 7-2 compares current soil ARAR values with those documented in the OU 2 ROD (U.S. Navy, Ecology, and USEPA 1994, Table 12). In Area 14, the MTCA Method B cleanup level for 2,4-dichlorophenol has increased from 4.8 to 240 mg/kg. The lower ROD cleanup level remains protective of human health.

In Area 29, the MTCA A cleanup level for PAHs decreased from 1 to 0.14 mg/kg. Contaminated soil has been excavated and confirmatory sampling was conducted to verify a PAH cleanup level of less than or equal to 1 ppm (U.S. Navy 2004b). It is unknown if PAH concentrations between 1 to 0.14 mg/kg remain in soil on site. However, Area 29 is currently industrial and the Method A industrial cleanup level for PAHs based on benzo(a)pyrene is 2 mg/kg. If remaining concentrations of PAHs in soil are above the current ARAR of 0.14 mg/kg, institutional controls are in place to prevent residential land use. Therefore, the decrease in this ARAR value does not affect the protectiveness of the remedy.

Groundwater. The selected final cleanup levels for Areas 2/3, 4, 14, and 29 are based on a variety of sources, including MCLs, background values, PQLs, and MTCA Method B potable groundwater cleanup levels. Table 7-3 compares current groundwater ARAR values with those presented in the OU 2 ROD (U.S. Navy, Ecology, and USEPA 1994, Table 13) and the post-ROD levels. Background values for arsenic and manganese and a PQL for vinyl chloride were established after the ROD during groundwater monitoring (U.S. Navy 1997).

In Areas 2/3, 4, and 29, the final cleanup level selected for manganese was based on background. However, the MTCA Method B groundwater cleanup level for manganese increased from 80 to 2,200 µg/L. Therefore, the current MTCA Method B ARAR value of 2,200 µg/L could now be used as a cleanup standard, because it is larger than the background value of 125 µg/L. Because this is an increase in the regulatory level, the lower cleanup level remains protective of human health.

In Areas 2/3, the PQL for vinyl chloride has decreased from 1 to 0.02 µg/L. In addition, because the current MTCA Method B value for vinyl chloride is higher (0.029 µg/L) than the current PQL (0.02 µg/L, based on current laboratory analytical techniques), it could now be used as a cleanup standard instead of the ROD PQL (1 µg/L). Current and historical groundwater monitoring results for vinyl chloride exceed the ROD cleanup level of 1 µg/L (see Table 6-2). Although vinyl chloride currently has a lower ARAR value than the established cleanup level and site concentrations exceed the cleanup level, because institutional controls restrict groundwater use as a drinking water source, the remedy is still protective of human health. If institutional controls were to be removed from this area in the future, any remaining concentrations of vinyl chloride would have to be reviewed in terms of current toxicological information and analytical methods.

In Area 14, the MTCA B cleanup level for 2,4-dichlorophenol decreased from 48 to 24 µg/L. Although remediation has occurred at Area 14 based on the higher ROD cleanup level of 48 µg/L, groundwater sampling conducted in 1996 (U.S. Navy 1997) confirms that 2,4-dichlorophenol levels are well below 24 µg/L. As a result, groundwater sampling is not conducted or required at Area 14, because results were reported below a residential cleanup level (U.S. Navy 2004b). Currently, institutional controls restrict groundwater use as a drinking water source. However, sampling has demonstrated that site concentrations of 2,4-dichlorophenol are not a human health concern. Therefore, the remedy is still protective of human health.

Operable Unit 3

For OU 3, sediment cleanup levels for Area 16 were based on ecological receptors and industrial land use. No cleanup levels were established for surface water or groundwater. ARAR values were not available for ecological risk in sediment. Therefore, to establish cleanup levels, ecological receptor modeling (muskrat) was conducted for four chemicals (arsenic, 2-methylnaphthalene, dibenz[a,h]anthracene, and phenanthracene), background was used for lead, and MTCA Method A and C soil cleanup levels based on industrial land use were selected for the remaining chemicals (benzo[a]fluoranthene and TPH only). For the COCs in ditch sediment listed in the OU 3 ROD where cleanup levels are based on MTCA soil cleanup levels, no revisions were found that would affect the protectiveness of the remedy.

A review of the muskrat modeling toxicity values was conducted for lead and 2-methylnaphthalene, because the 2002 and 2006 sediment data for Area 16 indicated that these chemicals had concentrations above the ROD cleanup levels. While the ROD cleanup level for lead was based on background, ecological risk-based concentrations for lead are often lower than background because toxicity studies are often based on a highly biovailable form of lead. Therefore, ecological information on lead was reviewed as well as 2-methylnaphthalene. Information concerning the sediment sampling data is provided in Section 6.4 and Appendix B. If cleanup levels for lead and 2-methylnaphthalene were calculated today, higher cleanup levels would result, because there are additional toxicological studies available. However, the lower numbers selected in the ROD are protective of the environment and no changes to the remedy are required to be protective. The cleanup levels for remaining PAHs (dibenz[a,h]anthracene, and phenanthrene) are unlikely to be higher than the ROD cleanup levels because they are based on a site-specific risk assessment using appropriate risk-based criteria. Therefore, concentrations of these two PAHs that are currently below the ROD cleanup levels are likely acceptable and are protective of the environment. Maximum arsenic concentrations are below current MTCA Method A levels and are presumed to be protective of the environment on that basis.

The selected cleanup levels for Area 16 are based on muskrat modeling, background, and MTCA Method C industrial soil cleanup levels. Table 7-4 compares current soil ARAR values with those documented in the OU 3 ROD (U.S. Navy, Ecology, and USEPA 1995, Table 8-1). The table includes ROD and current regulatory levels based on human health (i.e., MTCA Methods A and C) for comparative purposes. Although there have been changes to the regulatory levels based on human health, the selected cleanup levels that were based on ecological modeling are lower. Therefore, the cleanup level remains protective of human health and the environment.

In addition, the ROD selected an cleanup level of 200 mg/kg for TPH in soil based on the MTCA Method A industrial or unrestricted cleanup levels. MTCA Method A values are currently available for each of the specific fuel type fraction ranges of diesel, heavy oil, mineral oil, gasoline with benzene, and gasoline without benzene. Therefore, a straight comparison of present and past MTCA Method A levels cannot be made for TPH. As shown in Table 7-4, the ROD-selected cleanup level of 200 mg/kg is protective for all of the individual TPH compounds with the potential exception of gasoline. However, the residual TPH in sediment is more likely attributable to the diesel range rather than the gasoline range, because the source is JP-5, and benzene was not identified as a COPC in the risk assessment. In addition, the MTCA Method A values are intended to be protective of unrestricted land use, and institutional controls are in place that will prevent residential use of the site. Therefore, the ROD-selected cleanup level for TPH remains protective of human health.

Operable Unit 4

For OU 4, no groundwater cleanup levels were established and the same soil cleanup levels were used for Areas 39, 41, 44, and 48 to achieve RAOs. Soil ARAR values were based on residential land use. For the COCs in soil and sediment listed in the OU 4 ROD, no revisions to the ARAR values were found that would affect the protectiveness of the remedy.

The selected soil cleanup levels were based on MTCA Methods A and B unrestricted land use cleanup levels. Table 7-5 compares current soil ARAR values with those documented in the OU 4 ROD (U.S. Navy, Ecology, and USEPA 1993b, Table 13). The current ARAR values for chromium and carcinogenic PAHs (cPAHs) have decreased and, therefore, these changes call into question the protectiveness of the remedy. The chromium cleanup level of 400 mg/kg (based on chromium VI; MTCA Method B) has decreased to 240 mg/kg (based on a change in toxicity criteria). The cPAH cleanup level of 1 mg/kg based on MTCA Method A has decreased to 0.14 mg/kg (based on benzo[a]pyrene). Contaminated soil has been excavated and confirmatory sampling was conducted to verify a chromium cleanup level of 400 mg/kg and a cPAH cleanup level of less than or equal to 1 ppm (U.S. Navy 2004b). It is unknown if chromium concentrations between 240 to 400 mg/kg and if cPAH concentrations between 1 to 0.14 mg/kg remain in soil on site. However, OU 4 is currently industrial, and the Method A industrial cleanup level for cPAHs based on benzo(a)pyrene is 2 mg/kg and the Method C industrial cleanup level for chromium VI is 11,000 mg/kg. If remaining concentrations of chromium and PAHs in soil are above current ARAR values (240 mg/kg and 0.14 mg/kg, respectively), land use controls are effectively enforced through Navy instruction for deed notification on transfer. Therefore, the decrease in these ARAR values does not affect the protectiveness of the remedy.

Operable Unit 5

OU 5 consists of Area 1, Area 31, and Area 52. Each of these areas were reviewed separately for potential revisions to the ARARs that could affect the protectiveness of the remedies.

Area 1. For Area 1, the human health and ecological risk assessments concluded that under the assumed industrial and recreational land use scenarios, no human or ecological risk was present at the site, and no RAOs were developed for the protection of human health and the environment for exposures to soil, freshwater sediments, or surface water. In addition, groundwater at Area 1 is not a drinking water source and no human health or ecological risk was identified for exposure to groundwater. However, cleanup levels were established for groundwater to address potential adverse impacts to marine life because groundwater discharges to the Strait of Juan de Fuca. No revisions to the groundwater ARARs were found that would affect the protectiveness of the remedy.

Table 7-6 compares current groundwater ARAR values for the protection of surface water with those presented in the OU 5 ROD (in U.S. Navy, Ecology, and USEPA 1996, Table 12). Since the ROD, the marine ambient water quality criterion (Washington Administrative Code 173-201A; 40 CFR Part 131) for zinc increased slightly, from 76.6 to 81 μg/L. However, this change does not affect the protectiveness of the remedy.

As discussed for OU 1 Area 6, 1,1-DCE is no longer considered a carcinogen. Therefore, if calculated today, the MTCA B cleanup level would increase from 1.9 to 24,000 μg/L.

Area 31. For Area 31, no chemical-specific cleanup levels were established for soil, sediment or ash. Chemical-specific cleanup levels were established for groundwater used as a drinking water source. No revisions to the groundwater ARARs were found that would affect the protectiveness of the remedy.

Soil. The human health risk assessment concluded that under the assumed industrial and future residential land use scenarios, no unacceptable human health risk is present from exposure to chemicals in soil, sediment, or ash, with the potential exception of lead in isolated areas of ash and adjacent ditch sediments. In addition, petroleum in soil found near the oil/water separator was identified as a source of TPH contamination in groundwater. The ecological risk assessment identified lead and dioxin in surface soil as COCs that may cause potential adverse effects to the masked shrew. The ecological risk assessment concluded that the potential risks to the shrew are highly uncertain and, thus, RAOs based on protecting the shrew were not developed.

Because the human health risk assessment determined that no target health goals were exceeded and the ecological risk assessment identified potential unacceptable risk as highly uncertain, no chemical-specific cleanup levels were developed in soil. The selected remedy to address potential human and ecological health concerns regarding TPH in soil (source of contamination to groundwater; human exposure only) and lead in ash and sediment included removal of the ash, the oil/water separator, surrounding soils, and ditch sediments (U.S. Navy 2004b). Based on the lack of definitive health risks and the subsequent removal action, the remedy is likely protective at this site.

Groundwater. The selected cleanup levels for Area 31 are generally based on MTCA Methods A and B potable groundwater cleanup levels. Table 7-7 compares current groundwater ARAR values with those presented in the OU 5 ROD (in U.S. Navy, Ecology, and USEPA 1996, Table 14). The MTCA Method B cleanup level for beryllium has increased from 0.0203 to 32 µg/L. This change does not affect the protectiveness of the remedy.

As shown on Table 7-7, the MTCA Method B cleanup levels for benzene, naphthalene, and pentachlorophenol and the PQLs for Aroclor 1260 and vinyl chloride have decreased. However, in no case does the decrease call into question the protectiveness of the remedy. If institutional controls were to be removed in the future, any remaining concentrations of chemicals with lower ARAR values than ROD cleanup levels may have to be reviewed in terms of current toxicological information and analytical methods (see also risk level discussion for these chemicals in Section 7.2.2). These ARARs are further evaluated below:

- The Aroclor 1260 regulatory level has decreased from 1 to 0.2 µg/L based on the PQL. Monitoring of groundwater wells for Aroclor 1260 was not specified in the OU 5 ROD for Area 31. The source of PCBs was soil and it has been removed (U.S. Navy 2004b). PCBs tend to partition strongly to soils and the potential for

PCB leaching to groundwater is usually low. Therefore, this decrease in the regulatory level does not affect the protectiveness of the remedy.

- The benzene cleanup level has decreased from 5 to 0.8 µg/L. Current and historical groundwater monitoring results for benzene exceed the ROD cleanup level of 5 µg/L (see Table C-1 in Appendix C). The current benzene MCL is 5 µg/L. Although benzene has a lower ARAR value than the established cleanup level and site concentrations exceed this cleanup level, because institutional controls restrict groundwater use as a drinking water source, the remedy is still protective of human health.

- The naphthalene cleanup level has decreased from 320 to 160 µg/L. Current and historical groundwater monitoring results for naphthalene exceed the ROD cleanup level of 320 µg/L (see Table C-1 in Appendix C). Although naphthalene has a lower ARAR value than the established cleanup level and site concentrations exceed this cleanup level, because institutional controls restrict groundwater use as a drinking water source, the remedy is still protective of human health.

- The pentachlorophenol cleanup level has decreased from 1 to 0.73 µg/L. Monitoring of groundwater wells for pentachlorophenol, an SVOC, was not specified in the OU 5 ROD for Area 31. Therefore, this decrease in the regulatory level does not affect the protectiveness of the remedy.

- The vinyl chloride cleanup level has decreased from 0.1 to 0.02 µg/L based on the PQL. Current and historical groundwater monitoring results for vinyl chloride exceed the ROD cleanup level of 0.1 µg/L (see Table C-1 in Appendix C). In addition, because the current MTCA Method B value for vinyl chloride is higher (0.029 µg/L) than the current PQL (0.02 µg/L, based on current laboratory analytical techniques), it could now be used as a cleanup standard instead of the ROD PQL (1 µg/L). Although vinyl chloride has a lower ARAR value than the established cleanup level and site concentrations exceed this cleanup level, because institutional controls restrict groundwater use as a drinking water source, the remedy is still protective of human health.

Area 52. For Area 52, no chemical-specific cleanup levels were established for soil or sediment. Chemical-specific cleanup levels were established for groundwater for the protection of marine surface water. No revisions to the groundwater cleanup levels were found that would affect the protectiveness of the remedy.

Soil. The human health risk assessment assumed future industrial land use. Cleanup levels were not developed because soils at Area 52 did not pose current or potential future human health risks exceeding the CERCLA risk range, and no clear ecological risk was present.

Groundwater. Groundwater at Area 52 is neither a current nor potential future drinking water source and, therefore, remedial action was not needed to protected human health. However, as groundwater discharges to the Strait of Juan de Fuca, RAOs for groundwater were established to address potential adverse impacts to marine life. Cleanup levels are based on compliance with the water quality standards for marine surface waters at the point of groundwater discharge.

The selected cleanup levels are based on MTCA A groundwater and MTCA B surface water cleanup levels. Table 7-8 compares current surface water and groundwater ARAR values with those presented in the OU 5 ROD (U.S. Navy, Ecology, and USEPA 1996, Table 13). The MTCA Method B cleanup level for vinyl chloride increased from 2.92 µg/L to 3.7 µg/L. The lower cleanup level selected in the ROD (2.92 µg/L) based on surface water quality remains protective of human health and the environment.

In addition, the ROD selected cleanup level of 1,000 µg/L for TPH in groundwater based on the MTCA Method A cleanup levels. MTCA Method A values are currently available for each of the specific fuel type fraction ranges of diesel, heavy oil, mineral oil, gasoline with benzene, and gasoline without benzene. Therefore, a straight comparison of present and past MTCA Method A levels cannot be made for TPH. As shown in Table 7-8, the ROD-selected cleanup level of 1,000 µg/L is protective of the individual TPH compounds, with the potential exception of diesel, heavy oil, and gasoline with benzene. However, MTCA Method A values are intended to be protective of unrestricted land use (i.e., drinking groundwater) rather than industrial use and protection of surface water. Therefore, these MTCA A values are overly protective for Area 52, where groundwater is not considered a drinking water source. There are no MTCA B surface water quality values for TPH. Therefore, the ROD-selected cleanup level for TPH of 1,000 µg/L is likely protective of human health and the environment.

7.2.2 Review of Risk Assessment Assumptions

Risk assessment assumptions were also reviewed as part of the requirement to assess protectiveness of the remedy. For human health, there are potentially two areas where changes could have occurred since the signing of the RODs: toxicity values for select chemicals and assumptions regarding human activity (i.e., exposure assumptions). How these changes to toxicity and exposure parameters might affect the protectiveness of the remedy is discussed below.

Toxicity Criteria

For those ARAR values that are based on a human health risk-based number (e.g., MTCA B groundwater cleanup level), changes to toxicity criteria may raise or lower the current regulatory level. Changes to toxicity criteria have occurred for six chemical-specific cleanup levels: benzene, beryllium, chromium VI, 1,1-dichloroethene, naphthalene, and vinyl chloride, identified at OU 1, OU 4, and OU 5 since the signing of the five RODs discussed in this 5-year review. Those values that have changed are discussed below and identified in Table 7-9. For three of the six (benzene, chromium VI, and naphthalene), RGs calculated today would be lower (i.e., more stringent). For these three chemicals, the health risks of the ROD RG are compared with today's RG. This comparison is done to assess whether the currently calculated risks associated with the ROD RG are still within EPA's acceptable excess cancer risk range of 10^{-4} to 10^{-6}, or below a hazard index of 1 for noncancer effects. For the three chemicals with higher RGs (i.e., less stringent), an explicit comparison of risk levels is unnecessary because RGs were based on an assumption that the chemicals are more toxic (lower RGs) than would be assumed today. The toxicity criteria for the cleanup levels identified in soil and groundwater at OU 2, soil at OU 3, and groundwater at OU 5 Area 1 have not changed and will not be discussed further.

Benzene. This chemical is a COC at OU 5 Area 31 groundwater. The oral slope factor for benzene, as reported in EPA's Integrated Risk Information System (IRIS [USEPA 2007a]), changed to 0.055 $(mg/kg\text{-}day)^{-1}$ in 2000. This change in toxicity is reflected in the current regulatory groundwater cleanup level of 0.8 µg/L, a decrease from the ROD cleanup level of 5 µg/L. Using this new slope factor, the cancer risk of the cleanup level of 5 µg/L is 6×10^{-6}, below the ROD cancer risk goal of 1×10^{-5}. Therefore, the remedy remains protective because: 1) cancer risks at the ROD RG still meet ROD goals, and 2) the remedy (institutional controls) prevents use of the water for drinking. Although the ROD RG still meets ROD target cancer risk goals, despite new toxicity information, the ROD RG should be reviewed at the time when monitoring indicates that concentrations are below the cleanup level, and a proposal is put forward to remove the institutional controls. The ROD RG may need to be recalculated based on ARARs and toxicity criteria at that time, to ensure that conditions at the subject site would be protective in the absence of institutional controls.

Beryllium. This chemical is a COC at OU 5 Area 31 groundwater. The reference dose (RfD) for beryllium, as reported in IRIS (USEPA 2007a), changed to 0.002 mg/kg-day in 1998. This change in toxicity is reflected in the current regulatory groundwater cleanup level of 32 µg/L, an increase from the ROD cleanup level of 0.0203 µg/L. Using the new RfD, the noncancer hazard of the cleanup level of 0.0203 µg/L would be well below the ROD target health goal of 1. Because the ROD noncancer goal is still being met, the remedy designed to achieve the cleanup level is protective, and no cleanup level changes are recommended.

Chromium VI. Chromium VI is a COC at OU 4 soil. The soil cleanup level of 400 mg/kg is based on the MTCA Method B value at the time the ROD was signed. In 1998, the RfD for chromium VI was lowered to 0.003 mg/kg-day in IRIS (USEPA 2007a). This change in toxicity is reflected in the current regulatory soil cleanup level of 240 mg/kg. Using the new RfD, the noncancer hazard of the cleanup level of 400 mg/kg is 2, which is above the ROD target health goal of 1. However, as stated previously in Section 7.2.1, institutional controls are in place to prevent residential use of the site. Therefore, the remedy is still protective of human health. At the time when monitoring indicates that concentrations are below the ROD RG, and a proposal is put forward to remove the institutional controls, then the cleanup levels would need to be recalculated based on ARARs and toxicity criteria at that time to ensure that conditions at the subject site would be protective in the absence of institutional controls.

1,1-Dichloroethene. This chemical is a COC in groundwater at OU 1 Area 6. 1,1-Dichloroethene is no longer considered a carcinogen by the EPA (USEPA 2007a). Therefore, the MTCA Method B carcinogen value of 0.07 µg/L established in the ROD is no longer current. The current regulatory level of 400 µg/L is based on noncarcinogenic effects using the oral RfD of 5×10^{-2} mg/kg-day. Because the value has increased, noncancer hazards of the ROD RG are less than 1, and the protectiveness of the remedy is not affected by this change.

Naphthalene. This chemical is a COC at OU 5 Area 31 groundwater. The RfD for naphthalene, as reported in IRIS (USEPA 2007a), changed to 0.02 mg/kg-day in 1998. This change in toxicity is reflected in the current regulatory groundwater cleanup level of 160 µg/L, a decrease from the ROD cleanup level of 320 µg/L. Using the new RfD, the noncancer hazard of the cleanup level of 320 mg/kg is 2, which is above the ROD target health goal of 1. However, as stated previously in Section 7.2.1, institutional controls are in place to prevent residential use of the site. Therefore, the remedy is still protective of human health. At the time when monitoring indicates that concentrations are below the ROD RG, and a proposal is put forward to remove the ICs, then the cleanup levels would need to be recalculated based on ARARs and toxicity criteria at that time to ensure that conditions and the subject site would be protective in the absence of ICs.

Vinyl Chloride. This chemical is a COC at OU 1 Area 6 groundwater and OU 5 Area 52 surface water. The oral slope factor for vinyl chloride, as reported in IRIS (USEPA 2007a), changed to 1.5 $(mg/kg\text{-}day)^{-1}$ in 2000. For OU 1, this change in toxicity is reflected in the current regulatory groundwater cleanup level of 0.029 µg/L, an increase from the ROD cleanup level of 0.02 µg/L. Using this new slope factor, the cancer risk of the cleanup level of 0.02 is 1×10^{-6}, below the ROD cancer risk goal of 1×10^{-4}. For OU 5, this change in toxicity is reflected in the current regulatory surface water cleanup level of 3.7 µg/L, an increase from the ROD cleanup level of 2.92 µg/L, and risks would be less than 1×10^{-6}. Therefore, the protectiveness of the remedy is not affected by these changes because the values have increased.

1,4-Dioxane. This chemical is a new COC in groundwater at Area 6. A cleanup level for this chemical has not been established. If a cleanup level were to be established in the future, it would likely be based on the chemical's two most sensitive toxic endpoints: adverse noncancer effects on the liver and kidneys and its potential to cause liver cancer. ATSDR's draft toxicity profile (ATSDR 2007) for this chemical indicates that 1,4-dioxane is at best weakly genotoxic and most likely does exhibit a threshold for cancer. Further analysis would be required to determine if cancer or noncancer effects were the most sensitive toxic endpoint (the most sensitive endpoint would determine a cleanup level). EPA has established a cancer slope factor for 1,4-dioxane in IRIS (based on an assumption of no threshold for cancer effects), but has not established a noncancer RfD. EPA is currently in the process of reevaluating 1,4-dioxane toxicity with a draft toxicity profile available next year (USEPA 2007b). EPA's current IRIS slope factor was last updated in 1990. If a risk-based cleanup level for 1,4-dioxane were to be established in the future, the latest EPA information should be taken into account.

Exposure Parameters

The expected land use on or near all five OUs as stated in the RODs have not changed. Since the signing of the five RODs, no human health or ecological routes of exposure or receptors have changed or been newly identified at any of the five OUs. Physical site conditions have not changed at any of the five OUs. Therefore, the assumptions upon which the remedy was based have not changed for any of the OUs. However, a newly identified contaminant, 1,4-dioxane, has been reported for OU 1 Area 6. As discussed in Section 5, the ATSDR (2005) concluded that 1,4-dioxane is not present in groundwater in concentrations that are a health concern, and the newly identified contaminant 1,4-dioxane does not affect the protectiveness of the remedy.

7.3 NEW INFORMATION

This section is a response to the question "Has any other information come to light that could call into question the protectiveness of the remedy?"

No other information reviewed during this 5-year review, apart from what is included previously in this document, affects the protectiveness of the remedy.

7.4 TECHNICAL ASSESSMENT SUMMARY

The findings documented in this section are that changes in the exposure and toxicity assumptions of ARARs that have occurred since the RODs were signed do not affect the protectiveness of the remedies at OU 1 (Areas 5 and 6), OU 2 (Areas 2/3, 4, 14, and 29), OU 3 (Area 16), OU 4 (Areas 39, 41, 44, 48, and 49), and OU 5 (Areas 1, 31, and 52).

Concentrations of chemicals in groundwater remain above the cleanup levels at some locations in OU 1, OU 2, OU 3, OU 4, and OU 5, resulting in the need for continued institutional controls to prevent exposure and the need for ongoing monitoring. Although some of the cleanup levels might be lower if calculated today, the remedy components continue to protect against exposures, just as they did at the time the RODs were signed. Institutional controls preventing exposure and ongoing monitoring will need to continue until COC concentrations in groundwater and surface water are below the cleanup levels.

The remedies are functioning as intended at all OUs and will continue to function with implementation of recommendations made herein.

7.4.1 OU 1 Area 6

COCs in groundwater continue to extend off site to the west and south. The groundwater extraction and treatment system has successfully reduced concentrations in these areas, but continued reliable groundwater extraction from PW-5 is necessary to maintain control of the plume extending off site to the southwest. This well is also important for capturing COCs that have extended across the western border as they migrate south with groundwater flow. Flow rates and target drawdowns must be carefully maintained at PW-5 for continued remedy functionality.

1,4-Dioxane is not a ROD-identified COC, but was established as a chemical to be addressed at the site through the new information review during the second 5-year review. Groundwater monitoring indicates that 1,4-dioxane has been measured at a concentration greater than reporting limits (but below the MTCA Method B cleanup level) in three off-site, private wells since monitoring was initiated in May 2005. Furthermore, ATSDR has concluded that public health actions to stop exposure were not warranted. Subsequent to ATSDR’s Health Consultation, concentrations above the MTCA B level have been detected in one off-site monitoring well.

Institutional controls are effectively implemented through existing Navy instruction and are functioning as intended by the ROD. Some minor repairs are required to the fence in the southwestern portion of the site to continue maintaining access control, and the gate sign was revised to clarify who is authorized to enter the site. Island County has established a 1,000-foot drilling restriction zone around the Area 6 landfill and posted it on their Web site.

7.4.2 OU 5 Area 1

Construction debris from the landfilled area is exposed along the western bluff as a result of shoreline erosion. This condition has been noted for some time. Inspections of the bluff area should be regularly conducted to monitor and report erosion of the western edge of the landfilled area. If erosion rates increase or materials with potentially hazardous chemical characteristics are exposed, additional evaluation or corrective measures would be warranted.

7.4.3 Site-Wide Land Use Controls Implementation, Monitoring, and Reporting

NAS Whidbey Island is an access-limited facility and meets the intent of the access restrictions for land use controls at the affected sites. The limited access and oversight of construction projects by base environmental staff also restricts installation of drinking water wells at the installation.

An Explanation of Significant Difference document has been prepared and finalized to facilitate implementation of a formalized land use controls management program. Per the requirements of the Explanation of Significant Difference, the Navy is currently in the process of writing an Institutional Control Implementation Plan. This plan will implement the land use control and institutional control requirements of the Explanation of Significant Difference.

7.5 ISSUES

Table 7-10 lists the issues identified as a result of this 5-year review that appear to have the potential to affect the protectiveness of the remedies at NAS Whidbey Island.

Table 7-1
Groundwater Cleanup Levels for OU 1 Area 6

Chemical	ROD Cleanup Level (μg/L)	Current Regulatory Level (μg/L)	ROD Basis
Trichloroethene	5	5	MCL[a]
1,1,1-Trichloroethane	200	200	MCL
1,1-Dichloroethane	800	800	MTCA B[b]
1,1-Dichloroethene	**0.07**	**400**	**MTCA B[c]**
1,2-Dichloroethene (cis)	70	70	MCL
1,4-Dioxane	None	4[b]	None
Vinyl chloride	**0.02**	**0.029**	**MTCA B[b]**

[a]MTCA Method B groundwater cleanup level for this chemical is 0.49 μg/L.
[b]MTCA Method B groundwater cleanup level
[c]The Federal MCL for this chemical is 7 μg/L.

Notes:
A bolded chemical indicates an important change in its regulatory level.
μg/L - microgram per liter
MTCA - Model Toxics Control Act
MCL - maximum contaminant level
OU 1 - Operable Unit 1
ROD - Record of Decision
Source: ROD Table 17 (U.S. Navy, Ecology, and USEPA 1993a)

Table 7-2
Soil Cleanup Levels for OU 2

Chemical	ROD Cleanup Level (mg/kg))	Current Regulatory Level (mg/kg)	ROD Basis
Area 4			
MCPP	80	80	MTCA B[a]
PCBs	1	1	MTCA A[b]
Pentachlorophenol	8.33	8.3	MTCA B[a]
Area 14			
Bromacil	7	7	NAS Standards[c]
2,3,7,8-TCDD	6.67×10^{-6}	6.7×10^{-6}	MTCA B[a]
2,4-Dichlorophenol	**4.8**	**240**	**MTCA B[a]**
Area 29			
Pentachlorophenol	8.33	8.33	MTCA B[a]
PAHs	**1**	**0.14[d]**	**MTCA A[b]**

[a]MTCA Method B soil cleanup value for unrestricted land use
[b]MTCA Method A soil cleanup value for unrestricted land use
[c]Based on National Academy of Science Standards and protection of groundwater
[d]Based on benzo(a)pyrene

Notes:
A bolded chemical indicates an important change in its regulatory level.
MCPP - propionic acid;(2-methyl-4-chlorophenoxy)2- (Chemical Abstract Service #93-65-2)
mg/kg - milligram per kilogram
MTCA - Model Toxics Control Act
NAS - National Academy of Sciences
OU 2 - Operable Unit 2
PAH - polycyclic aromatic hydrocarbons
PCBs - polychlorinated biphenyls
ROD - Record of Decision
TCDD - tetrachlorodibenzo-*p*-dioxin

Source: ROD Table 12 (U.S. Navy, Ecology, and USEPA 1994)

Table 7-3
Groundwater Cleanup Levels for Protection of Groundwater for OU 2

Area(s)	Chemical of Concern	ROD Regulatory Level (µg/L)	Post-ROD Regulatory Level[a] (µg/L)	Current Regulatory Level (µg/L)	ROD Basis	Final Cleanup Level (µg/L)
2/3	Antimony	6/BK[b]	NE	6	MCL/BK	6 (MCL)
2/3, 4, 29	Arsenic	0.05/BK[b]	7.7 (BK)	0.05/7.7	MTCA B[c]/BK	7.7 (BK)
2/3, 4, 29	**Manganese**	**80/BK[b]**	**125 (BK)**	**2,200/125**	**MTCA B[c]/BK**	**125 (BK)**
2/3	**Vinyl chloride**	**0.023/PQL[b]**	**1 (PQL)**	**0.029/0.02**	**MTCA B[c]/PQL**	**1 (PQL)**
14	Bromacil	70	NE	70[d]	NAS Standards	70 (NAS)
14	**2,4-Dichlorophenol**	**48**	**NE**	**24**	**MTCA B[c]**	**48 (MTCA B)**

[a]Background values for arsenic and magnesium and a PQL for vinyl chloride were established after the ROD (U.S. Navy 1997).
[b]Cleanup level was based on the highest of the two values.
[c]MTCA Method B groundwater cleanup level
[d]Based on the lifetime health advisory of U.S. Environmental Protection Agency's 2006 Drinking Water Standards and Health Advisories

Notes:
A bolded chemical indicates an important change in its regulatory level.
BK - background
MCL - maximum contaminant level
µg/L - microgram per liter
MTCA - Model Toxics Control Act
NAS - National Academy of Sciences
NE - not established
OU 2 - Operable Unit 2
PQL - practical quantitation limit
ROD - Record of Decision

Source: ROD Table 13 (U.S. Navy, Ecology, and USEPA 1994)

Table 7-4
Soil Cleanup Levels for OU 3, Runway Ditch Sediments

Chemical	ROD Regulatory Level (mg/kg)	Current Regulatory Level (mg/kg)	ROD Basis	ROD Cleanup Level (mg/kg)
Arsenic	188	88	MTCA C[a]	16[b]
Lead	140	1,000	MTCA A[c]	18[d]
2-Methylnaphthalene	-	14,000	MTCA C[a]	0.8[b]
Benzo(k)fluoranthene	18	18	MTCA C[a]	18
Dibenz(a,h)anthracene	18	18	MTCA C[a]	1.1[b]
Phenanthrene	-	-	MTCA C[a]	13[b]
Total petroleum hydrocarbons	200	-	MTCA A[c]	200
Diesel	-	2,000	MTCA A[e]	-
Heavy oil	-	2,000	MTCA A[e]	-
Mineral oil	-	4,000	MTCA A[e]	-
Gasoline with benzene	-	30	MTCA A[e]	-
Gasoline without benzene	-	100	MTCA A[e]	-

[a]MTCA Method C industrial soil cleanup levels
[b]ROD cleanup level is based on ecological risks
[c]MTCA Method A industrial soil cleanup levels
[d]ROD cleanup level is based on background
[e]MTCA Method A soil cleanup levels for petroleum are the same for industrial and unrestricted land use.

Notes:
mg/kg - milligram per kilogram
MTCA - Model Toxics Control Act
OU 3 - Operable Unit 3
ROD - Record of Decision

Source: ROD Table 8-1 (U.S. Navy, Ecology, and USEPA 1995)

Table 7-5
Soil Cleanup Levels for OU 4 Areas 39, 41, 44, and 48

Chemical	ROD Cleanup Level (mg/kg)	Current Regulatory Level (mg/kg)	ROD Basis
4,4'-DDD	4.17	4.2	MTCA B, Unrestricted
4,4'-DDE	2.94	2.9	MTCA B, Unrestricted
4,4'-DDT	2.94	2.9	MTCA B, Unrestricted
Arsenic	20	20	MTCA A, Unrestricted
Chromium (VI)	**400**	**240**	**MTCA B, Unrestricted**
Lead	250	250	MTCA A, Unrestricted
cPAHs	**1**	**0.14**[a]	**MTCA A, Unrestricted**

[a]Based on benzo(a)pyrene

Notes:
A bolded chemical indicates an important change in its regulatory level.
cPAHs - carcinogenic polycyclic aromatic hydrocarbons
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethene
DDT - dichlorodiphenyltrichloroethane
mg/kg - milligram per kilogram
OU 4 - Operable Unit 4
MTCA - Model Toxics Control Act
ROD - Record of Decision

Source: ROD Table 13 (U.S. Navy, Ecology, and USEPA 1993b)

Table 7-6
Groundwater Cleanup Levels for Protection of Surface Water for OU 5 Area 1

Chemical	ROD Cleanup Level (µg/L)	Current Regulatory Level (µg/L)	ROD Basis
Zinc	76.6	81	State WQC
Cyanide	1	1	State and Federal WQC[a]
Bis(2-ethylhexyl) phthalate (BEHP)	3.56	3.56	MTCA B
1,1-Dichloroethene	1.93	24,000	MTCA B

[a]The WQC for cyanide is based the protection of acute exposures for aquatic life.

Notes:
µg/L - microgram per liter
MTCA - Model Toxics Control Act
ROD - Record of Decision
WQC - Water Quality Criteria
Source: ROD Table 12 (U.S. Navy, Ecology, and USEPA 1996)

Table 7-7
Groundwater Cleanup Levels for OU 5 Area 31

Chemical	ROD Cleanup Level (µg/L)	Current Regulatory Level (µg/L)	ROD Basis
Beryllium	**0.0203**	**32**[a]	**MTCA B**[b]
Lead	9.7	15[g]	Background
Manganese	142	2,200[h]	Background
Mercury	2	2	Federal/State MCL
Aroclor 1260	**1**	**0.2**[c]	**PQL**
Benzene	**5**	**0.8**[d]	**MTCA B**[b]
Naphthalene	**320**	**160**	**MTCA B**[b]
Pentachlorophenol	**1**	**0.73**[e]	**MTCA B**[b]
Styrene	1.46	1.5	MTCA B[b]
Toluene	1,000	1,000	Federal MCL
Vinyl chloride	**0.1**	**0.02**[c]	**PQL**
2,3,7,8-TCDD	0.58×10^{-6}	0.58×10^{-6}	MTCA B[b]
Total petroleum hydrocarbons	1,000	-	MTCA A[f]
Diesel	-	500	MTCA A[f]
Heavy oil	-	500	MTCA A[f]
Mineral oil	-	1,000	MTCA A[f]
Gasoline with benzene	-	800	MTCA A[f]
Gasoline without benzene	-	1,000	MTCA A[f]

[a] The federal/state MCL for this chemical is 4 µg/L.
[b]MTCA Method B groundwater cleanup level
[c]Based on the method reporting limit from recent sampling conducted in 2007.
[d]The federal/state MCL for this chemical is 5 µg/L.
[e]The federal/state MCL for this chemical is 1 µg/L.
[f]MTCA Method A groundwater cleanup level
[g]Federal MCL
[h]MTCA Method B groundwater cleanup level

Notes:
A bolded chemical indicates an important change in its regulatory level.
µg/L - microgram per liter
MCL - maximum contaminant level
MTCA - Model Toxics Control Act
NA - not applicable
PQL - practical quantitation limit
ROD - Record of Decision
TCDD – tetrachlorodibenzo-*p*-dioxin

Source: ROD Table 14 (U.S. Navy, Ecology, and USEPA 1996)

Table 7-8
Groundwater Cleanup Levels for Protection of Surface Water for OU 5 Area 52

Chemical	ROD Cleanup Level (μg/L)	Current Regulatory Level (μg/L)	ROD Basis
Vinyl chloride	**2.92**	**3.7**	**MTCA B[a]**
Benzo(a)anthracene	0.0296	0.03	MTCA B[a]
Benzo(a)pyrene	0.0296	0.03	MTCA B[a]
Benzo(b)fluoranthene	0.0296	0.03	MTCA B[a]
Chrysene	0.0296	0.03	MTCA B[a]
Indeno(1,2,3-cd)pyrene	0.0296	0.03	MTCA B[a]
Total petroleum hydrocarbons	1,000	-	MTCA A[b]
Diesel	-	500	MTCA A[b]
Heavy oil	-	500	MTCA A[b]
Mineral oil	-	1,000	MTCA A[b]
Gasoline with benzene	-	800	MTCA A[b]
Gasoline without benzene	-	1,000	MTCA A[b]

[a]MTCA Method B surface water cleanup level
[b]MTCA Method A groundwater cleanup level

Notes:
A bolded chemical indicates an important change in its regulatory level.
µg/L - microgram per liter
MTCA - Model Toxics Control Act
ROD - Record of Decision

Source: ROD Table 13 (U.S. Navy, Ecology, and USEPA 1996)

Table 7-9
Remediation Goals With Changes in Toxicity Values

Chemical	Site	Medium	Unit	ROD RG	Revised MTCA Method B Value Based on New Toxicity	Reason for Toxicity Revision
Benzene	OU 5 Area 31	Groundwater	µg/L	5	0.8	The oral slope factor of 0.055 $(mg/kg\text{-}d)^{-1}$ became available in 2000.
Beryllium	OU 5 Area 31	Groundwater	µg/L	0.0203	32	The reference dose for this chemical increased in 1998 (indicating a decrease in toxicity).
Chromium VI	OU 4	Soil	mg/kg	400	240	The reference dose for this chemical was lowered in 1998 (indicating an increase in toxicity).
1,1-Dichloroethene	OU 1 Area 6	Groundwater	µg/L	0.07	400	No longer considered a carcinogen.
Naphthalene	OU 5 Area 31	Groundwater	µg/L	320	160	The reference dose for this chemical was lowered in 1998.
Vinyl chloride	OU 1 Area 6	Groundwater	µg/L	0.02	0.029	Oral slope factor changed from 1.9 to 1.5 $(mg/kg\text{-}d)^{-1}$ (indicating a decrease in carcinogenicity).
	OU 5 Area 52	Surface Water	µg/L	2.92	3.7	Oral slope factor changed from 1.9 to 1.5 $(mg/kg\text{-}d)^{-1}$.

Notes:
The remedy is determined to still be protective, despite some increases in toxicity, because of the presence of land use controls.
µg/L - microgram per liter
mg/kg - milligram per kilogram
mg/kg-d - milligram per kilogram per day
MTCA - Model Toxics Control Act
OU - operable unit
RG - remediation goal
ROD - Record of Decision

Table 7-10
Issues

Item No.	Issue	Affects Protectiveness	
		Current	**Future**
General			
1	PQL-based cleanup levels specified in the RODs could be greater than current quantitation capabilities.	No	No
OU 1 Area 6			
2	Fencing along the southwestern portion of the site boundary is damaged and could allow unauthorized site access.	No	Yes
3	Residual vadose zone soil impacts could act as a continuing, low-grade source to groundwater.	No	Yes
4	COCs, including 1,4-dioxane, that have migrated off site require continued hydraulic control.	No	Yes
5	1,4-Dioxane was not identified in the ROD as a COC. As such, the treatment plant was not designed to treat extracted water containing this compound. Treated water with concentrations of 1,4-dioxane greater than MTCA Method B cleanup level is being reinfiltrated into the subsurface. This also may extend site restoration time.	No	Yes
6	Concentration contour maps in annual reports appear to over estimate the extent of impacts to groundwater.	No	No
7	A cleanup level for 1,4-dioxane has not been established.	No	Yes
8	There is no mechanism to confirm that Island County is implementing the 1,000-foot drilling restriction around the Area 6 landfill	No	Yes
OU 2 Areas 2/3			
9	Two drums were observed on the site during the site inspection.	No	No
10	Vinyl chloride, total arsenic, and total manganese remain at concentrations above cleanup levels in groundwater samples from some of the wells monitored in 2007.	No	No
OU 2 Area 4			
11	Total arsenic remains at concentrations above cleanup levels in samples from the two wells monitored in 2007.	No	No
OU 2 Area 29			
12	Total arsenic remains at concentrations above cleanup levels in samples from the three wells monitored in 2007.	No	No
OU 3 Area 16			
13	Petroleum concentrations in 2006 sediment samples from the northernmost ditch were above the ROD-specified MTCA cleanup level for total petroleum hydrocarbons.	No	Yes
OU 5 Area 1			
14	Slumping and erosion along the shoreline has exposed construction debris along the western edge of Area 1. It is reported that this condition has existed for some time.	No	Yes
OU 5 Area 31			
15	Petroleum hydrocarbon concentrations remain above cleanup levels in groundwater, and manganese was not monitored in well MW31-11 as previously recommended.	No	No
OU 5 Area 52			
16	2007 sediment pore water sampling locations were limited.	No	No

Table 7-10 (Continued)
Issues

Notes:
COC - chemical of concern
MTCA - Model Toxics Control Act
OU - operable unit
PQL - practical quantitation limit

8.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

This section presents the recommendations and follow-up actions identified as a result of the 5-year review process. Table 8-1 summarizes the recommendations. Some recommended actions are necessary to ensure long-term protectiveness of certain remedy components. Other actions do not affect protectiveness, but are necessary to achieve or maintain compliance with the RODs or subsequent approval of implementation plans. Still other actions are recommended because RAOs have been met at specific sites (such as discontinuing monitoring for select analytes at OU 2, Areas 2/3).

Table 8-1
Recommendations and Follow-Up Actions

Item No.	Recommendation/ Follow-Up Action	Party Responsible	Oversight Agency	Milestone Date	Follow-Up Action: Affects Protectiveness	
					Current	Future
1	**General** PQL-based cleanup levels specified in the RODs need to be evaluated against current quantitation capabilities.	NAVFAC NW	EPA	January 2010	No	No
2	**OU 1 Area 6** Repair the fence along the southwestern portion of site boundary. Have on-site personnel inform NAS Whidbey Island Security of trespassers.	NAVFAC NW	EPA	Completed	No	Yes
3	**OU 1 Area 6** Conduct vadose zone vapor monitoring for VOCs to evaluate stability of vadose zone impacts.	NAVFAC NW	EPA	2010	No	Yes
	If groundwater COC concentrations in samples from wells near the former industrial waste disposal area stabilize or begin to increase during pumping conditions or once pumping is suspended, develop a criterion for additional source area work and agree on how to evaluate it.	NAVFAC NW	EPA	TBD	No	Yes
4	**OU 1 Area 6** Maintain target pumping rate and drawdown at PW-5 to control the plume in the southwestern corner and along the western boundary of the site.	NAVFAC NW	EPA	Ongoing	No	Yes
	Install infrastructure for pumping from PW-10 in the event that PW-5 production is compromised.	NAVFAC NW	EPA	2011	No	Yes
5	**OU 1 Area 6** Evaluate applicability and cost effectiveness of treating extraction system effluent for 1,4-dioxane.	NAVFAC NW	EPA	2013	No	Yes
6	**OU 1 Area 6** Future contouring should be conducted by hand, out to the analyte-specific RG or cleanup level. This will ensure that the plume definition reflects the RG values. Results should be documented on the appropriate figure at locations where target analytes were measured below the analyte-specific RG or cleanup level.	NAVFAC NW	EPA	Annual reports	No	No

Table 8-1 (Continued)
Recommendations and Follow-Up Actions

Item No.	Recommendation/ Follow-Up Action	Party Responsible	Oversight Agency	Milestone Date	Follow-Up Action: Affects Protectiveness	
					Current	Future
	This will allow for assessment of potential containment problems.					
7	**OU 1 Area 6** Assess the need for a ROD amendment to establish a 1,4-dioxane cleanup level.	NAVFAC NW	EPA	2010	No	Yes
8	Contact Island County annually during the institutional controls inspection and confirm that the restriction is still in place and no additional wells have been installed.	NAVFAC NW	EPA	Annually	No	Yes
9	**OU 2 Area 2** Take steps to remove the two drums observed at this area.	NAVFAC NW	EPA	Completed June 2007	No	No
10	**OU 2 Areas 2/3** Maintain land use controls.	NAVFAC	EPA	Ongoing	No	No
	Discontinue monitoring for 1,1-dichloroethene and 1,4-dichlorobenzene. Conduct groundwater monitoring during the next 5-year-review period for total and dissolved arsenic, total and dissolved manganese, and vinyl chloride.	NAVFAC NW	EPA	2013	No	No
11	**OU 2 Area 4** Maintain land use controls.	NAVFAC NW	EPA	Ongoing	No	No
	Discontinue monitoring for 1,1-dichloroethene and 1,4-dichlorobenzene. Conduct groundwater monitoring during the next 5-year-review period for total and dissolved arsenic, total and dissolved manganese, and vinyl chloride.	NAVFAC NW	EPA	2013	No	No
12	**OU 2 Area 29** Maintain land use controls.	NAVFAC NW	EPA	Ongoing	No	No
	Conduct groundwater monitoring during the next 5-year-review period for total and dissolved arsenic.	NAVFAC NW	EPA	2013	No	No
13	**OU 3 Area 16** Maintain land use controls and clean out the catch basin associated with the 2006 sampling location 16-2 to remove sediment containing elevated total petroleum hydrocarbon concentrations.	NAVFAC NW	EPA	June 2010	No	No

Table 8-1 (Continued)
Recommendations and Follow-Up Actions

Item No.	Recommendation/ Follow-Up Action	Party Responsible	Oversight Agency	Milestone Date	Follow-Up Action: Affects Protectiveness	
					Current	Future
	Collect sediment samples from previous locations during the next 5-year review period for the same COCs as the 2006 event.	NAVFAC NW	EPA	2013	No	No
14	**OU 5 Area 1** Conduct annual inspection of the shoreline side of the landfill	NAVFAC NW	EPA	Annual	No	No
15	**OU 5 Area 31** RRO, styrene, and toluene monitoring should be discontinued. Monitor annually for DRO, GRO, benzene, naphthalene, and vinyl chloride at wells MW31-9A and OWS-1 until the next 5-year review. Monitor annually well MW31-11 for total and dissolved manganese only.	NAVFAC NW	EPA	2009	No	No
16	**OU 5 Area 52** Conduct sediment pore water monitoring at all 6 previously established locations using push probe.	NAVFAC NW	EPA	2013	No	No

Notes:
COCs - chemical of concern
DRO - diesel-range organics
EPA - U.S. Environmental Protection Agency
GRO - gasoline-range organics
NA - not applicable
NAVFAC NW - Naval Facilities Engineering Command Northwest
OU - operable unit
PQL - practical quantitation limit
RG - remediation goal
ROD - Record of Decision
RRO - residual-range organics
TBD - to be determined
VOCs - volatile organic compounds

9.0 CERTIFICATION OF PROTECTIVENESS

Remedy construction is complete at all five OUs. The remedies remain protective of human health and the environment at this time. The recommendations in Table 8-1 should be implemented in order to maintain long-term protectiveness.

The remedial action is operating as expected at OU 1 Area 6 and remains protective of human health and the environment. The remedy at Area 6 will continue to require routine, regular maintenance and monitoring to ensure that protectiveness is maintained. Maintenance of site-wide land use controls is required to ensure protectiveness of the remedy.

The remedies at OU 2, OU 3, OU 4, and OU 5 remain protective of human health and the environment. Maintenance of site-wide land use controls is required to maintain protectiveness of the remedies.

10.0 NEXT REVIEW

The next 5-year review is scheduled for 2013.

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Appendix A

Area 6 Monitoring

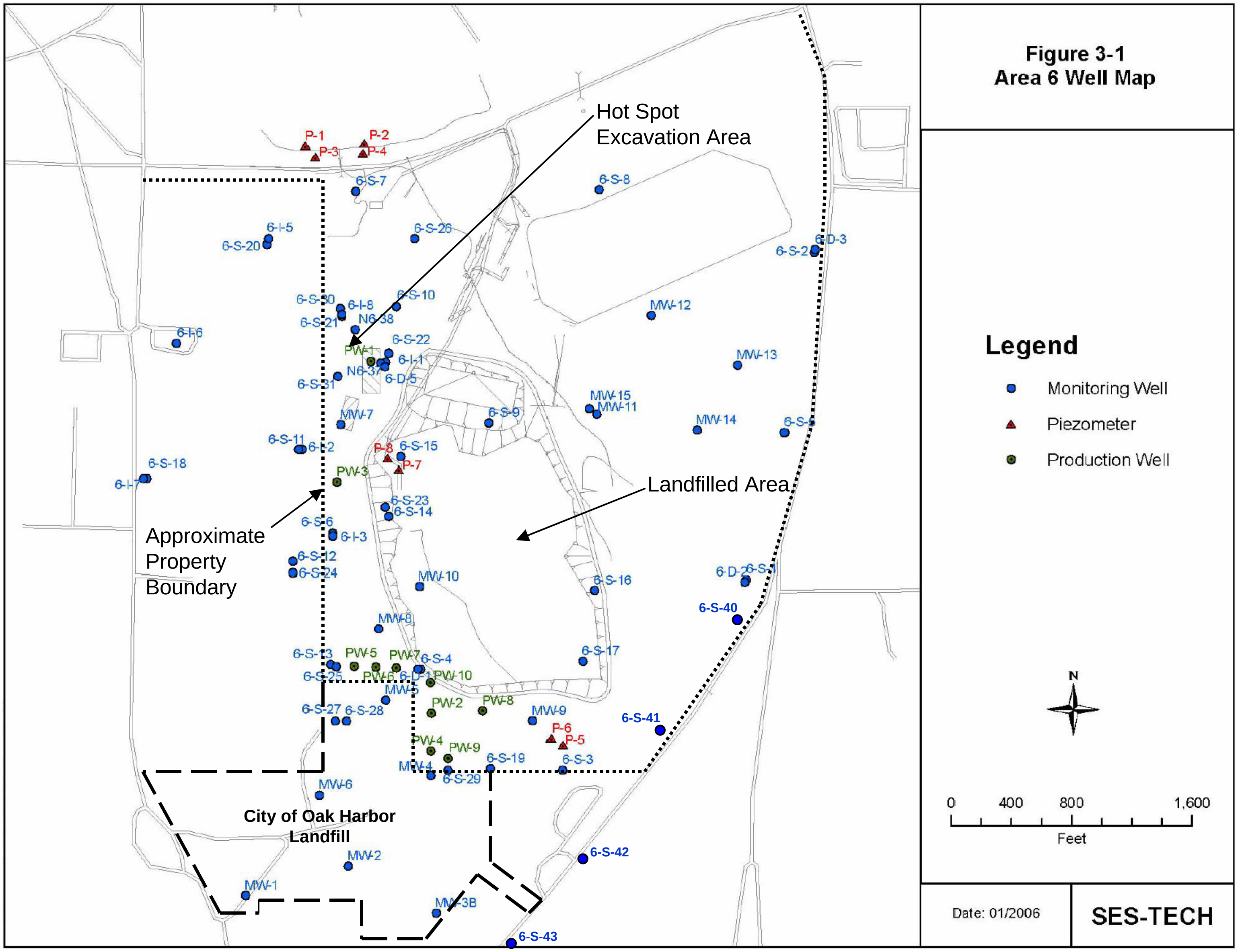


Figure A-1

U.S. Navy 2007a

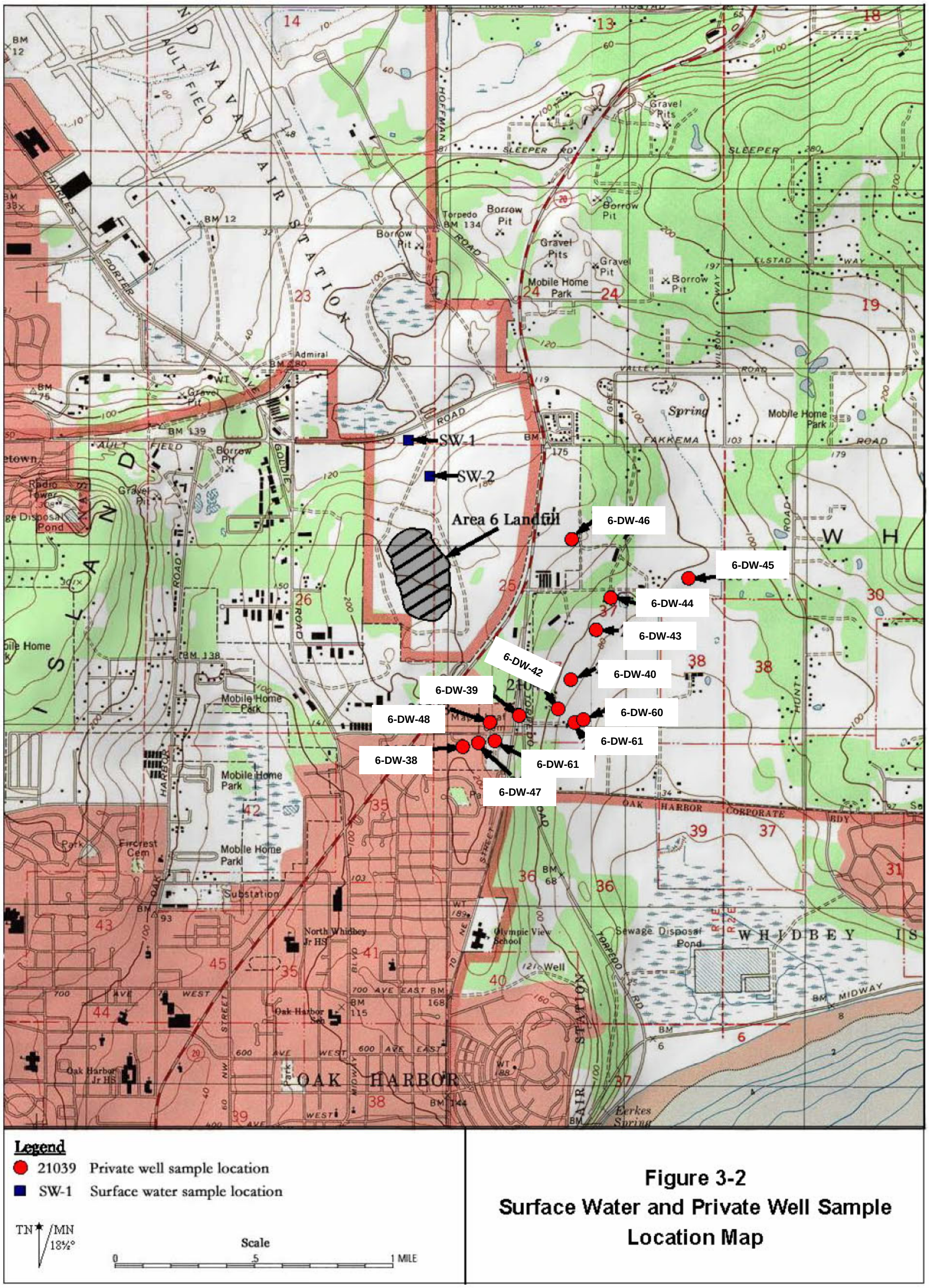


Figure A-2

U.S. Navy 2007a

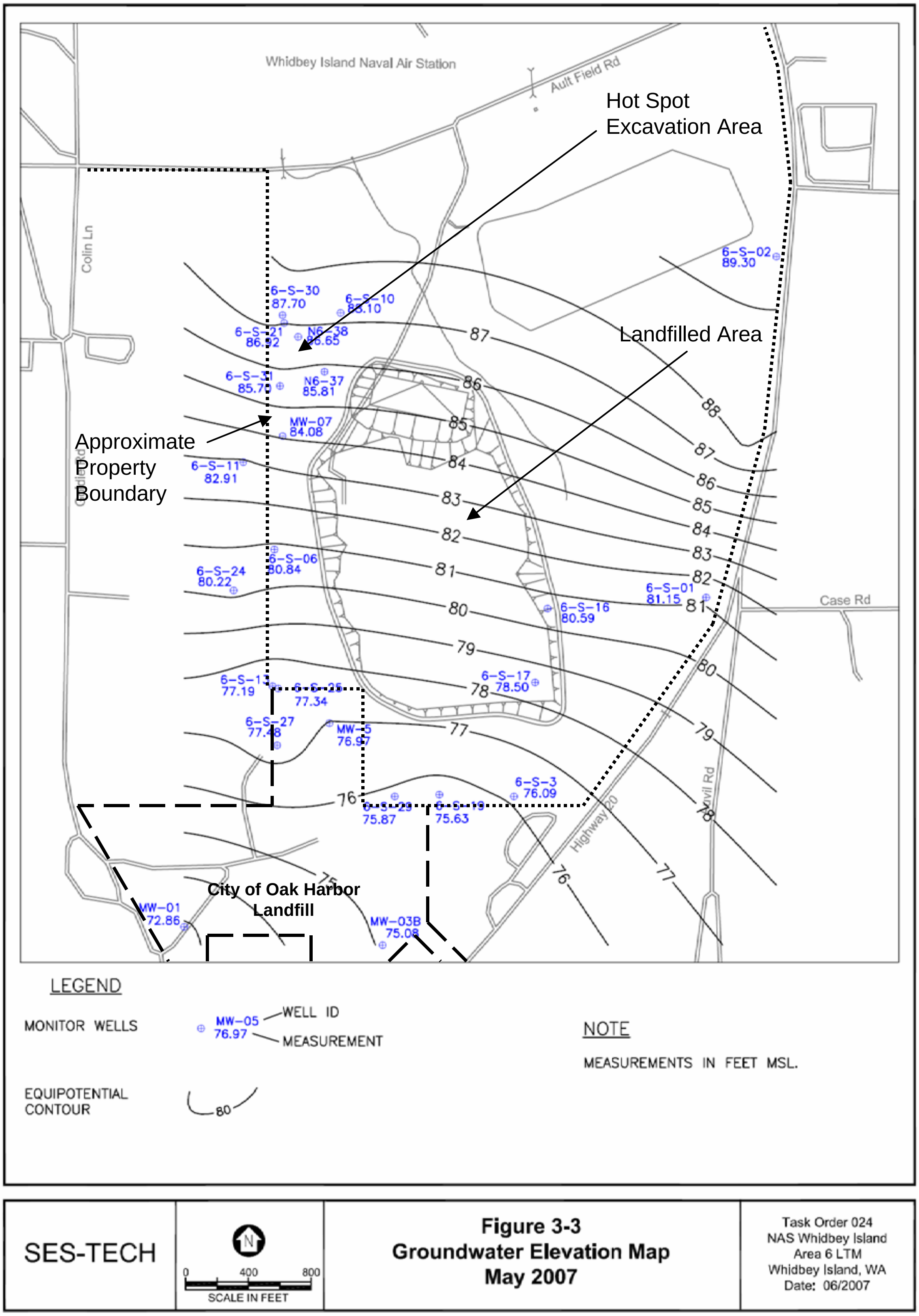


Figure A-3

U.S. Navy 2007a

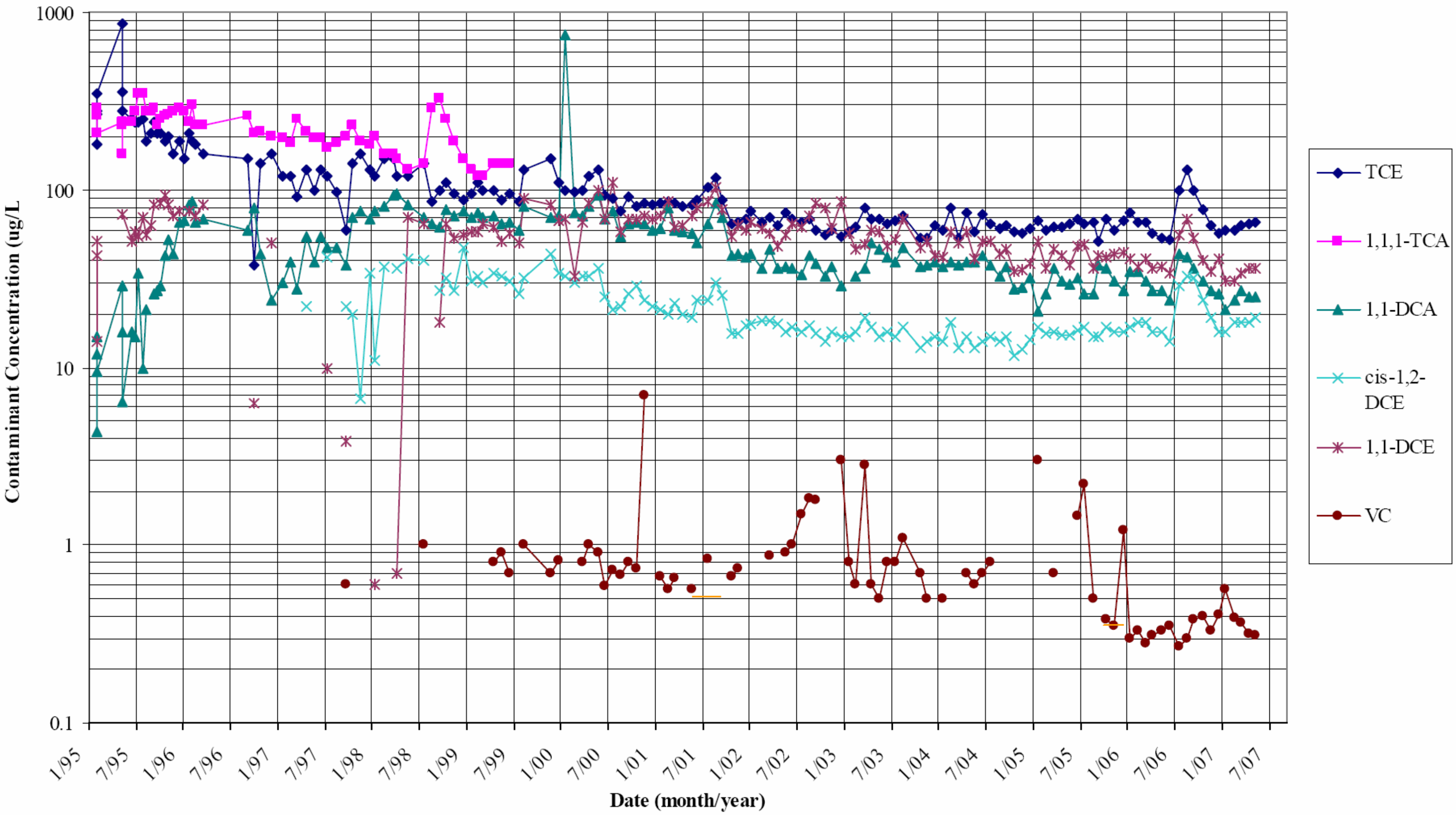


Figure A-4
Influent Concentration Trends

U.S. Navy 2007a

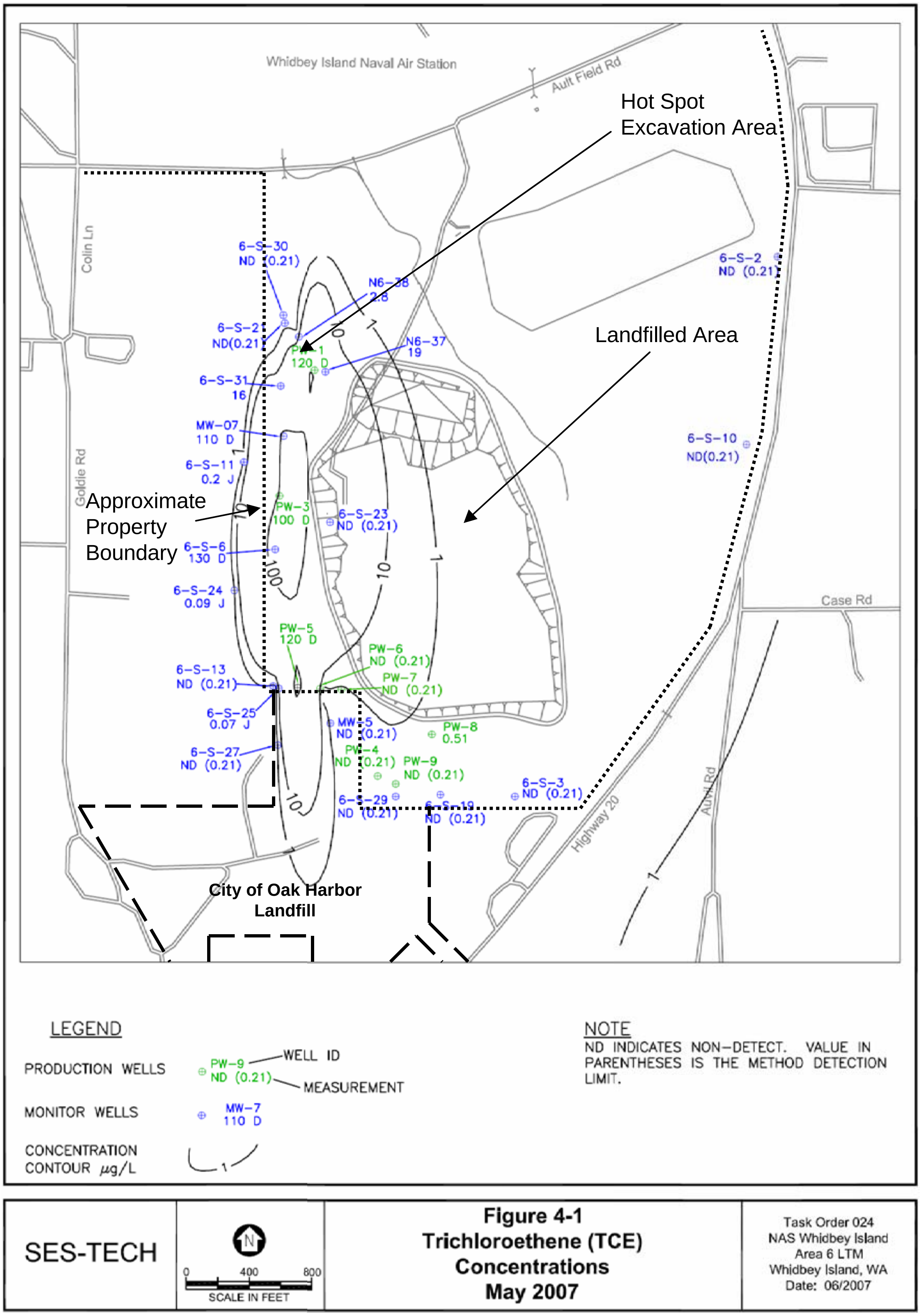
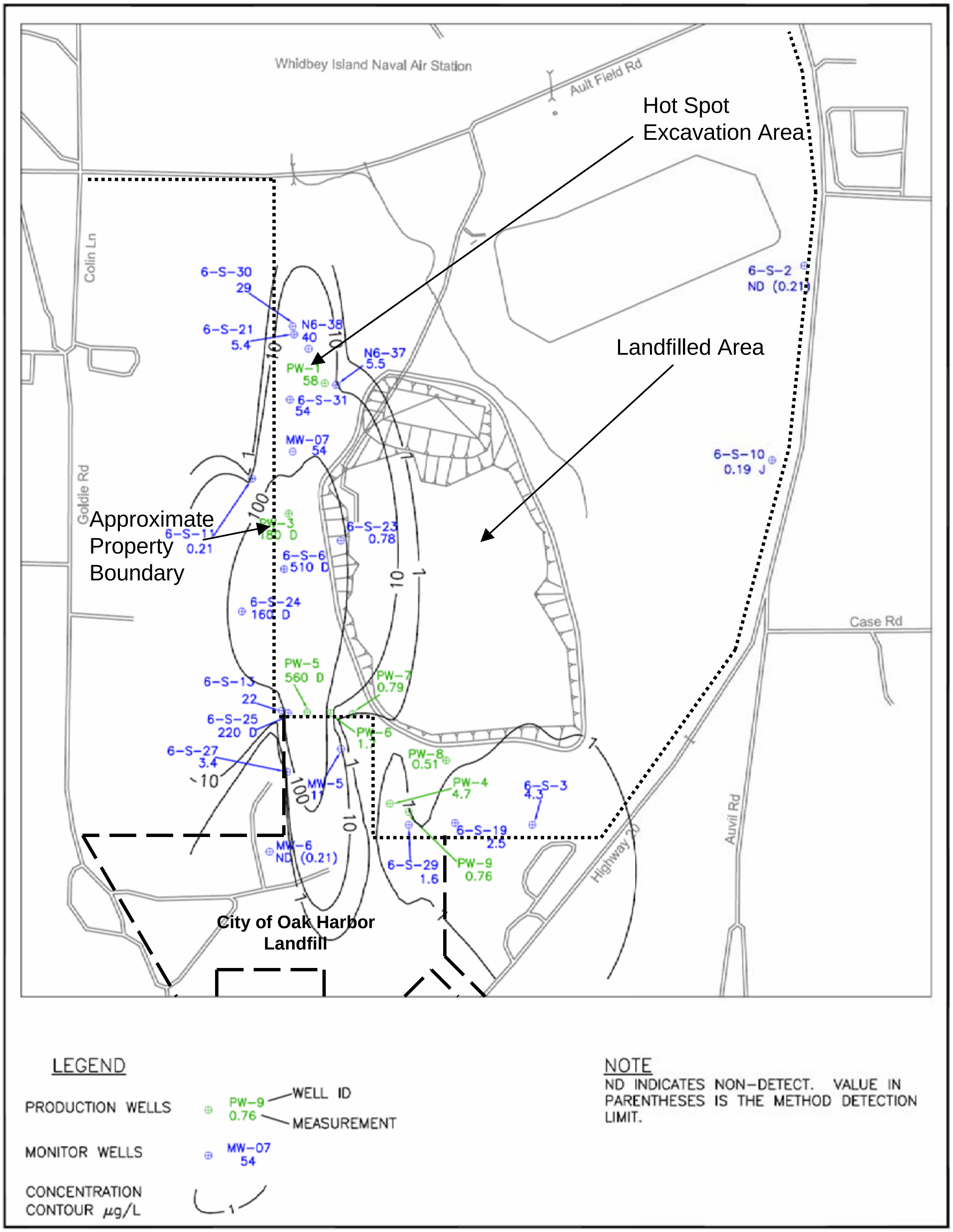


Figure A-5

U.S. Navy 2007a



SES-TECH	0 400 800 SCALE IN FEET	**Figure 4-2** **1,1,1-Trichlorethane (TCA) Concentrations** **May 2007**	Task Order 024 NAS Whidbey Island Area 6 LTM Whidbey Island, WA Date: 06/2007

Figure A-6

U.S. Navy 2007a

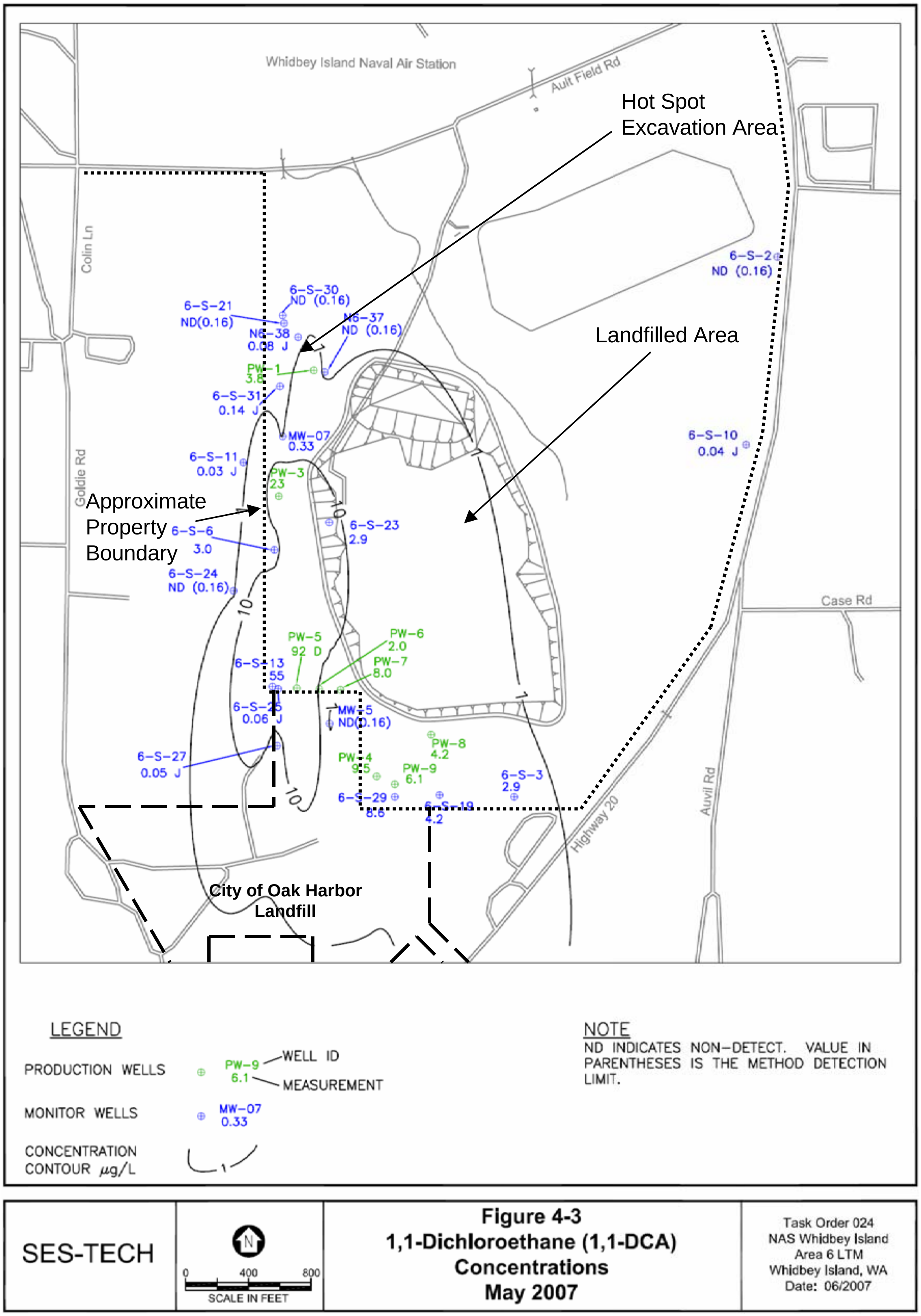


Figure A-7

U.S. Navy 2007a

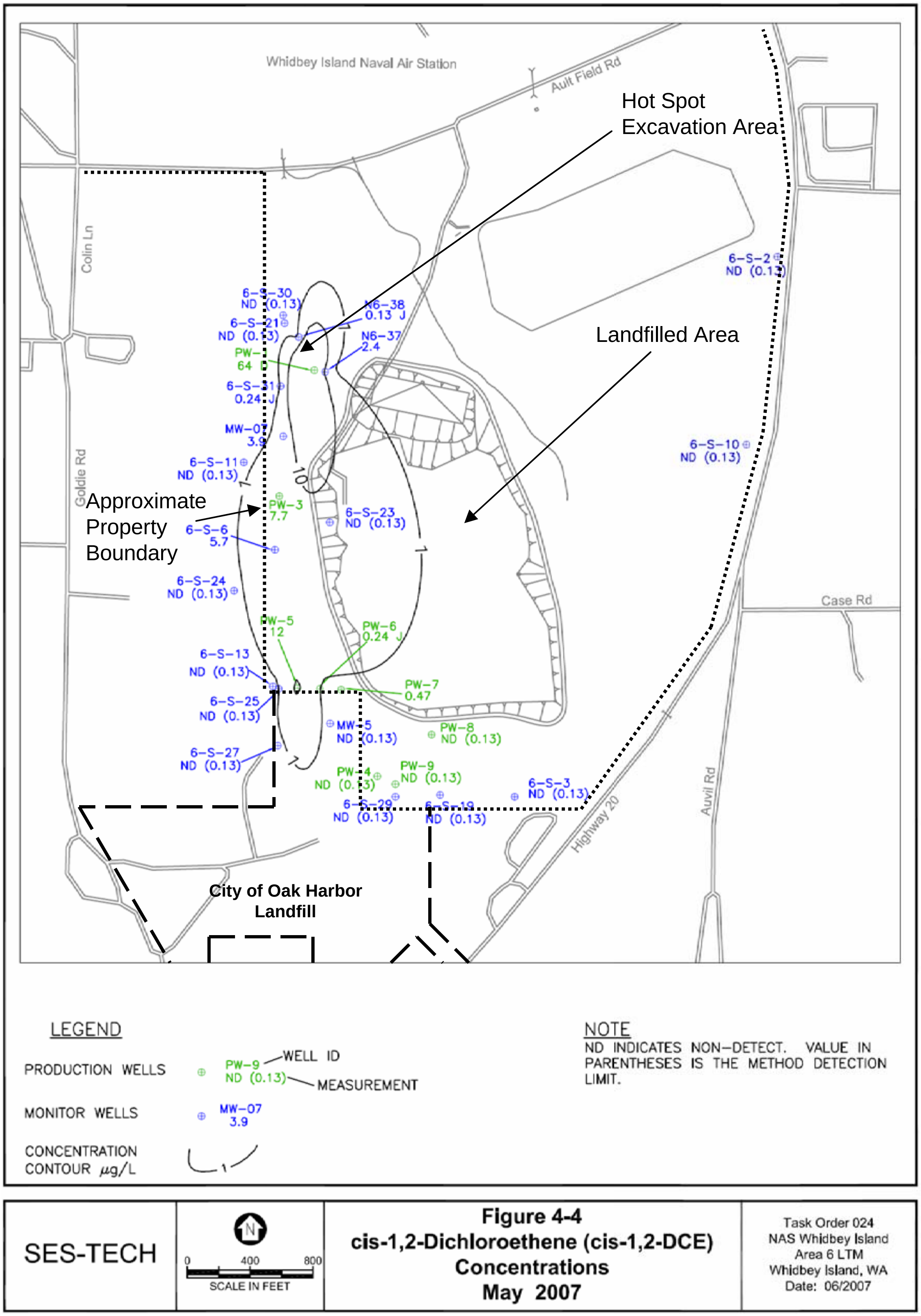


Figure A-8

U.S. Navy 2007a

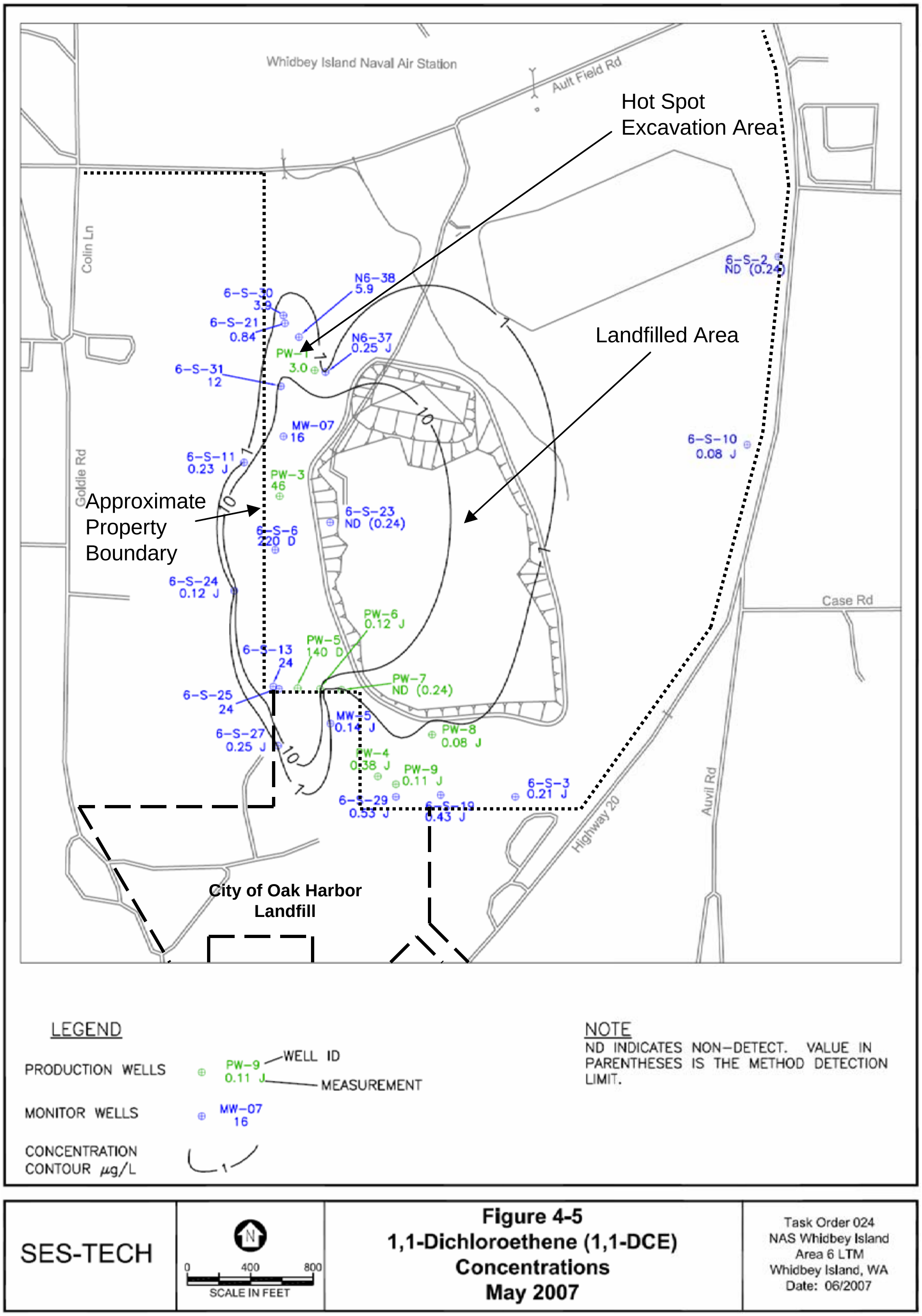


Figure A-9

U.S. Navy 2007a

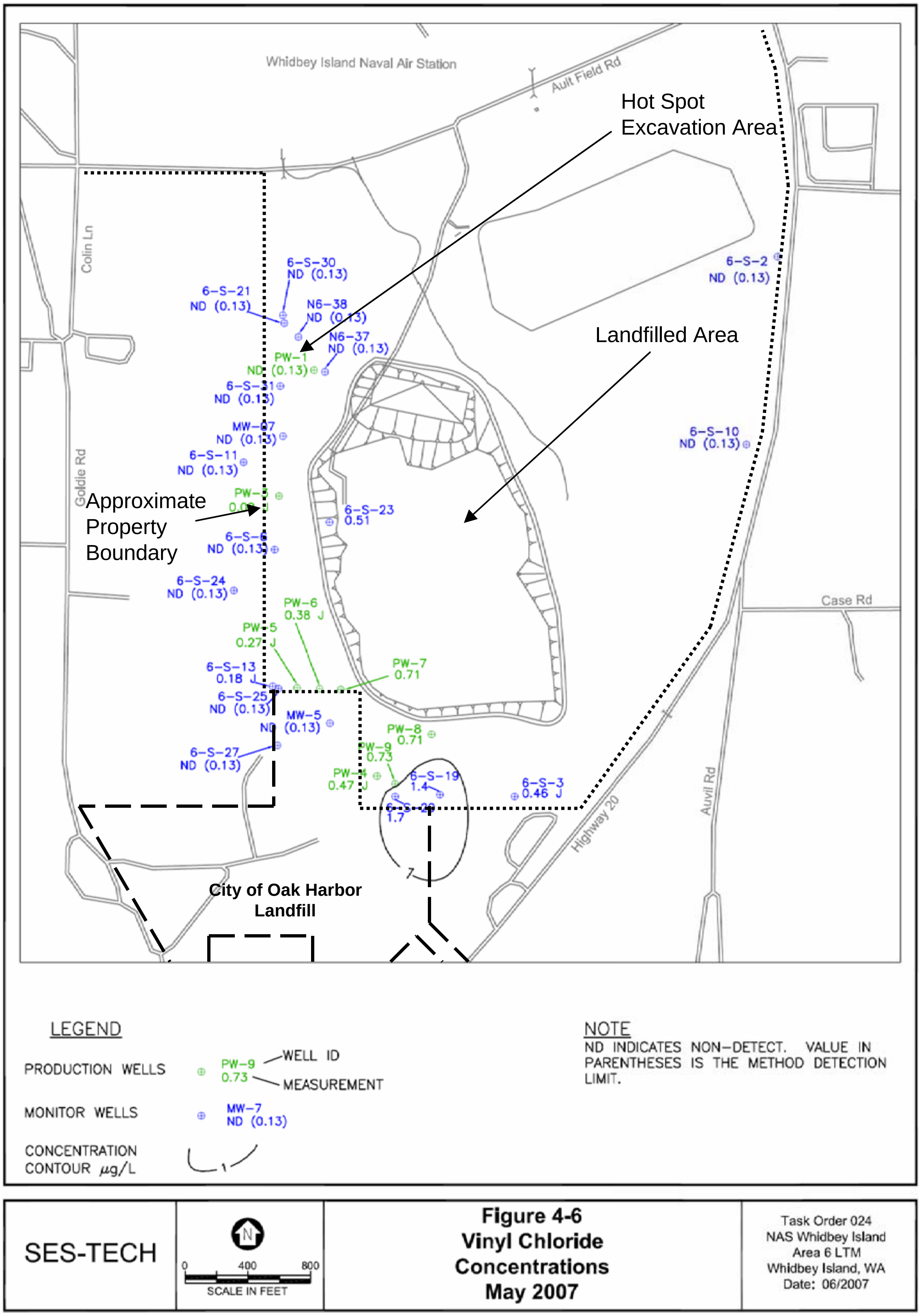


Figure A-10

U.S. Navy 2007a

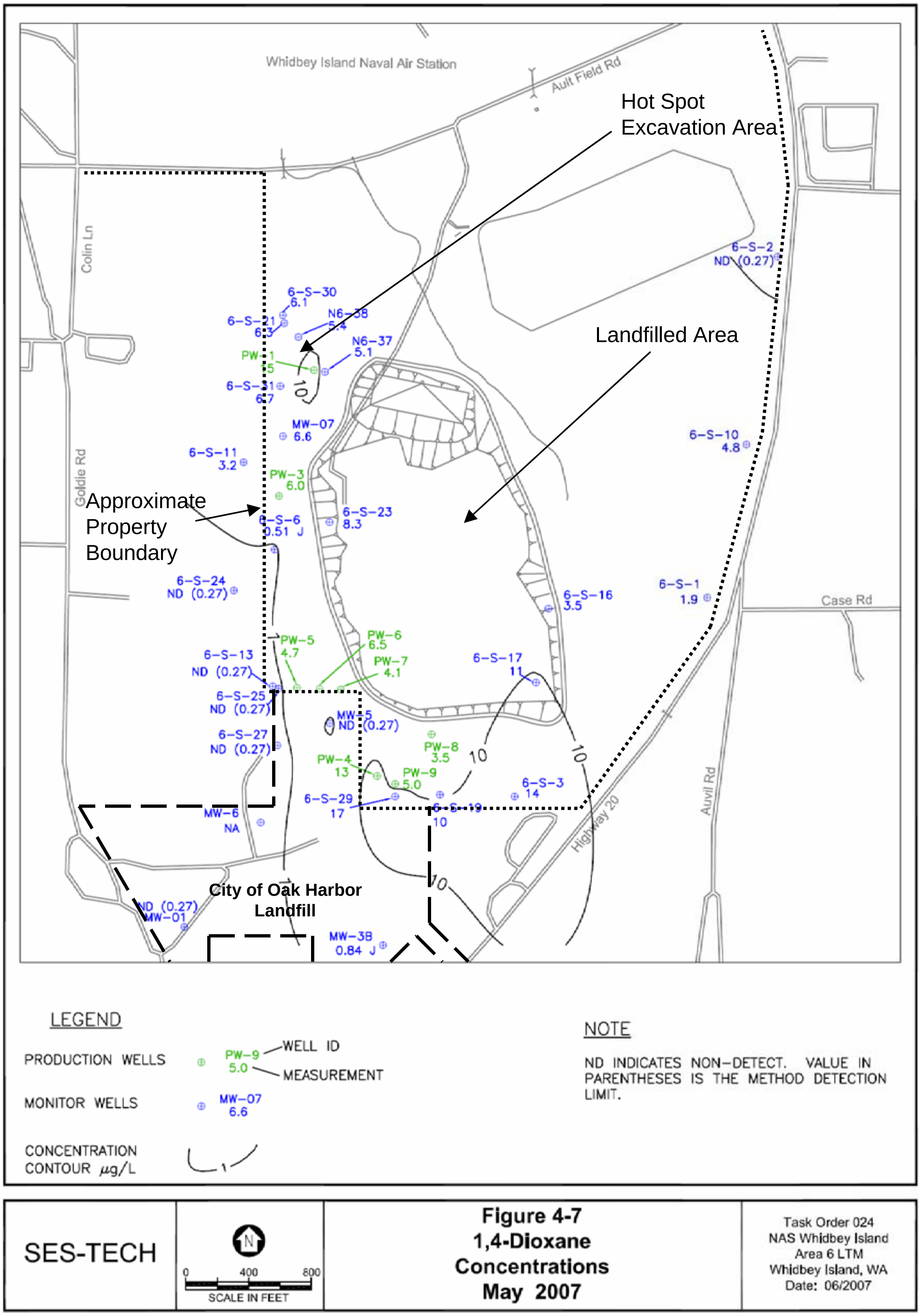


Figure A-11

U.S. Navy 2007a

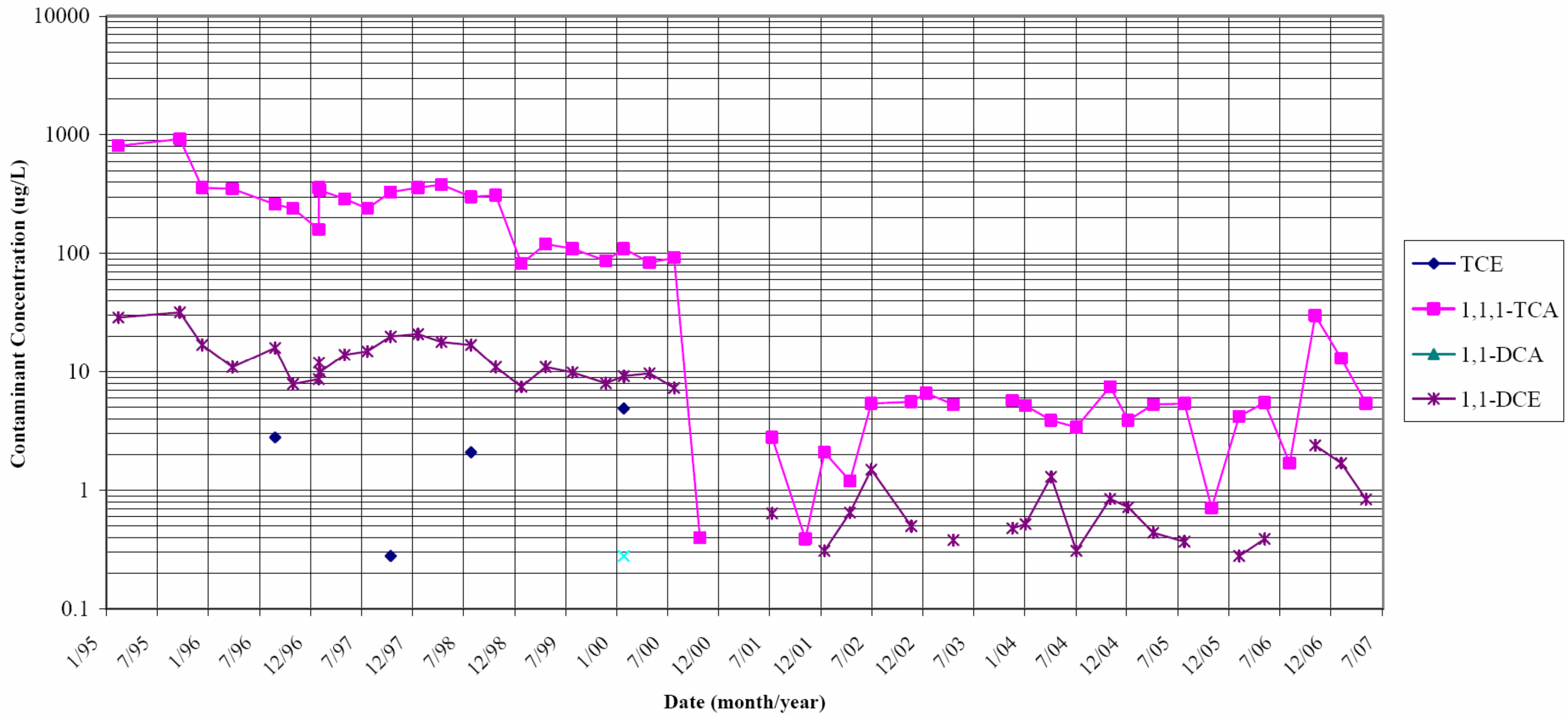


Figure A-12
Concentration Trends in Groundwater from 6-S-21

U.S. Navy 2007a

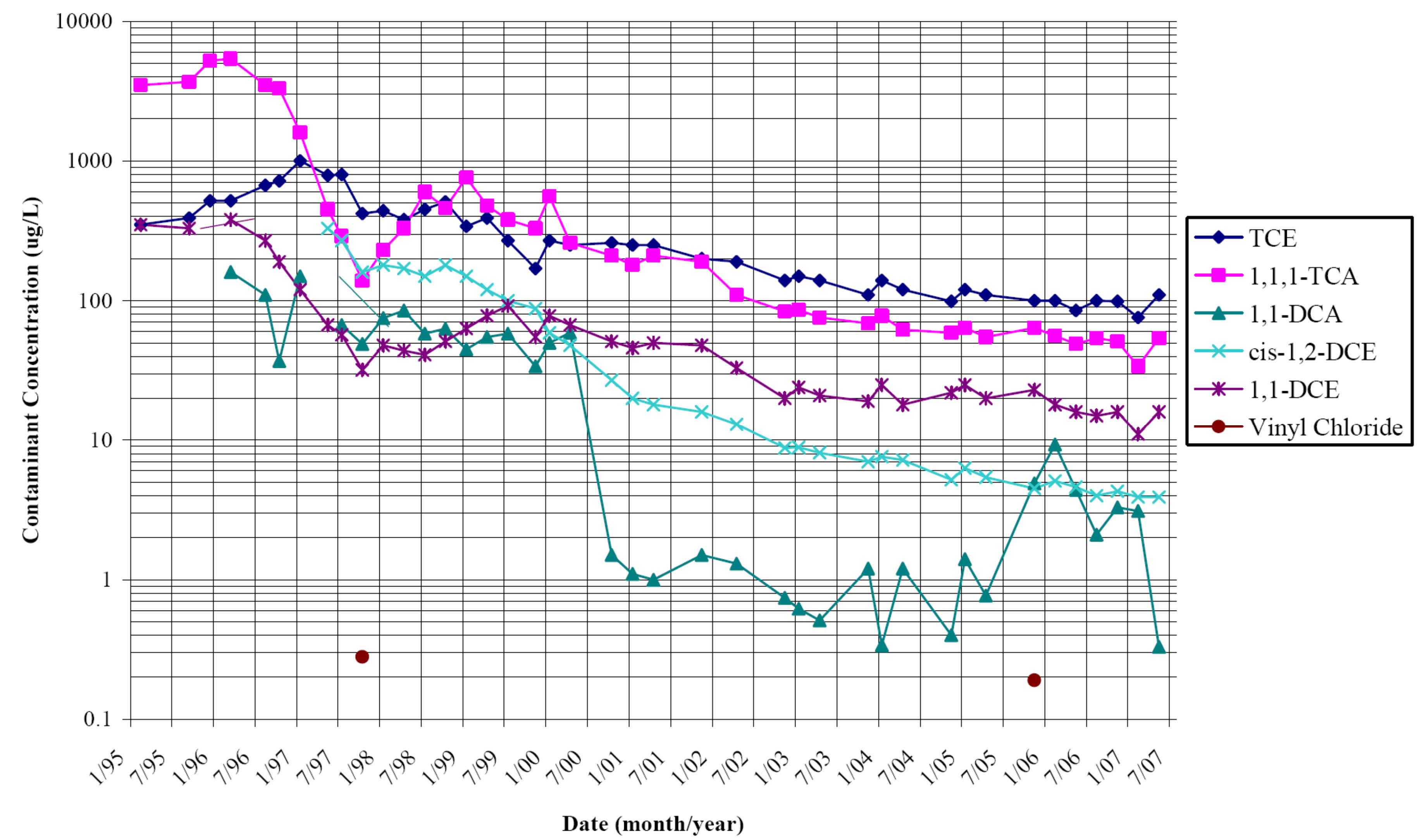


Figure A-13
Concentration Trends at in Groundwater from MW-7

U.S. Navy 2007a

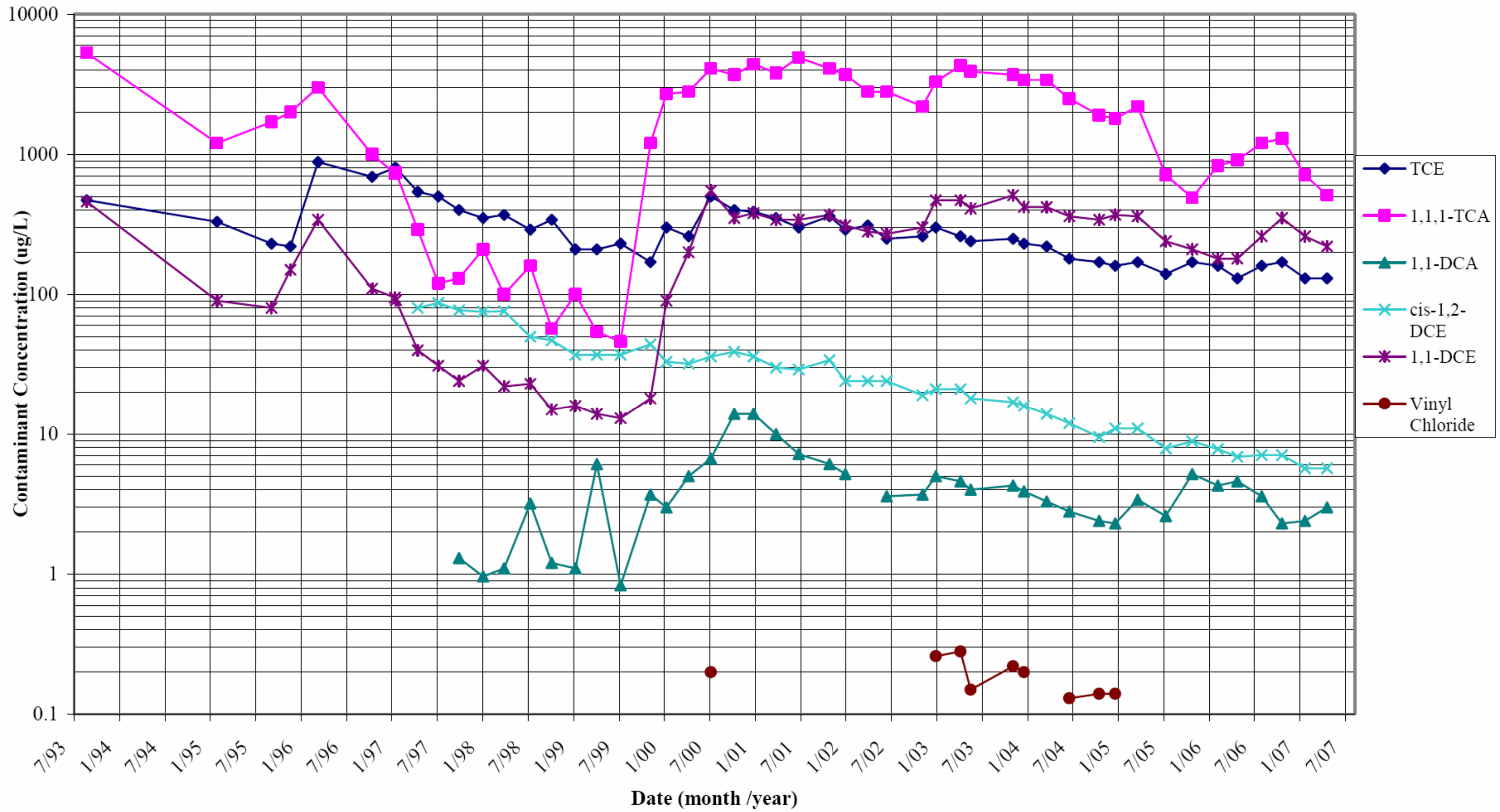


Figure A-14
Concentration Trends at in Groundwater from 6-S-6

U.S. Navy 2007a

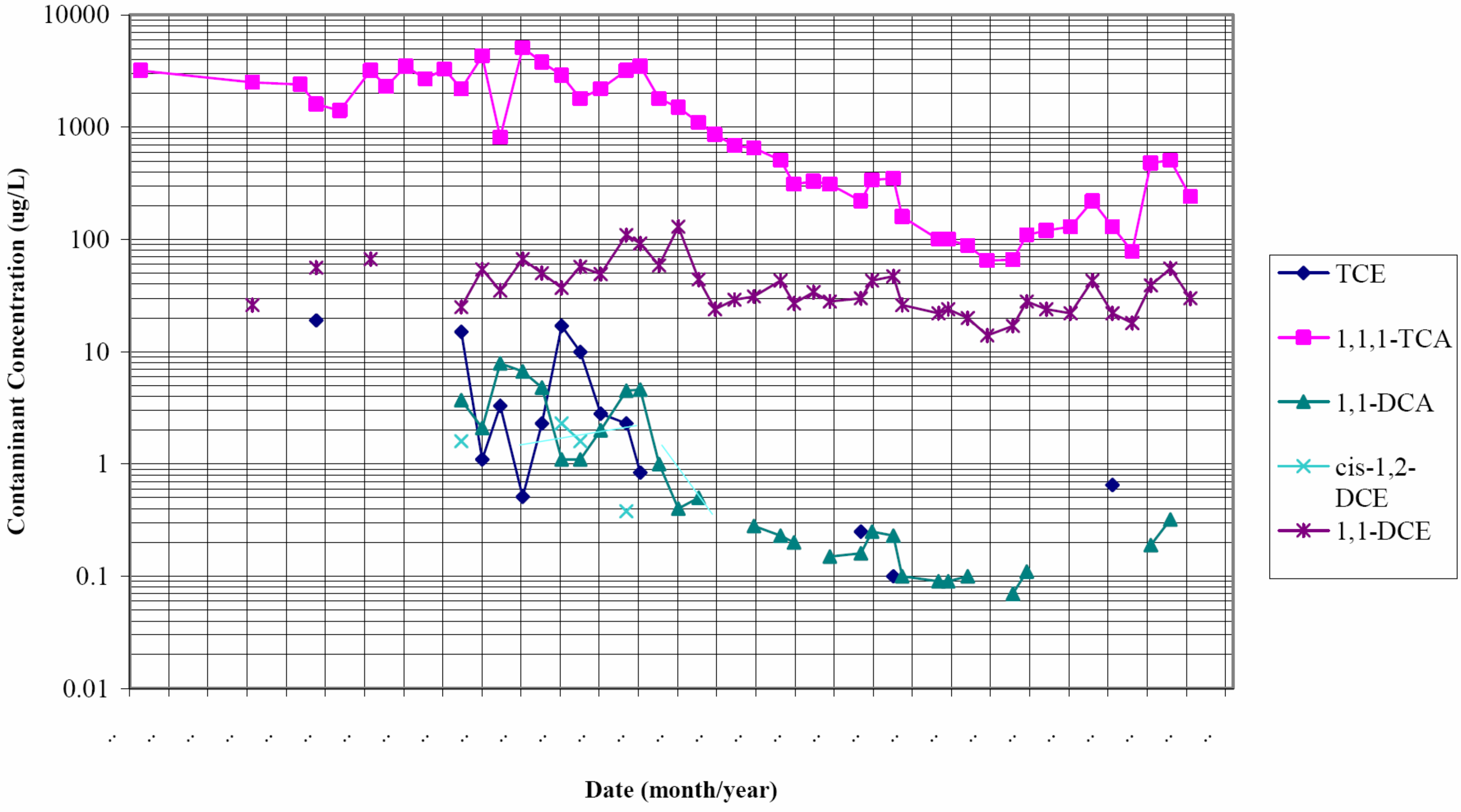


Figure A-15
Concentration Trends at in Groundwater from 6-S-25

U.S. Navy 2007a

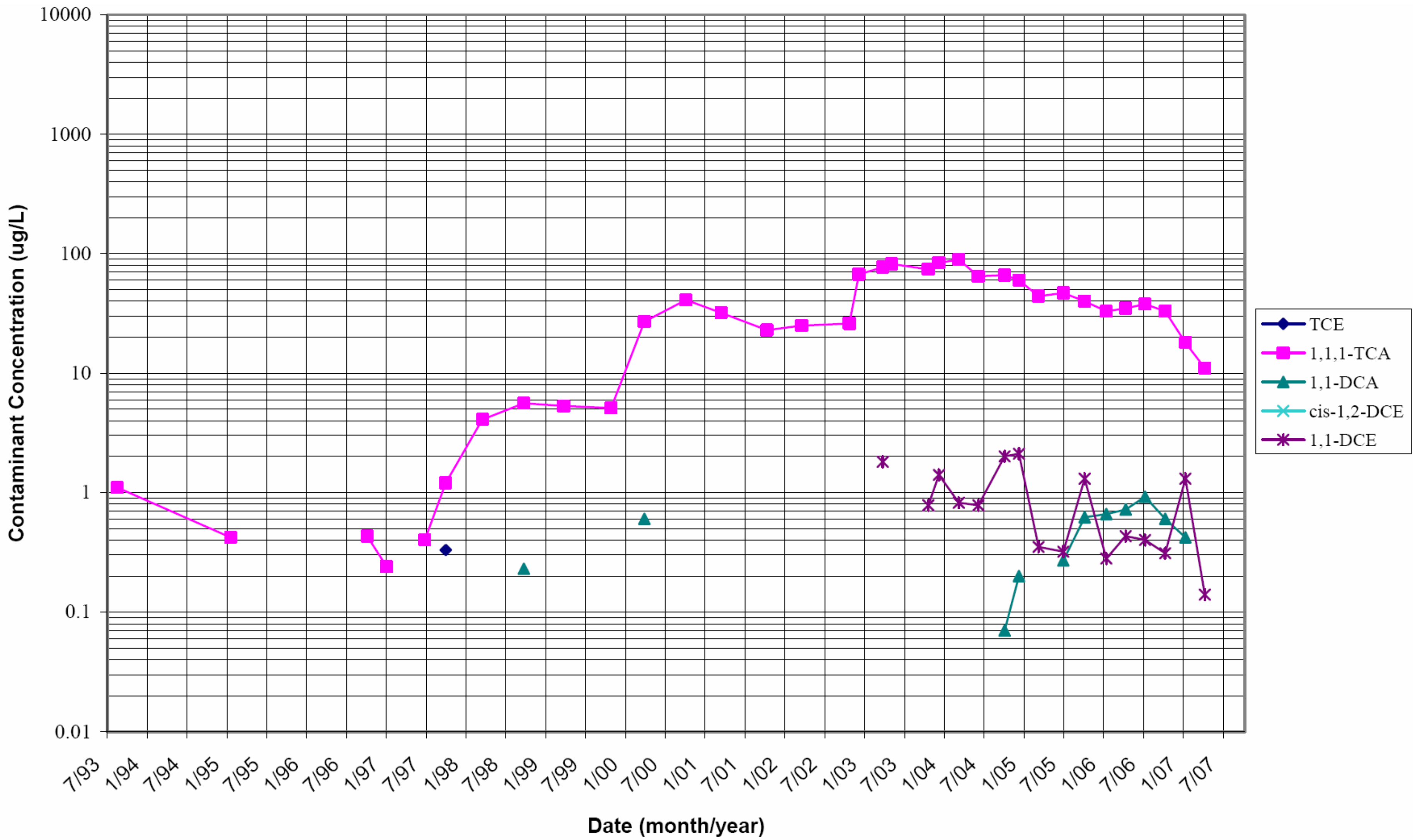


Figure A-16
Concentration Trends at in Groundwater from MW-5

U.S. Navy 2007a

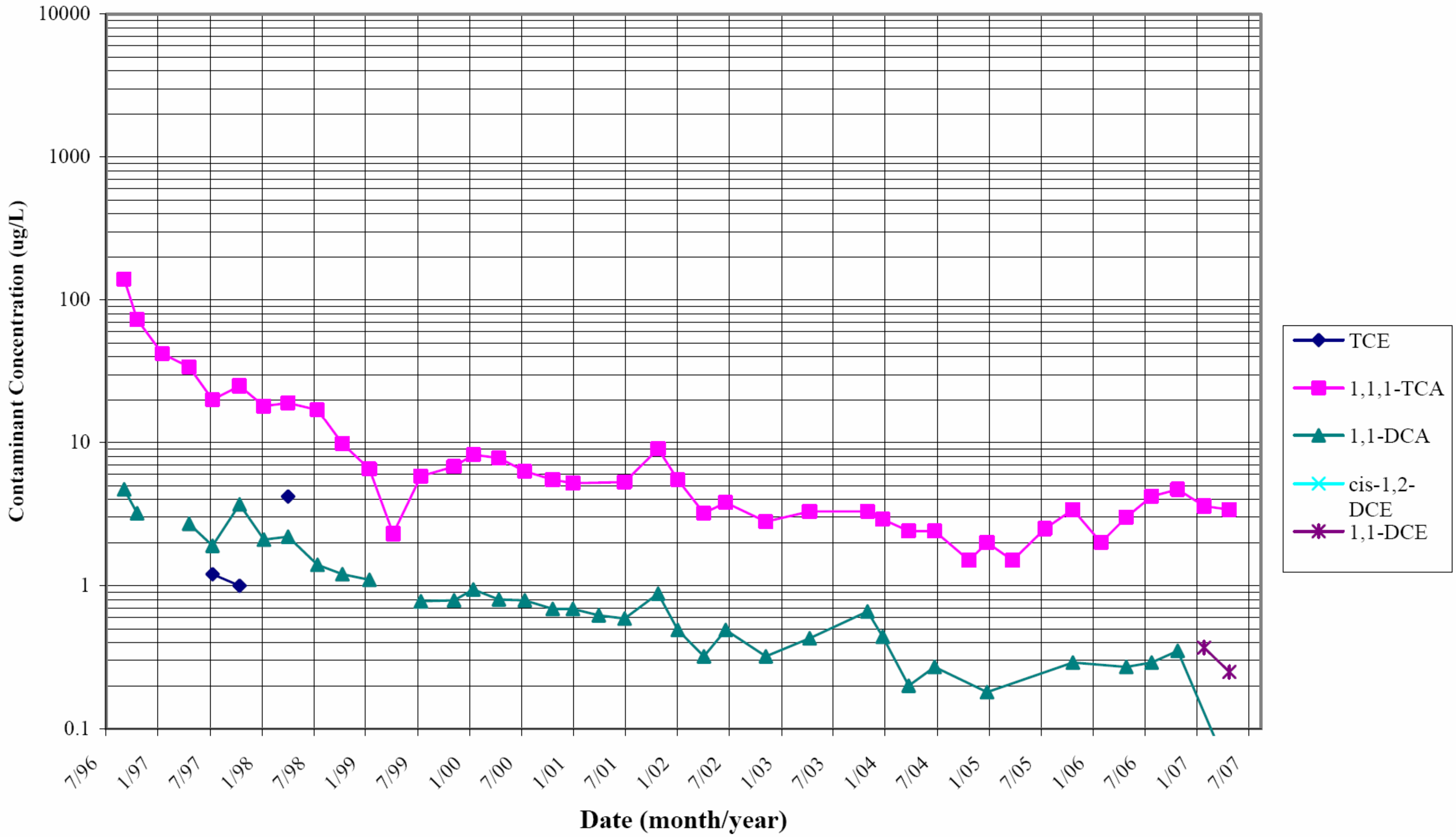


Figure A-17
Concentration Trends at in Groundwater from 6-S-27

U.S. Navy 2007a

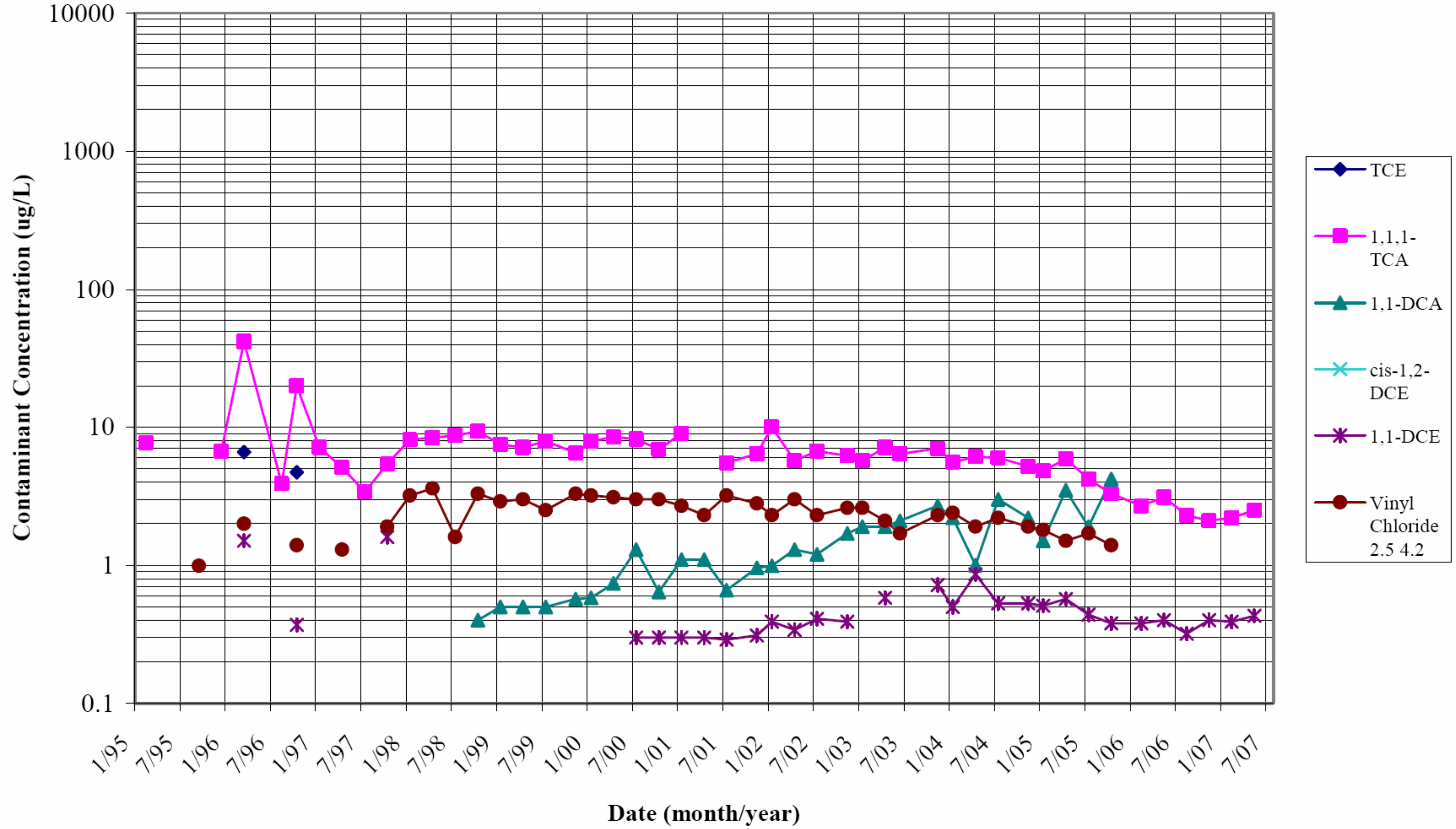


Figure A-18
Concentration Trends at in Groundwater from 6-S-19

U.S. Navy 2007a

			Total	Parameters								
		Sample	Gallons		TCE	1,1,1-TCA	1,1-DCA	cis-1,2-DCE	1,1-DCE	Vinyl Chloride	Chromium	Lead
Sample	**Date**	**Type**	**Pumped**	**pH**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
Effluent Limits				**6.5-8.5**	**5**	**200**	**800**	**70**	**7.0[b]**	**0.1**	**80**	**5**
TPI-SU-2-95-1	2/7/1995	Influent	543,870	6.88	**180**	**400**	4.3 J	NA	**14**	ND (10)	7.1	ND (5)
TPI-SU-2-95-2	2/8/1995	Influent	729,210	6.93	**270**	**720**	12 J	NA	**43**	ND (20)	5.8	ND (5)
TPI-SU-2-95-3	2/9/1995	Influent	960,530	6.80	**280**	**790**	15 J	NA	**51**	ND (20)	5.3	ND (5)
TPI-SU-2-95-5	2/10/1995	Influent	1,206,410	7.00	**350**	**920**	9.5 J	NA	ND (50)	ND (50)	3.3	ND (5)
TPI-SU-5-95-1	5/17/1995	Influent	1,480,000	6.83	**860**	**2000**	29 J	NA	ND (125)	ND (125)	NA	NA
TPI-SU-5-95-2	5/18/1995	Influent	1,670,000	7.07	**360**	**920**	16 J	NA	ND (25)	ND (25)	NA	NA
TPI-SU-5-95-3	5/19/1995	Influent	1,680,000	6.98	**280**	**770**	6.4 J	NA	**73**	ND (50)	NA	NA
TPI-SU-6-95-1	6/23/1995	Influent	2,290,000	7.50	**250**	**720**	16 J	NA	**51**	ND (50)	NA	NA
TPI-OP-7-95-1	7/5/1995	Influent	4,237,290	7.59	**240**	**830**	15 J	NA	**58**	ND (50)	NA	NA
TPI-OP-7-95-2	7/19/1995	Influent	8,226,211	6.95	**240**	**1100**	34 J	NA	**55**	ND (50)	ND (10)	0.012
TPI-OP-8-95-1	8/9/1995	Influent	10,010,160	7.55	**250**	**980**	10 J	NA	**70**	ND (50)	NA	NA
TPI-OP-8-95-2	8/21/1995	Influent	12,065,720	7.3	**190**	**1100**	21 J	NA	**56**	ND (50)	NA	NA
TPI-OP-9-95-1	9/7/1995	Influent	18,181,020	7.67	**210**	**1100**	ND (50)	NA	**63**	ND (50)	NA	NA
TPI-OP-9-95-2	9/19/1995	Influent	19,793,970	6.98	**240**	**1500**	26 J	NA	**82**	ND (50)	ND (10)	ND (3)
TPI-OP-9-95-3	9/19/1995	Influent	20,950,070	6.98	**210**	**1500**	ND (50)	NA	**83**	ND (50)	ND (10)	ND (3)
TPI-OP-10-95-1	10/4/1995	Influent	24,286,270	7.3	**210**	**1200**	27 J	NA	ND (50)	ND (50)	NA	NA
TPI-OP-10-95-2	10/16/1995	Influent	26,851,400	7.33	**210**	**1400**	29J	NA	**84**	ND (50)	NA	NA
TPI-OP-11-95-1	11/2/1995	Influent	30,232,640	7.95	**190**	**1300**	43 J	NA	**94**	ND (50)	NA	NA
TPI-OP-11-95-2	11/13/1995	Influent	32,330,377	7.69	**200**	**1300**	53	NA	**82**	ND (50)	ND (10)	ND (3)
TPI-OP-12-95-1	12/4/1995	Influent	36,470,670	8.2	**160**	**1200**	44 J	NA	**72**	ND (50)	ND (10)	ND (3)
TPI-OP-12-95-3	12/4/1995	Influent	36,470,670	8.2	**160**	**1300**	43 J	NA	**69**	ND (50)	ND (10)	ND (3)
TPI-OP-12-95-2	12/27/1995	Influent	42,584,000	7.58	**190**	**1200**	66	NA	**76**	ND (50)	NA	NA
TPI-OP-1-96	1/15/1996	Influent	47,607,160	6.90	**150**	**1000**	67	NA	ND (50)	ND (50)	NA	NA
TPI-OP-1-96-2	2/1/1996	Influent	50,391,260	6.72	**210**	**1100**	82	NA	**76**	ND (50)	NA	NA
TPI-OP-2-96-1	2/15/1996	Influent	51,939,648	7.22	**190**	**1200**	87	NA	ND (50)	ND (50)	NA	NA
TPI-OP-2-96-1	2/27/1996	Influent	56,008,869	7.35	**180**	**1100**	66	NA	**72**	ND (50)	NA	NA
TPI-OP-3-96	3/25/1996	Influent	64,356,870	7.07	**160**	**1200**	50	NA	**83**	ND (50)	ND (10)	ND (3)
TPI-OP-3-96-2	3/25/1996	Influent	64,356,870	7.07	**160**	**1200**	69	NA	**78**	ND (50)	ND (10)	ND (3)
TPI-9-96	9/18/1996	Influent	71,882,510	7.40	**150**	**1000**	60	NA	ND(50)	ND(50)	NA	NA
TPI-10-96-1	10/7/1996	Influent	76,248,600	7.34	**38**	**920**	79	NA	**6.3 J**	ND (25)	NA	NA
TPI-11-96	11/5/1996	Influent	83,350,896	6.95	**130**	**590**	18 J	NA	ND(50)	ND(50)	ND (10)	ND (3)
TPI-11-96-1	11/5/1996	Influent	83,350,896	6.95	**140**	**660**	44 J	NA	ND(50)	ND(50)	ND (10)	ND (3)
TPI-12-96	12/17/1996	Influent	90,859,300	7.40	**160**	**610**	24 J	NA	**50**	ND (50)	NA	NA
TPI-1-97	1/30/1997	Influent	94,512,640	7.01	**110**	**570**	29 J	NA	ND (50)	ND (50)	NA	NA
TPI-1-97-1	1/30/1997	Influent	94,512,640	7.01	**120**	**610**	30 J	NA	ND (50)	ND (50)	NA	NA
TPI0297	2/25/1997	Influent	101,852,630	7.17	**120**	**670**	39 J	NA	ND (50)	ND (50)	NA	NA
TPI0397	3/25/1997	Influent	109,055,820	7.65	**92**	**480**	28	NA	ND (25)	ND (25)	NA	NA
TPI-5-97	5/2/1997	Influent	118,593,000	7.7	**97**	**460**	38	11 J	ND (25)	ND (25)	34	ND (3)
TPI-5-97-1	5/2/1997	Influent	118,593,000	7.7	**130**	**550**	55	22 J	ND (25)	ND (25)	32	ND (3)
TPI-5-97	5/28/1997	Influent	125,514,962	6.87	**100**	**490**	39	ND (25)	ND (25)	ND (25)	NA	NA

Table A-1
Cumulative Summary of Area 6 Influent Sample Results

U.S. Navy 2007a

Sample	Date	Sample Type	Total Gallons Pumped	Parameters								
				pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
Effluent Limits				**6.5-8.5**	**5**	**200**	**800**	**70**	7.0[b]	**0.1**	**80**	**5**
TPI-6-97	6/23/1997	Influent	132,507,790	6.5	**130**	**570**	55	ND (25)	ND (25)	ND (25)	NA	NA
TPI-7-97	7/21/1997	Influent	NR	6.6	**120**	**550**	39	42	ND (25)	ND (25)	ND (10)	ND (3)
TPI-7-97-1	7/21/1997	Influent	NR	6.6	**120**	**570**	47	30	**9.9 J**	ND (25)	NA	NA
TPI-8-97	8/27/1997	Influent	148,509,430	6.9	**98**	**590**	47 J	ND (50)	ND (50)	ND (50)	NA	NA
GW0001	9/30/1997	Influent	152,711,805	7.24	**60**	**480**	38	22	**3.8**	0.6	NA	NA
GW0065	10/27/1997	Influent	158,220,729	6.9	**140**	**760**	70	20	ND (0.5)	ND (0.5)	ND (10)	ND (3)
GW0085	11/24/1997	Influent	165,448,523	NR	**160**	**820**	76	6.7	ND (0.5)	ND (0.5)	NA	NA
GW0090	12/30/1997	Influent	NR	NR	**130 E**	**380 E**	69 E	34	ND (0.5)	ND (0.5)	NA	NA
GW0126	1/19/1998	Influent	179,395,030	NR	**120**	**840**	76	11	0.6	ND (0.5)	ND (10)	ND (3)
GW0130	2/25/1998	Influent	188,457,130	NR	**150**	**930**	81	37	ND (12)	ND (12)	NA	NA
GW0131	2/25/1998	Influent	188,457,130	NR	**140**	**860**	75	34	ND (12)	ND (12)	NA	NA
GW0136	3/31/1998	Influent	193,622,800	NR	**150**	**1900**	93	ND (25)	ND (25)	ND (25)	NA	NA
GW0181	4/16/1998	Influent	197,815,280	NR	**120**	**970**	95	36	0.7	ND (0.5)	ND (10)	ND (3)
GW0185	5/29/1998	Influent	207,789,900	NR	**120**	**810**	82	41	**70**	ND (0.5)	ND (10)	ND (3)
GW0220	7/29/1998	Influent	215,901,260	NR	**140**	**850**	70	40	**64**	**1.0**	ND (10)	ND (3)
GW0231	8/27/1998	Influent	NA	NR	**86**	**730**	64	ND (25)	ND (25)	ND (25)	NA	NA
GW0237	9/28/1998	Influent	233,224,520	NR	**96**	**630**	60	27	**18**	ND (10)	NA	NA
GW0238	9/28/1998	Influent	233,224,520	NR	**99**	**640**	62	27	**18**	ND (10)	NA	NA
GW0293	10/20/1998	Influent	239,379,040	NR	**110**	**800**	78	32	**65**	ND (25)	ND (10)	ND (3)
GW0306	11/25/1998	Influent	249,511,620	NR	**95**	**700**	71	27	**54**	ND (25)	NA	NA
GW0311	12/28/1998	Influent	258,907,460	NR	**88**	**630**	76	47 J	**56**	ND (0.5)	NA	NA
GW0312	12/28/1998	Influent	258,907,460	NR	**76**	**580**	68	26 J	**50**	ND (0.5)	NA	NA
GW0341	1/29/1999	Influent	267,569,720	NR	**96**	**590**	70	31	**58**	ND (0.5)	ND (10)	ND (3)
GW0357	2/24/1999	Influent	274,534,940	NR	**100**	**620**	73	31	**58**	ND (0.5)	NA	NA
GW0358	2/24/1999	Influent	274,534,940	NR	**110**	**620**	75	33	**58**	ND (0.5)	NA	NA
GW0362	3/15/1999	Influent	279,846,800	NR	**100**	**620**	70	30	**64**	ND (0.5)	NA	NA
GW0402	4/23/1999	Influent	291,022,080	NR	**100**	**600**	71	34	**62**	**0.8**	ND (10)	ND (3)
GW0412	5/26/1999	Influent	299,768,400	NR	**88**	**580**	64	33	**51**	**0.9**	NA	NA
GW0417	6/25/1999	Influent	308,150,700	NR	**96**	**620**	66	31	**57**	**0.7**	NA	NA
GW0449	7/27/1999	Influent	313,190,940	NR	**82**	**520**	54	24	**46**	ND (0.5)	ND (10)	ND (3)
GW0450	7/27/1999	Influent	313,190,940	NR	**86**	**510**	59	26	**50**	ND (0.5)	ND (10)	ND (3)
GW0464	8/19/1999	Influent	319,727,120	NR	**130**	**860**	81	32	**89**	**1 J**	NA	NA
GW0517	11/29/1999	Influent	329,091,591	NR	**150**	**630**	70	44	**82**	**0.70**	ND (10)	ND (3)
GW0529	12/30/1999	Influent	333,915,713	NR	**110**	**590**	72	34	**67**	**0.82**	NA	NA
GW0561	1/27/2000	Influent	337,000,000	NR	**100**	**580**	75	33	**68**	ND (1)	NA	NA
GW0575	2/29/2000	Influent	345,001,059	NR	**97**	**530**	75	29	**28**	ND (5)	NA	NA
GW0576	2/29/2000	Influent	345,001,059	NR	**94**	**520**	71	30	**33**	ND (5)	NA	NA
GW0580	3/31/2000	Influent	350,436,191	NR	**100**	**540**	71	33	**66**	**0.8**	NA	NA
GW0619	4/28/2000	Influent	357,017,129	NR	**120 E**	**330 E**	81 E	33	**85 E**	**1.0**	3.3 B	ND (1.0)
GW0628	5/31/2000	Influent	363,917,129	NR	**130 E**	**620 D**	93 E	36	**99 E**	**0.9**	NA	NA

Table A-1 (continued)
Cumulative Summary of Area 6 Influent Sample Results

U.S. Navy 2007a

Sample	Date	Sample Type	Total Gallons Pumped	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
				Parameters								
Effluent Limits				**6.5-8.5**	**5**	**200**	**800**	**70**	7.0[b]	**0.1**	**80**	**5**
GW0632	6/29/2000	Influent	369,897,942	NR	**93 D**	**520 D**	68 D	25	**68 D**	**0.6**	NA	NA
GW0657	7/26/2000	Influent	375,997,942	NR	**90 D**	**520 D**	76 D	21	**110 D**	**0.73**	ND (4.00)	ND (1.00)
GW0632	8/31/2000	Influent	384,397,942	NR	**76 D**	**440 D**	55 D	22	**58 D**	**0.68**	NA	NA
GW0636	9/26/2000	Influent	389,797,942	NR	**92 D**	**510 D**	65 D	26	**69 D**	**0.80**	NA	NA
GW0665	10/26/2000	Influent	NR	NR	**81 D**	**480 D**	66 D	29	**69 D**	**0.74**	NA	NA
GW0669	11/29/2000	Influent	NR	NR	**84 D**	**440 D**	65 D	24	**71**	**7.00**	NA	NA
GW0673	12/27/2000	Influent	NR	NR	**83 D**	**470 D**	60 D	22	**69 D**	ND (5)	ND (4.00)	ND (1.00)
GM0678	1/30/2001	Influent	NR	NR	**85 D**	**380 D**	61 D	21 D	**72 D**	**0.67**	NA	NA
GM0682	2/28/2001	Influent	NR	NR	**86 D**	**510 D**	79 D	20 D	**86 D**	**0.57**	NA	NA
GM0686	3/27/2001	Influent	NR	NR	**85 D**	**430 D**	59 D	23 D	**62 D**	**0.65**	NA	NA
GM0691	4/25/2001	Influent	603,389,276	6.77	**81 D**	**400 D**	58 D	20 D	**63 D**	ND (2.5)	NA	NA
GM0695	5/30/2001	Influent	610,585,282	NR	**82**	**400**	57	19	**72**	**0.68**	NA	NA
GM0699	6/20/2001	Influent	613,085,282	NR	**88**	**430 E**	50	24	**79**	ND (3.0)	1.9 B	ND (0.1)
GM0704	7/31/2001	Influent	621,095,303	NR	**103.76**	**446.79**	64.55	23.92	**86.61**	**0.83 J**	NA	NA
GM0708	8/29/2001	Influent	626,131,729	NR	**118.15**	**491.77**	84.58	30.36	**102.95**	ND (3.0)	NA	NA
GM0712	9/26/2001	Influent	630,927,199	6.93	**87.31**	**414.24**	69.54	25.79	**77.55**	ND (3.0)	ND (10.0)	ND (10.0)
GM0717	10/29/2001	Influent	637,396,723	NR	**64.34**	**294.24**	43.09	15.61	**54.71**	**0.66 J**	NA	NA
GM0721	11/28/2001	Influent	644,842,139	NR	**66.51**	**312.18**	43.77	15.5	**62.75**	**0.74 J**	NA	NA
GM0725	12/27/2001	Influent	650,644,711	NR	**68.76**	**322.05 E**	42.11	17.28	**59.13**	ND (3.0)	1.2 B	3.8 B
GM0730	1/29/2002	Influent	658,372,489	NR	**75.85**	**345.6 E**	43.63	17.78	**66.18**	ND (3.0)	NA	NA
GM-02-734	2/26/2002	Influent	665,368,395	NR	**66.05**	**205.16**	36	18.33	**61.07**	ND (3.0)	NA	NA
GM-02-738	3/26/2002	Influent	673,014,097	NR	**69.97**	**283.24 E**	46.88	18.28	**56.95**	**0.87 J**	8.5 B	ND (2.4)
GM-02-743	4/29/2002	Influent	680,141,244	7.05	**63.87**	**245.74 E**	36.35	17.66	**48.34**	ND (3.0)	NA	NA
GM-02-747	5/28/2002	Influent	687,555,508	6.83	**74.14**	**296.17**	37.25	15.87	**55.85**	**0.9 J**	NA	NA
GM-02-751	6/24/2002	Influent	694,307,637	6.60	**69**	**260 E**	36	17	**65**	**1 J**	2.3 B	ND (1.6)
GM-02-756	7/29/2002	Influent	700,912,306	6.39	**65.85**	**262.78 E**	33.05	15.9	**61.51**	**1.48 J**	NA	NA
GM-02-760	8/29/2002	Influent	707,935,527	6.31	**68.7**	**290.55 E**	42.8	17.1	**71.59**	**1.81 J**	NA	NA
GM-02-764	9/24/2002	Influent	714,694,163	6.90	**59.1**	**277.19 E**	38.45	15.57	**84.6**	**1.8 J**	3.9 B	ND (2.4)
GM-02-001	10/27/2002	Influent	722,458,600	NR	**56**	**210 E**	33	14	**79**	ND (3.0)	NA	NA
GM-02-005	11/25/2002	Influent	729,360,639	NR	**60**	**240 E**	37	16	**61**	ND (3.0)	NA	NA
GM-02-010	12/30/2002	Influent	735,618,240	NR	**55**	160	29	15	**86**	**3 J**	ND (2.9)	ND (1.5)
GM-03-015	1/30/2003	Influent	744,089,851	NR	**58**	**230**	31	15	**57**	**0.8 J**	6.2 B	ND (2.8)
GM-03-019	2/25/2003	Influent	750,159,065	NR	**62**	**240 E**	33	16	**46**	**0.6 J**	NA	NA
GM-03-023	3/31/2003	Influent	755,646,137	NR	**80**	**280 E**	36	19	**49**	**0.9 J**	NA	NA
GM-03-30	4/28/2003	Influent	762,409,845	NR	**68**	**350 E**	50	17	**59**	**0.6 J**	NA	NA
GM-03-35	5/28/2003	Influent	769,784,703	NR	**69**	**350 E**	46	15	**58**	**0.5 J**	NA	NA
GM-03-039	6/28/2003	Influent	776,496,983	NR	**65**	**280 E**	42	16	**47**	**0.8 J**	5.0 B	**5.1 B**
GM-03-44	7/29/2003	Influent	783,267,249	NR	**67**	**270 E**	39	15	**52**	**0.8 J**	NA	NA
GM-03-49	8/29/2003	Influent	790,648,477	NR	**71**	**290 E**	47	17	**68**	**1.1**	NA	NA

Table A-1 (continued)
Cumulative Summary of Area 6 Influent Sample Results

U.S. Navy 2007a

			Total	Parameters								
		Sample	Gallons		TCE	1,1,1-TCA	1,1-DCA	cis-1,2-DCE	1,1-DCE	Vinyl Chloride	Chromium	Lead
Sample	**Date**	**Type**	**Pumped**	**pH**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
Effluent Limits				**6.5-8.5**	**5**	**200**	**800**	**70**	**7.0[b]**	**0.1**	**80**	**5**
GM-03-54[a]	10/31/2003	Influent	802,670,647	NR	**54**	**230 E**	37	13	**47**	**0.7 J**	2.9 B	ND (2.7)
GM-03-59	11/29/2003	Influent	809,258,512	NR	**54**	**250 E**	38	14	**51**	**0.5 J**	NA	NA
GM-03-64	12/29/2003	Influent	815,748,474	NR	**63**	**260 E**	39	15	**43**	ND (1.0)	NA	NA
GM-04-01	1/29/2004	Influent	821,260,961	NR	**60**	**270 E**	37	14	**42**	**0.5 J**	NA	NA
GM-04-06	2/24/2004	Influent	826,764,871	NR	**79**	**280 E**	39	18	**58**	ND (1.0)	NA	NA
GM-04-11	3/29/2004	Influent	833,177,790	NR	**54**	**290 E**	38	13	**50**	ND (1.0)	3.0 B	4.5 B
GM-04-16	4/28/2004	Influent	839,140,749	NR	**75**	**280 E**	39	15	**58**	**0.7 J**	NA	NA
GM-04-21	5/28/2004	Influent	845,246,893	NR	**58**	**240 E**	39	13	**41**	**0.6 J**	NA	NA
GM-04-26	7/1/2004	Influent	851,273,449	NR	**73**	**300 E**	43	14	**51**	**0.7 J**	2.5 B	3.8 B
GM-04-31	7/28/2004	Influent	857,412,204	NR	**65**	**230 E**	38	15	**51**	**0.8 J**	NA	NA
GM-04-36	9/1/2004	Influent	863,566,841	NR	**61**	**230 E**	33	14	**44**	ND (1.0)	NA	NA
GM-04-41	9/27/2004	Influent	868,408,010	NR	**63**	**260 E**	37	15	**46**	ND (1.0)	3.6 B	2.4 B
GM-04-47	10/27/2004	Influent	873,933,902	NR	**58.3 J**	**208 JB**	28 J	11.6 J	**34.9 J**	ND (1.0)	NA	NA
GM-04-51	11/29/2004	Influent	879,922,202	NR	**57.1 J**	**213 JB**	28.5 J	12.7 J	**35.4 J**	ND (1.0)	NA	NA
GM-04-55	12/28/2004	Influent	886,056,475	NR	**60.4 J**	**200 J**	31.8 J	14.3 J	**38.6 J**	ND (1.0)	ND (0.01)	ND (0.01)
GM-05-03	1/31/2005	Influent	891,867,371	NR	**66.7 J**	198 J	20.8 J	17 J	**51.5 J**	**2.99 J**	NA	NA
GM-05-07	2/28/2005	Influent	896,946,674	NR	**59.9 J**	186 J	26 J	15.5 J	**36.4 J**	ND (5)	NA	NA
GM-05-11	3/30/2005	Influent	902,573,659	NR	**62.4 J**	**252 J**	36.5 J	15.9 J	**46.4 J**	**0.696**	ND (0.01)	ND (0.01)
GM-05-17	4/25/2005	Influent	908,617,251	NR	**61.5 J**	**214 J**	31 J	15.2 J	**43.1 J**	ND (0.745)	NA	NA
GM-05-22	5/31/2005	Influent	914,789,900	NR	**64.2 J**	198 JB	29.7 J	15.3 J	**38.1 J**	ND (0.5)	NA	NA
GM-05-26	6/30/2005	Influent	920,556,553	NR	**68 J**	196 JB	31.8 J	16.2 J	**48.8 J**	**1.34 J**	ND (0.02)	ND (0.015)
GM-05-31	7/25/2005	Influent	926,334,765	NR	**64.8 J**	174 JB	26 J	16.9 J	**48.9 J**	**2.19 J**	NA	NA
GM-05-35	8/29/2005	Influent	931,768,116	NR	**65.4 J**	185 JB	26.3 J	14.9 J	**36.5 J**	**0.504**	NA	NA
GM-05-39	9/19/2005	Influent	935,739,788	NR	**51.3 J**	**200 J**	38.1 J	15 J	**42.4 J**	ND (5)	ND (0.02)	ND (0.015)
GM-05-44	10/20/2005	Influent	940,940,888	NR	**69 D**	**230 D**	36	17	**42**	**0.38 J**	NA	NA
GM-05-48	11/21/2005	Influent	945,945,816	NR	**60 D**	190	31	16	**44**	**0.35 J**	NA	NA
GM-05-52	12/27/2005	Influent	951,505,449	NR	**67 D**	180 D	27	16	**45**	**1.2**	3.5 B	0.4 B
GM-06-04	1/23/2006	Influent	957,086,727	NR	**75 D**	**200 D**	35	17	**41**	**0.30 J**	NA	NA
GM-06-08	2/21/2006	Influent	961,949,977	NR	**66 D**	160 D	35	18	**37**	**0.33 J**	NA	NA
GM-06-12	3/23/2006	Influent	967,290,591	NR	**66 D**	160 D	31	18	**41**	**0.28 J**	ND (3.0)	ND (0.5)
GM-06-17	4/17/2006	Influent	972,407,816	NR	**57 D**	150 D	27	16	**36**	**0.31 J**	NA	NA
GM-06-21	5/23/2006	Influent	978,529,653	NR	**54 D**	130 D	27	16	**37**	**0.33 J**	NA	NA
GM-06-25	6/20/2006	Influent	982,583,157	NR	**52 D**	140 D	24	14	**34**	**0.35J**	ND (4.0)	ND (0.2)
GM-06-30	7/31/2006	Influent	983,644,995	NR	**100 D**	**290 D**	44	29	**56 D**	**0.27 J**	NA	NA
GM-06-34	8/29/2006	Influent	984,555,459	NR	**130 E**	**330 E**	42	33	**68 E**	**0.30 J**	NA	NA
GM-06-38	9/25/2006	Influent	984,603,825	NR	**100 D**	**250 D**	36	32	**54 D**	**0.38 J**	2.1 B	ND (0.2)
GM-06-43	10/27/2006	Influent	985,514,289	NR	**77 D**	190 D	31	24	**40**	**0.40 J**	NA	NA
GM-06-51	11/29/2006	Influent	985,514,289	NR	**63 D**	150 D	27	19	**35**	**0.33 J**	NA	NA
GM-07-04	1/24/2007	Influent	991,814,253	NR	**59 D**	120 D	21	16	**31**	**0.57**	NA	NA
GM-07-08	2/27/2007	Influent	990,080,003	NR	**59 D**	120 D	24	18	**31**	**0.39 J**	NA	NA

Table A-1 (continued)

Cumulative Summary of Area 6 Influent Sample Results

U.S. Navy 2007a

Sample	Date	Sample Type	Total Gallons Pumped	Parameters								
				pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
Effluent Limits				**6.5-8.5**	**5**	**200**	**800**	**70**	7.0[b]	**0.1**	**80**	**5**
GM-07-12	3/27/2007	Influent	996,063,028	NR	**63 D**	140 D	27	18	**34**	**0.37 J**	NA	NA
GM-07-18	4/25/2007	Influent	1,009,304,847	NR	**64 D**	140 D	25	18	**36**	**0.32 J**	NA	NA
GM-07-22	5/22/2007	Influent	1,014,883,740	NR	**66 D**	140 D	25	19	**36**	**0.31 J**	NA	NA
GM-07-26	6/26/2007	Influent	1,021,654,811	NR	**73**	130 D	28	20	**38**	**0.25 J**	5 U	2 U

Notes:

[a] =The September 2003 sampling was not completed due to a contract end date of 9/01/2003.

[b]= Action level increased to 7.0 µg/L as agreed by EPA in 6/6/06 meeting.

Unless otherwise noted, results are reported in micrograms per liter (µg/L).

TPI-OP-7-95-1 -- Treatment plant influent in operation July 1995, sample No. 1.

TPI-SU-2-95-1 -- Treatment plant influent, startup February 1995, sample No. 1.

TPI-1-97 -- Treatment plant influent in operation January 1997.

Sample numbers are sequential for the purposes of submitting blind samples to the laboratory.

because of computer error.)

TPI-5-97 sample collected on 5/2/97 covers the month of April 1997.

TPI = (influent) samples analyzed by EPA Method 160.1

B = Analyte detected in method blank.

D = Diluted.

E = Estimated value.

J = Estimated value. Detected, but below quantitation limit.

ND ( ) = indicated parameter not detected, detection limit in parenthesis.

Duplicate samples are indicated by a dash (-) and number following the sample name.

NR = No reading; NA = Not analyzed for indicated parameter.

Bold indicates exceedence of effluent limits.

Table A-1 (continued)

Cumulative Summary of Area 6 Influent Sample Results

U.S. Navy 2007a

Sample	Date	Sample Type	Total Gallons Pumped	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
					Parameters							
Effluent Limits					**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
TPE-SU-2-95-1	2/7/1995	Effluent	350,230	8.08	**14**	22	1	17	0.95	ND (0.5)	4.6	ND (5)
TPE-SU-2-95-2	2/8/1995	Effluent	500,450	7.98	**17**	21	0.88	17	3	ND (0.5)	ND (10)	0.8
TPE-SU-2-95-3	2/9/1995	Effluent	648,590	8.04	**18**	27	ND (0.84)	ND (0.84)	2.3	ND (0.84)	3.4	ND (5)
TPE-SU-2-95-3*	2/9/1995	Effluent	648,590	8.04	**20**	29	1.5	21	1.1	ND (1)	NA	NA
TPE-SU-2-95-5	2/10/1995	Effluent	805,250	7.85	**18**	28	1.1	19	4	ND (0.84)	3.7	ND (5)
TPE-SU-2-95-6	2/23/1995	Effluent	NR	NR	**18**	30	1.2	16	4.4	ND (0.83)	ND (10)	ND (5)
TPE-SU-5-95-1	5/17/1995	Effluent	1,450,000	7.39	**11**	15	1	14	0.56	ND (0.5)	NA	NA
TPE-SU-5-95-2	5/18/1995	Effluent	1,600,000	7.91	2.5	3.9	0.2 J	3.6	ND (0.5)	ND (0.5)	NA	NA
TPE-SU-5-95-3	5/19/1995	Effluent	1,650,000	8.03	2.7	4.1	0.24	3.6	ND (0.5)	ND (0.5)	NA	NA
TPE-SU-5-95-4	5/19/1995	Effluent	1,650,000	8.18	2.7	4.2	0.2 J	3.6	ND (0.5)	ND (0.5)	NA	NA
TPE-SU-6-95-1	6/23/1995	Effluent	2,182,490	8.50	4.6	7.2	0.44 J	6.6	0.28 J	ND (0.5)	ND (10)	NA
TPE-OP-7-95-1	7/5/1995	Effluent	4,280,550	8.57	2.6	5.2	0.27 J	3.1	0.55	ND (0.5)	NA	NA
TPE-OP-7-95-2	7/19/1995	Effluent	8,425,055	8.62	2.5	5.6	0.33 J	2.8	0.18 J	ND (0.5)	ND (10)	0.012
TPE-OP-8-95-1	8/9/1995	Effluent	9,793,310	8.30	1.7	3.3	ND (0.5)	0.36 J	ND (0.5)	ND (0.5)	NA	NA
TPE-OP-8-95-2	8/21/1995	Effluent	11,756,200	8.40	3	9.3	0.43 J	0.35 J	ND (0.5)	ND (0.5)	NA	NA
TPE-OP-9-95-1	9/7/1995	Effluent	18,122,690	8.28	2.5	8.7	0.51	4.0	ND (0.5)	ND (0.5)	NA	NA
TPE-OP-9-95-2	9/19/1995	Effluent	20,853,000	8.00	1.9	6.7	0.22 J	2.0	0.93	ND (0.5)	ND (10)	ND (3)
TPE-OP-9-95-3	9/19/1995	Effluent	20,853,000	8.00	2.0	6.6	0.23 J	2.0	0.45 J	ND (0.5)	NA	NA
TPE-OP-10-95-1	10/4/1995	Effluent	24,167,830	8.21	1.7	6.3	0.44 J	1.7	0.38 J	ND (0.5)	NA	NA
TPE-OP-10-95-2	10/16/1995	Effluent	26,711,680	8.25	1.1	4.3	0.31 J	1.0	0.40 J	ND (0.5)	NA	NA
TPE-OP-11-95-1	11/2/1995	Effluent	30,058,670	8.44	1.4	5.6	0.37 J	1.2	ND (0.5)	ND (0.5)	NA	NA
TPE-OP-11-95-2	11/13/1995	Effluent	32,145,100	8.45	2.2	8.4	0.92	2.0	0.42 J	ND (0.5)	ND (10)	ND (3)
TPE-OP-12-95-1	12/4/1995	Effluent	36,221,950	8.46	1.8	6.9	0.98	1.4	0.27 J	ND (0.5)	ND (10)	ND (3)
TPE-OP-12-95-3	12/4/1995	Effluent	36,221,950	8.46	1.7	6.5	0.92	1.3	0.26 J	ND (0.5)	ND (10)	ND (3)
TPE-OP-12-95-1[*]	12/4/1995	Effluent	36,222,650	8.25	2.0	4.9	0.94	1.7	0.16	ND (0.10)	NA	NA
TPE-OP-12-95-3[*]	12/4/1995	Effluent	36,222,650	8.25	2.0	6.1	0.95	1.60	0.17	ND (0.10)	NA	NA
TPE-OP-12-95-2	12/27/1995	Effluent	42,266,230	7.86	1.5	5.3	0.89	1.20	ND (0.5)	ND (0.5)	NA	NA
TPE-OP-1-96	1/15/1996	Effluent	47,199,470	8.06	1.5	5.4	0.89	1.1	0.34 J	ND (0.50)	NA	NA
TPE-OP-1-96-2	2/1/1996	Effluent	50,188,580	7.79	1.7	6.3	1.0	1.4	ND (0.50)	ND (0.50)	NA	NA
TPE-OP-2-96-1	2/15/1996	Effluent	51,747,120	8.03	2	7.2	ND (0.50)	1.5	0.78	ND (0.50)	NA	NA
TPE-OP-2-96-2	2/27/1996	Effluent	56,538,740	8.05	2	6.9	ND (0.50)	ND (0.5)	0.31 J	ND (0.5)	NA	NA
TPE-OP-3-96	3/25/1996	Effluent	64,129,880	8.31	1.9	6.5	1.3	1.3	0.40 J	ND (0.5)	ND (10)	ND (3)
TPE-OP-3-96-2	3/25/1996	Effluent	64,129,880	8.31	2	6.7	1.3	1.3	0.26 J	ND (0.5)	ND (10)	ND (3)
TPE-9-96	9/18/1996	Effluent	71,604,130	8.33	2	9.3	1.8	1.0	ND (0.50)	ND (0.50)	NA	NA
TPE-10-96-1	10/7/1996	Effluent	75,931,300	7.78	1.3	5.4	1.2	0.89	ND (0.50)	ND (0.50)	NA	NA
TPE-11-96	11/5/1996	Effluent	83,510,160	8.06	2.4	8.0	1.4	1.6	ND (0.50)	ND (0.50)	ND (10)	ND (3)
TPE-11-96-1	11/5/1996	Effluent	83,510,160	8.06	2.4	8.0	1.4	1.7	ND (0.50)	ND (0.50)	ND (10)	ND (3)
TPE-12-96	12/20/1996	Effluent	90,654,380	8.20	3.0	7.9	1.4	2.9	0.31 J	ND (0.50)	NA	NA
TPE-1-97	1/30/1997	Effluent	94,245,690	7.91	3.0	8.6	1.7	1.9	ND (0.50)	ND (0.50)	ND (10)	ND (3)
TPE-1-97-1	1/30/1997	Effluent	94,245,690	7.91	2.9	8.5	1.6	2	ND (0.50)	ND (0.50)	NA	NA
O-1-97	1/30/1997	Effluent	NR	NR	3	8.6	1.6	0.30 J	ND (0.50)	ND (0.50)	ND (10)	ND (3)

Table A-2
Cumulative Summary of Area 6 Effluent Sample Results

U.S. Navy 2007a

Sample	Date	Sample Type	Total Gallons Pumped	Parameters								
				pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
Effluent Limits					**5**	**200**	**800**	**70**	**7.0**[a]	**0.1**	**80**	**5**
TPE0297	2/25/1997	Effluent	101,454,440	8.21	2.2	7.5	1.6	1.2	ND (0.50)	ND (0.50)	NA	NA
TPO0297	2/25/1997	Effluent	101,454,440	8.21	2.2	7.1	1.5	1.2	ND (0.50)	ND (0.50)	NA	NA
TPE-0397	3/25/1997	Effluent	109,058,212	8.19	1.5	5.2	1.4	1.1	ND (0.50)	ND (0.50)	NA	NA
TPO-0397	3/25/1997	Effluent	109,058,212	8.19	1.3	5.0	1.3	0.88	ND (0.50)	ND (0.50)	NA	NA
TPE-5-97	5/2/1997	Effluent	117,692,250	7.93	1.3	4.6	1.0	0.88	ND (0.50)	ND (0.50)	41	ND (3)
TPE-5-97	5/2/1997	Effluent	117,692,250	7.93	1.4	4.7	1.1	0.93	ND (0.50)	ND (0.50)	NA	NA
TPE-5-97-1	5/2/1997	Effluent	117,692,250	7.93	1.4	4.7	1.1	0.93	ND (0.50)	ND (0.50)	NA	NA
TPO-5-97	5/2/1997	Effluent	117,692,250	7.93	1.4	4.7	1.1	0.89	ND (0.50)	ND (0.50)	NA	NA
TPE-5-97	5/28/1997	Effluent	124,368,115	8.24	1.1	6.9	1.6	0.4 J	ND (0.50)	ND (0.50)	NA	NA
TPO-5-97	5/28/1997	Effluent	124,374,910	8.33	1.7	7.4	1.5	0.83	ND (0.50)	ND (0.50)	NA	NA
TPE-6-97	6/23/1997	Effluent	130,866,175	7.76	2.4	6.6	1.6	1.7	ND (0.50)	ND (0.50)	NA	NA
TPO-6-97	6/23/1997	Effluent	130,875,240	8.16	2.5	7	1.6	1.8	ND (0.50)	ND (0.50)	NA	NA
TPE-7-97	7/21/1997	Effluent	NR	7.77	2	5.8	1.3	1.7	ND (0.50)	ND (0.50)	ND (10)	ND (3)
TPE-7-97-1	7/21/1997	Effluent	NR	7.77	2.3	6.3	1.5	1.8	ND (0.50)	ND (0.50)	ND (10)	ND (3)
TPO-7-97	7/21/1997	Effluent	NR	7.90	2.1	6	1.4	1.8	ND (0.50)	ND (0.50)	NA	NA
TPE-8-97	8/27/1997	Effluent	146,517,930	8.04	1.6	5.5	1.3	0.78	ND (0.50)	ND (0.50)	NA	NA
TPO-8-97	8/27/1997	Effluent	NR	8.01	1.4	5	1.2	0.7	ND (0.50)	ND (0.50)	NA	NA
GW0002	9/30/1997	Effluent	152,711,805	8.40	1.6	5.4	0.81	0.84	ND (0.20)	ND (0.20)	NA	NA
GW0003	9/30/1997	Pond	152,711,805	8.40	1.5	5.2	0.81	0.70	ND (0.20)	ND (0.20)	NA	NA
GW0004	9/30/1997	Culvert	152,711,805	8.40	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	NA	NA
GW0066	10/27/1997	Effluent	158,220,729	8.00	2.4	9.4	2.3	0.9	ND (0.5)	ND (0.5)	ND (10)	ND (3)
GW0067	10/27/1997	Pond	158,220,729	8.28	2.4	10	2.8	1.0	ND (0.5)	ND (0.5)	ND (10)	ND (3)
GW0068	10/27/1997	Culvert	158,220,729	8.52	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.5)	ND (0.5)	ND (10)	ND (3)
GW0086	11/24/1997	Effluent	165,448,523	NA	3.6	13	2.7	0.8	ND (0.5)	ND (0.5)	NA	NA
GW0087	11/24/1997	Pond	165,448,523	NA	3.5	13	2.8	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GW0088	11/24/1997	Culvert	165,448,523	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GW0091	12/30/1997	Effluent	NR	NA	2.1 X	7.2 X	1.7 X	1.5	ND (0.5)	ND (0.5)	NA	NA
GW0092	12/30/1997	Pond	NR	NA	2.6	8.8	2.1	1.6	ND (0.5)	ND (0.5)	NA	NA
GW0093	12/30/1997	Pond	NR	NA	2.4	8.9	2.0	1.7	ND (0.5)	ND (0.5)	NA	NA
GW0094	12/30/1997	Culvert	NR	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GW0127	1/19/1998	Effluent	179,395,030	NA	2.1	8.0	1.9	1.6	ND (0.5)	ND (0.5)	ND (10)	ND (3)
GW0128	1/19/1998	Pond	179,395,030	NA	2.4	9.1	2.1	1.7	ND (0.5)	ND (0.5)	NA	NA
GW0129	1/19/1998	Culvert	179,395,030	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GW0132	2/25/1998	Effluent	188,457,130	NA	ND (0.5)	7.1	1.6	1.2	ND (0.5)	ND (0.5)	NA	NA
GW0133	2/25/1998	Pond	188,457,130	NA	1.7	7.1	1.6	1.2	ND (0.5)	ND (0.5)	NA	NA
GW0134	2/25/1998	Culvert	188,457,130	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GW0137	3/31/1998	Effluent	193,622,800	NA	4.6	17	1.7	ND (25)	ND (25)	ND (25)	NA	NA
GW0138	3/31/1998	Effluent	193,622,800	NA	**5.0**	16	1.6	ND (25)	ND (25)	ND (25)	NA	NA
GW0139	3/31/1998	Pond	193,622,800	NA	4.5	14	1.7	ND (1.2)	ND (1.2)	ND (1.2)	NA	NA
GW0140	3/31/1998	Culvert	193,622,800	NA	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	NA	NA
GW0182	4/16/1998	Effluent	197,815,280	NA	2.4	11	2.8	1.4	ND (0.5)	ND (0.5)	ND (10)	ND (3)

Table A-2 (continued)
Cumulative Summary of Area 6 Effluent Sample Results

U.S. Navy 2007a

Sample	Date	Sample Type	Total Gallons Pumped	Parameters pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
Effluent Limits					**5**	**200**	**800**	**70**	**7.0**[a]	**0.1**	**80**	**5**
GW0183	4/16/1998	Pond	197,815,280	NA	2.1	7.9	2.1	1.9	ND (0.5)	ND (0.5)	NA	NA
GW0184	4/16/1998	Culvert	197,815,280	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GW0186	5/29/1998	Effluent	207,789,900	NA	2.3	8.6	2.7	2.2	ND (0.5)	ND (0.5)	NA	NA
GW0187	5/29/1998	Pond	207,789,900	NA	2.3	9.1	2.8	2.2	ND (0.5)	ND (0.5)	NA	NA
GW0188	5/29/1998	Culvert	207,789,900	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GW0189	5/29/1998	Culvert	207,789,900	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GW0221	7/29/1998	Effluent	215,901,260	NA	2.0	5.7	1.8	ND (0.5)	ND (0.5)	ND (0.5)	ND (10)	ND (3)
GW0222	7/29/1998	Pond	215,901,260	NA	1.6	4.8	1.5	1.5	ND (0.5)	ND (0.5)	NA	NA
GW0232	8/27/1998	Effluent	NA	NA	2.0	6.3	1.9	1.6	ND (0.5)	ND (0.5)	NA	NA
GW0233	8/27/1998	Effluent	NA	NA	2.0	6.0	1.9	1.6	ND (0.5)	ND (0.5)	NA	NA
GW0234	8/27/1998	Swale	NA	NA	2.0	6.1	1.9	1.6	ND (0.5)	ND (0.5)	NA	NA
GW0238	9/28/1998	Effluent	233,224,520	NA	2.1	6.9	2.2	1.7	ND (0.5)	ND (0.5)	NA	NA
GW0241	9/28/1998	Swale	207,789,900	NA	2	6.8	2.2	1.7	ND (0.5)	ND (0.5)	NA	NA
GW0294	10/20/1998	Effluent	239,379,040	NA	1.9	6.5	2.3	1.8	ND (0.5)	ND (0.5)	ND (10)	ND (3)
GW0296	10/20/1998	Swale	239,379,040	NA	1.2	3.9	1.4	1.1	ND (0.5)	ND (0.5)	NA	NA
GW0297	10/20/1998	Swale	239,379,040	NA	ND (0.5)	4.2	1.6	1.1	ND (0.5)	ND (0.5)	NA	NA
GW0307	11/25/1998	Effluent	249,511,620	NA	ND (0.5)	1.9	1.4	0.9	ND (0.5)	ND (0.5)	NA	NA
GW0308	11/25/1998	Effluent	249,511,620	NA	2.2	7.5	3.0	2.0	ND (0.5)	ND (0.5)	NA	NA
GW0309	11/25/1998	Swale	249,511,620	NA	0.5	1.7	1.2	0.8	ND (0.5)	ND (0.5)	NA	NA
GW0313	12/28/1998	Effluent	258,907,460	NA	1.5	5.3	2.3	1.9	ND (0.5)	ND (0.5)	NA	NA
GW0314	12/28/1998	Swale	258,907,460	NA	1.2	4.1	1.9	1.6	ND (0.5)	ND (0.5)	NA	NA
GW0342	1/29/1999	Effluent	267,569,720	NA	2.5	7.2	3.6	2.7	ND (0.5)	ND (0.5)	ND (10)	ND (3)
GW0343	1/29/1999	Swale	267,569,720	NA	1.6	4.3	2.5	1.9	ND (0.5)	ND (0.5)	NA	NA
GW0359	2/24/1999	Effluent	267,569,720	NA	1.5	4.0	1.9	1.5	ND (0.5)	ND (0.5)	NA	NA
GW0360	2/24/1999	Swale	267,569,720	NA	1.2	3.1	1.5	1.2	ND (0.5)	ND (0.5)	NA	NA
GW0363	3/15/1999	Effluent	279,846,800	NA	1.6	4.6	2.1	1.6	ND (0.5)	ND (0.5)	NA	NA
GW0364	3/15/1999	Swale	279,846,800	NA	1.2	3.3	1.5	1.2	ND (0.5)	ND (0.5)	NA	NA
GW0365	3/15/1999	Swale	279,846,800	NA	1.1	3.2	1.5	1.2	ND (0.5)	ND (0.5)	NA	NA
GW0403	4/23/1999	Effluent	291,022,080	NA	1.3	3.9	1.6	1.4	ND (0.5)	ND (0.5)	ND (10)	ND (3)
GW0404	4/23/1999	Effluent	291,022,080	NA	1.4	4.1	1.7	1.5	ND (0.5)	ND (0.5)	ND (10)	ND (3)
GW0405	4/23/1999	Swale	291,024,400	NA	1.4	4.1	1.7	1.4	ND (0.5)	ND (0.5)	NA	NA
GW0413	5/26/1999	Effluent	299,768,460	NA	0.7	1.6	1.2	1.2	ND (0.5)	ND (0.5)	NA	NA
GW0414	5/26/1999	Swale	299,774,020	NA	0.6	1.4	1.1	1.0	ND (0.5)	ND (0.5)	NA	NA
GW0415	5/26/1999	Swale	299,774,020	NA	0.7	1.5	1.1	1.1	ND (0.5)	ND (0.5)	NA	NA
GW0418	6/25/1999	Effluent	308,149,520	NA	1.1	2.2	1.6	1.4	ND (0.5)	ND (0.5)	NA	NA
GW0419	6/25/1999	Effluent	308,149,520	NA	1.1	2.4	1.6	1.8	ND (0.5)	ND (0.5)	NA	NA
GW0420	6/25/1999	Swale	308,154,420	NA	1.0	2.1	1.4	1.6	ND (0.5)	ND (0.5)	NA	NA
GW0451	7/27/1999	Effluent	313,190,940	NA	1.1	2.0	1.6	1.5	ND (0.5)	ND (0.5)	NA	NA
GW0465	8/19/1999	Effluent	319,727,120	NA	0.8	1.8	1.4	1.3	ND (0.5)	ND (0.5)	NA	NA
GW0466	8/19/1999	Swale	319,727,120	NA	1.0	2.0	1.5	1.3	ND (0.5)	ND (0.5)	NA	NA
GW0518	11/29/1999	Effluent	329,091,591	NA	1.1	1.9	1.1	1.4	ND (0.5)	ND (0.5)	ND (10)	ND (3)

Table A-2 (continued)
Cumulative Summary of Area 6 Effluent Sample Results

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Sample	Date	Sample Type	Total Gallons Pumped	Parameters									
				pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
Effluent Limits					**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
GW0519	11/29/1999	Effluent	329,091,591	NA	1.2	2.2	1.2	1.4	ND (0.5)	ND (0.5)	ND (10)	ND (3)
GW0520	11/29/1999	Swale	329,091,591	NA	ND (0.5)	2.0	1.1	1.4	ND (0.5)	ND (0.5)	NA	NA
GW0530	12/30/1999	Effluent	333,915,713	NA	ND (0.5)	1.2	0.65	0.57	ND (0.5)	ND (0.5)	NA	NA
GW0531	12/30/1999	Swale	333,915,713	NA	ND (0.5)	0.74	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GW0562	1/27/2000	Effluent	337,000,000	NA	0.6	1.5	0.9	0.6	ND (0.5)	ND (0.5)	NA	NA
GW0563	1/27/2000	Swale	337,000,000	NA	0.9	2.4	1.4	0.8	ND (0.5)	ND (0.5)	NA	NA
GW0577	2/29/2000	Effluent	345,001,059	NA	0.63	1.4	0.87	0.62	ND (0.5)	ND (0.5)	NA	NA
GW0578	2/29/2000	Swale	345,001,059	NA	0.79	1.9	1.0	0.75	ND (0.5)	ND (0.5)	NA	NA
GW0581	3/31/2000	Effluent	350,436,191	NA	0.6	1.4	0.8	0.60	ND (0.5)	ND (0.5)	NA	NA
GW0582	3/31/2000	Effluent	350,436,191	NA	0.6	1.4	0.8	0.6	ND (0.5)	ND (0.5)	NA	NA
GW0583	3/31/2000	Swale	350,436,191	NA	1.0	2.4	1.3	0.9	ND (0.5)	ND (0.5)	NA	NA
GW0620	4/28/2000	Effluent	357,017,129	NA	1.2	2.9	1.6	1.0	ND (0.2)	ND (0.2)	2.4 B	1.3 B
GW0621	4/28/2000	Swale	357,017,129	NA	1.1	2.9	1.6	1.0	ND (0.2)	ND (0.2)	1.3 B	1.1 B
GW0622	4/28/2000	Swale	357,017,129	NA	1.1	2.8	1.6	1.0	ND (0.2)	ND (0.2)	2.5 B	1.3 B
GW0629	5/31/2000	Effluent	363,917,129	NA	0.9	2.1	1.2	0.9	ND (0.2)	ND (0.2)	NA	NA
GW0630	5/31/2000	Swale	363,917,129	NA	0.9	2.3	1.3	0.8	ND (0.2)	ND (0.2)	NA	NA
GW0633	6/29/2000	Effluent	369,897,942	NA	0.67	1.4	0.85	0.65	ND (0.50)	ND (0.50)	NA	NA
GW0634	6/29/2000	Swale	369,897,942	NA	0.6	1.3	0.84	0.55	ND (0.50)	ND (0.50)	NA	NA
GW0658	7/26/2000	Effluent	375,997,942	NA	0.74	1.8	1.1	0.69	ND (0.50)	ND (0.50)	ND (4.00)	ND (1.00)
GW0659	7/26/2000	Swale	375,997,942	NA	0.61	1.4	0.83	0.55	ND (0.50)	ND (0.50)	ND (4.00)	ND (1.00)
GW0633	8/31/2000	Effluent	384,397,942	NA	0.69	1.8	1.0	0.65	ND (0.50)	ND (0.50)	NA	NA
GW0634	8/31/2000	Swale	384,397,942	NA	0.70	1.8	1.0	0.64	ND (0.50)	ND (0.50)	NA	NA
GW0637	9/26/2000	Effluent	389,797,942	NA	0.69	1.7	0.93	0.60	ND (0.50)	ND (0.50)	NA	NA
GW0666	10/26/2000	Effluent	NR	NA	0.79	1.9	1.1	0.70	ND (0.50)	ND (0.50)	NA	NA
GW0667	10/26/2000	Swale	NR	NA	0.76	1.8	1.1	0.74	ND (0.50)	ND (0.50)	NA	NA
GW0670	11/29/2000	Effluent	NR	NA	0.73	1.8	0.98	0.63	ND (0.50)	ND (0.50)	NA	NA
GW0671	11/29/2000	Swale	NR	NA	0.66	1.6	0.94	0.59	ND (0.50)	ND (0.50)	NA	NA
GW0675	12/27/2000	Effluent	NR	NA	0.73	1.6	0.98	0.65	ND (0.50)	ND (0.50)	ND (4.00)	ND (1.00)
GW0676	12/27/2000	Swale	NR	NA	0.69	1.5	0.97	0.63	ND (0.50)	ND (0.50)	NA	NA
GM0679	1/30/2001	Effluent	NR	NA	0.50	0.9	0.67	0.40	ND (0.50)	ND (0.50)	NA	NA
GM0680	1/30/2001	Swale	NR	NA	0.40	0.8	0.6	0.40	ND (0.50)	ND (0.50)	NA	NA
GM0683	2/28/2001	Effluent	NR	NA	0.30	0.5	0.4	0.30	ND (0.50)	ND (0.50)	NA	NA
GM0684	2/28/2001	Swale	NR	NA	0.30	0.6	0.4	0.30	ND (0.50)	ND (0.50)	NA	NA
GM0688	3/27/2001	Effluent	NR	NA	0.40	0.8	0.5	0.30	ND (0.50)	ND (0.50)	NA	NA
GM0689	3/27/2001	Swale	NR	NA	0.40	0.8	0.4	0.30	ND (0.50)	ND (0.50)	NA	NA
GM0692	4/25/2001	Effluent	603,385,276	8.18	0.5 J	1.1	0.65	0.4 J	ND (0.50)	ND (0.50)	NA	NA
GM0693	4/25/2001	Swale	603,385,276	8.17	0.51	1.1	0.68	0.4 J	ND (0.50)	ND (0.50)	NA	NA
GM0696	5/30/2001	Effluent	610,585,282	NA	0.5 J	0.84 J	0.5 J	0.4 J	ND (0.50)	ND (0.50)	NA	NA
GM0697	5/30/2001	Swale	610,585,282	NA	0.5 J	0.91	0.53	0.4 J	ND (0.50)	ND (0.50)	NA	NA
GM0701	6/20/2001	Effluent	613,085,282	NA	1 J	3	1 J	1 J	ND (3.0)	ND (3.0)	1.2 B	ND (0.1)
GM0702	6/20/2001	Swale	613,085,282	NA	1 J	3	1 J	1 J	ND (3.0)	ND (3.0)	NA	NA

Table A-2 (continued)

Cumulative Summary of Area 6 Effluent Sample Results

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Sample	Date	Sample Type	Total Gallons Pumped	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
				Parameters								
Effluent Limits					**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
GM0705	7/31/2001	Effluent	621,095,303	NA	0.93 J	2.3 J	0.85 J	0.51 J	ND (3.0)	ND (3.0)	NA	NA
GM0706	7/31/2001	Swale	621,095,303	NA	0.8 J	2.19 J	0.81 J	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM0709	8/29/2001	Effluent	626,131,729	NA	1.23 J	2.95 J	1.03 J	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM0710	8/29/2001	Swale	626,131,729	NA	1.07 J	2.8 J	1.05 J	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM0714	9/26/2001	Effluent	630,927,199	8.10	1.16 J	2.88 J	1.13 J	ND (3.0)	ND (3.0)	ND (3.0)	ND (10.0)	ND (10.0)
GM0715	9/26/2001	Swale	630,927,199	8.09	1.14 J	2.77 J	1.2 J	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM0718	10/29/2001	Effluent	637,396,723	NA	1.82 J	5.48	2.09 J	ND (3.0)	0.61 J	ND (3.0)	NA	NA
GM0719	10/29/2001	Swale	637,396,723	NA	2.06 J	5.34	2.02 J	1.15 J	0.58 J	ND (3.0)	NA	NA
GM0722	11/28/2001	Effluent	644,842,139	NA	1.91 J	4.57	1.91 J	1.05 J	0.75 J	ND (3.0)	NA	NA
GM0723	11/28/2001	Swale	644,842,139	NA	1.79 J	4.72	2.02 J	0.97 J	0.55 J	ND (3.0)	NA	NA
GM0727	12/27/2001	Effluent	650,644,711	NA	1.98 J	5.97	1.9 J	ND (3.0)	ND (3.0)	ND (3.0)	1.5 B	6.1 B
GMO728	12/27/2001	Swale	650,644,711	NA	1.84 J	5.96	1.82 J	1 J	ND (3.0)	ND (3.0)	NA	NA
GMO731	1/29/2002	Effluent	658,372,489	NA	2.08 J	5.82	1.97 J	1.16 J	ND (3.0)	ND (3.0)	NA	NA
GMO732	1/29/2002	Swale	658,372,489	NA	2.21 J	5.87	1.90 J	1.10 J	ND (3.0)	ND (3.0)	NA	NA
GM-02-735	2/26/2002	Effluent	665,368,395	NA	1.36 J	2.66 J	1.23 J	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM-02-736	2/26/2002	Swale	665,368,395	NA	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM-02-740	3/26/2002	Effluent	673,014,097	NA	1.42 J	3.37	1.23 J	ND (3.0)	ND (3.0)	ND (3.0)	1.1 B	ND (2.4)
GM-02-741	3/26/2002	Swale	673,014,097	NA	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM-02-744	4/29/2002	Effluent	680,141,244	8.44	2.24 J	4.58	1.95 J	1.33 J	ND (3.0)	ND (3.0)	NA	NA
GM-02-745	4/29/2002	Swale	680,141,244	8.41	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM-02-748	5/28/2002	Effluent	687,555,508	8.05	2.58 J	5.35	2.03 J	1.24 J	0.63 J	ND (3.0)	NA	NA
GM-02-749	5/28/2002	Swale	687,555,508	8.20	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM-02-753	6/24/2002	Effluent	694,307,637	7.15	2 J	4	1 J	1 J	NR	ND (3.0)	1.7 B	1.6 B
GM-02-754	6/24/2002	Swale	694,307,637	8.17	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM-02-757	7/29/2002	Effluent	700,912,306	7.14	2.66 J	5.15	1.59 J	1.33 J	ND (3.0)	ND (3.0)	NA	NA
GM-02-758	7/29/2002	Swale	700,912,306	8.03	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM-02-761	8/29/2002	Effluent	707,935,527	7.92	3.04	6.36	2.23 J	1.53 J	1.31 J	ND (3.0)	NA	NA
GM-02-762	8/29/2002	Swale	707,935,527	8.06	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM-02-766	9/24/2002	Effluent	714,694,163	6.60	2.29 J	4.7	2.13 J	1.45 J	1.58 J	ND (3.0)	2.0 B	ND (2.4)
GM-02-767	9/24/2002	Swale	714,694,163	8.23	ND (3.0)	0.59 J	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM-02-002	10/27/2002	Effluent	722,458,600	NA	3 J	8	4 J	1 J	2 J	ND (3.0)	NA	NA
GM-02-003	10/27/2002	Swale	722,458,600	NA	ND (3.0)	3 J	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM-02-007	11/25/2002	Effluent	729,360,639	NA	3 J	6	3 J	2 J	1 J	ND (3.0)	NA	NA
GM-02-008	11/25/2002	Swale	729,360,639	NA	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM-02-012	12/30/2002	Effluent	735,618,240	NA	2 J	6	3	1 J	2 J	ND (3.0)	ND (2.9)	ND (1.5)
GM-02-013	12/30/2002	Swale	735,618,240	NA	ND (3.0)	3 J	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	NA	NA
GM-03-016	1/30/2003	Effluent	744,089,851	NA	1.8	3.2	1.5	1.2	ND (1)	ND (1)	NA	NA
GM-02-017	1/30/2003	Swale	744,089,851	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-03-020	2/25/2003	Effluent	750,159,065	NA	2	4	1.7	1.2	0.4 J	ND (1)	NA	NA
GM-02-021	2/25/2003	Swale	750,159,065	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-03-025	3/31/2003	Effluent	755,646,137	NA	1.4	2.8	1.2	1	ND (1)	ND (1)	2.0 B	ND (2.8)

Table A-2 (continued)
Cumulative Summary of Area 6 Effluent Sample Results

U.S. Navy 2007a

				Parameters								
Sample	Date	Sample Type	Total Gallons Pumped	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
Effluent Limits					**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
GM-02-026	3/31/2003	Swale	755,646,137	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-03-31	4/28/2003	Effluent	762,409,845	NA	2.8	7.5	3.3	1.8	0.7 J	ND (1)	NA	NA
GM-03-32	4/28/2003	Swale	762,409,845	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-03-36	5/28/2003	Effluent	769,784,703	NA	2.1	5.5	2.5	1.2	ND (1)	ND (1)	NA	NA
GM-03-37	5/28/2003	Swale	769,784,703	NA	ND (1)	0.5 J	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-03-40	6/28/2003	Effluent	776,496,983	NA	2	3.9	2	1.1	ND (1)	ND (1)	2.1 B	2.4 B
GM-03-41	6/28/2003	Swale	776,496,983	NA	ND (1)	0.6 J	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-03-46	7/29/2003	Effluent	783,267,249	NA	1.7	2.9	1.6	1.1	ND (1)	ND (1)	NA	NA
GM-03-47	7/29/2003	Swale	783,267,249	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-03-51	8/29/2003	Effluent	790,648,477	NA	1.6	2.9	1.7	1.1	ND (1)	ND (1)	NA	NA
GM-03-52	8/29/2003	Swale	790,648,477	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-03-55	10/31/2003	Effluent	802,670,647	NA	1.4	2.8	1.5	8 J	ND (1)	ND (1)	1.9 B	ND (2.7)
GM-03-56	10/31/2003	Swale	802,670,647	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-03-61	11/29/2003	Effluent	809,258,512	NA	2.3	5.2	2.4	1.3	0.6 J	ND (1)	NA	NA
GM-03-62	11/29/2003	Swale	809,258,512	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-03-66	12/29/2003	Effluent	815,748,474	NA	1.4	2.8	1.2	0.8 J	ND (1)	ND (1)	NA	NA
GM-03-67	12/29/2003	Swale	815,748,474	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-04-03	1/29/2004	Effluent	821,260,961	NA	1 J	2.1	1.1	0.6 J	ND (1)	ND (1)	NA	NA
GM-04-04	1/29/2004	Swale	821,260,961	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-04-08	2/24/2004	Effluent	826,764,871	NA	1.5	2.5	1.2	0.9 J	ND (1)	ND (1)	NA	NA
GM-04-09	2/24/2004	Swale	826,764,871	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-04-13	3/29/2004	Effluent	833,177,790	NA	1.1	2.7	1.3	0.7 J	ND (1)	ND (1)	2.0 B	3.2 B
GM-04-14	3/29/2004	Swale	833,177,790	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-04-18	4/28/2004	Effluent	839,140,749	NA	1.3	2.4	1.2	0.8 J	ND (1)	ND (1)	NA	NA
GM-04-19	4/28/2004	Swale	839,140,749	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-04-23	5/28/2004	Effluent	845,246,893	NA	1.5	3.2	1.4	0.8 J	ND (1)	ND (1)	NA	NA
GM-04-24	5/28/2004	Swale	845,246,893	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-04-28	7/1/2004	Effluent	851,273,449	NA	2	4.2	2	1.0 J	ND (1)	ND (1)	1.9 B	3.0 B
GM-04-29	7/1/2004	Swale	851,273,449	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-04-33	7/28/2004	Effluent	857,412,204	NA	2.1	3.7	2.1	1.3 J	0.5 J	ND (1)	NA	NA
GM-04-34	7/28/2004	Swale	857,412,204	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-04-38	9/1/2004	Effluent	863,566,841	NA	2.1	3.7	1.7	1.1	ND (1)	ND (1)	NA	NA
GM-04-39	9/1/2004	Swale	863,566,841	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-04-43	9/27/2004	Effluent	868,408,010	NA	2	4.1	1.7	1.1	ND (1)	ND (1)	2.4 B	ND (2.2)
GM-04-44	9/27/2004	Swale	868,408,010	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-04-46	10/27/2004	Effluent	873,933,902	NA	2.22 J	4.14 J	1.98 J	1.19 J	ND (1)	ND (1)	NA	NA
GM-04-48	10/27/2004	Swale	873,933,902	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-04-50	11/29/2004	Effluent	879,922,202	NA	2.32 J	4.17 J	2.03 J	1.35 J	ND (1)	ND (1)	NA	NA
GM-04-52	11/29/2004	Swale	879,922,202	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
GM-04-54	12/28/2004	Effluent	886,056,475	NA	2.73 J	4.67 J	1.99 J	1.37 J	ND (1)	ND (1)	ND (0.01)	ND (0.01)
GM-04-56	12/28/2004	Swale	886,056,475	NA	ND (1)	0.8 J	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA

Table A-2 (continued)

Cumulative Summary of Area 6 Effluent Sample Results

Sample	Date	Sample Type	Total Gallons Pumped	Parameters								
				pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
Effluent Limits					**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
GM-05-02	1/31/2005	Effluent	891,867,371	NA	1.76 J	2.75 J	1.02 J	1.01 J	ND (0.5)	ND (0.5)	NA	NA
GM-05-01	1/31/2005	Swale	891,867,371	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GM-05-06	2/28/2005	Effluent	896,946,674	NA	2.63 J	4.55 J	1.86 J	1.42 J	0.514	ND (0.5)	NA	NA
GM-05-05	2/28/2005	Swale	896,946,674	NA	ND (0.5)	0.592 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GM-05-10	3/30/2005	Effluent	902,573,659	NA	1.92 J	3.75 J	1.96 J	1.21 J	ND (0.5)	ND (0.5)	ND (0.1)	ND (0.1)
GM-05-09	3/30/2005	Swale	902,573,659	NA	ND (0.5)	0.572 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GM-05-16	4/25/2005	Effluent	908,617,251	NA	2.12 J	3.47 J	1.61 J	1.21 J	ND (0.5)	ND (0.5)	NA	NA
GM-05-16	4/25/2005	Swale	908,617,251	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GM-05-21	5/31/2005	Effluent	914,789,900	NA	2.11 J	3.11 J	1.66 J	1.28 J	ND (0.5)	ND (0.5)	NA	NA
GM-05-21	5/31/2005	Swale	914,789,900	NA	ND (0.5)	0.523 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GM-05-25	6/30/2005	Effluent	920,556,553	NA	2.38 J	3.4 J	1.81 J	1.31 J	ND (0.5)	ND (0.5)	ND (0.02)	ND (0.015)
GM-05-25	6/30/2005	Swale	920,556,553	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GM-05-30	7/25/2005	Effluent	926,334,765	NA	2.14 J	3.12 J	1.3 J	1.45 J	ND (0.5)	ND (0.5)	NA	NA
GM-05-29	7/25/2005	Swale	926,334,765	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GM-05-34	8/29/2005	Effluent	931,768,116	NA	2.52 J	3.64 J	1.82 J	1.49 J	ND (0.5)	ND (0.5)	NA	NA
GM-05-33	8/29/2005	Swale	931,768,116	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GM-05-38	9/19/2005	Effluent	935,739,788	NA	2.05 J	3.83 J	2.29 J	1.43 J	ND (0.5)	ND (0.5)	ND (0.02)	ND (0.015)
GM-05-37	9/19/2005	Swale	935,739,788	NA	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	NA	NA
GM-05-43	10/20/2005	Effluent	940,940,888	NA	2.0	3.0	1.5	1.2	0.25 J	ND (0.5)	NA	NA
GM-05-42	10/20/2005	Swale	940,940,888	NA	0.26	0.37 J	0.22 J	0.17 J	ND (0.5)	ND (0.5)	NA	NA
GM-05-47	11/21/2005	Effluent	945,945,816	NA	2.1	3.1	1.5	1.2	0.37 J	ND (0.5)	NA	NA
GM-05-46	11/21/2005	Swale	945,945,816	NA	0.25 J	0.40 J	0.23 J	0.14 J	ND (0.5)	ND (0.5)	NA	NA
GM-05-51	12/27/2005	Effluent	951,505,449	NA	3.3	4.7	2.3	1.8	0.55	ND (0.13)	2.7 B	0.5 B
GM-05-50	12/27/2005	Swale	951,505,449	NA	0.45 J	0.72	0.38 J	0.20 J	ND (0.24)	ND (0.13)	NA	NA
GM-06-03	1/23/2006	Effluent	957,086,727	NA	3.6	4.5	2.6	1.8	0.50	ND (0.13)	NA	NA
GM-06-02	1/23/2006	Swale	957,086,727	NA	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
GM-06-07	2/21/2006	Effluent	961,949,977	NA	3.7	4.6	2.6	1.9	0.47 J	ND (0.13)	NA	NA
GM-06-06	2/21/2006	Swale	961,949,977	NA	0.72	0.78	0.44 J	0.35 J	ND (0.24)	ND (0.13)	NA	NA
GM-06-11	3/23/2006	Effluent	967,290,591	NA	4.2	5.3	2.6	2.2	0.62	ND (0.13)	3.8 B	ND (0.5)
GM-06-10	3/23/2006	Swale	967,290,591	NA	0.65	0.88	0.43 J	0.35 J	ND (0.24)	ND (0.13)	NA	NA
GM-06-16	4/17/2006	Effluent	972,407,816	NA	2.7	3.6	1.9	1.7	0.39 J	ND (0.13)	NA	NA
GM-06-15	4/17/2006	Swale	972,407,816	NA	0.49 J	0.67	0.36 J	0.29 J	ND (0.24)	ND (0.13)	NA	NA
GM-06-20	5/23/2006	Effluent	978,529,653	NA	3.7	4.9	2.3	2	0.59	ND (0.13)	NA	NA
GM-06-19	5/23/2006	Swale	978,529,653	NA	0.69	0.84	0.44 J	0.40 J	ND (0.24)	ND (0.13)	NA	NA
GM-06-24	6/20/2006	Effluent	982,583,157	NA	**6.2**	9.0	3.7	2.9	1.1	ND (0.13)	ND (4.0)	1.0 B
GM-06-23	6/20/2006	Swale	982,583,157	NA	1.4	1.9	0.93	0.67	0.25 J	ND (0.13)	NA	NA
GM-06-29	7/31/2006	Effluent	983,644,995	NA	**7.9**	11	4.5	4.5	1.1	ND (0.13)	NA	NA
GM-06-28	7/31/2006	Swale	983,644,995	NA	1.1	1.5	0.76	0.72	ND (0.24)	ND (0.13)	NA	NA
GM-06-33	8/29/2006	Effluent	984,555,459	NA	**8.0**	12	4.1	4.6	1.0	ND (0.13)	NA	NA
GM-06-32	8/29/2006	Swale	984,555,459	NA	1.4	2.2	0.93	0.99	ND (0.24)	ND (0.13)	NA	NA
GM-06-37	9/25/2006	Effluent	985,514,289	NA	**8.5**	12	4.0	4.9	1.1	ND (0.13)	ND (2.0)	ND (0.2)

Table A-2 (continued)
Cumulative Summary of Area 6 Effluent Sample Results

U.S. Navy 2007a

Sample	Date	Sample Type	Total Gallons Pumped	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
				Parameters								
Effluent Limits					**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
GM-06-36	9/25/2006	Swale	985,514,289	NA	1.2	1.7	0.77	0.91	ND (0.24)	ND (0.13)	NA	NA
GM-06-42	10/27/2006	Effluent	985,514,289	NA	8.9	12	5.1	5.6	1.2	ND (0.13)	NA	NA
GM-06-41	10/27/2006	Swale	985,514,289	NA	2.2	1.8	1.3	1.4	0.25 J	ND (0.13)	NA	NA
GM-06-50	11/29/2006	Effluent	985,514,289	NA	1.2	1.5	0.79	0.83	ND (0.24)	ND (0.13)	NA	NA
GM-06-49	11/29/2006	Swale	985,514,289	NA	ND (0.21)	0.26 J	ND (0.16)	0.15 J	ND (0.24)	ND (0.13)	NA	NA
GM-07-03	1/24/2007	Effluent	991,814,253	NA	0.72	0.81	0.38 J	0.55	ND (0.24)	ND (0.13)	NA	NA
GM-07-02	1/24/2007	Swale	991,814,253	NA	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
GM-07-07	2/27/2007	Effluent	997,338,797	NA	0.61	0.67	0.42 J	0.5	ND (0.24)	ND (0.13)	NA	NA
GM-07-06	2/27/2007	Swale	997,338,797	NA	ND (0.21)	ND (0.21)	ND (0.16)	0.13 J	ND (0.24)	ND (0.13)	NA	NA
GM-07-11	3/27/2007	Effluent	1,003,321,822	NA	0.89	1.1	0.63	0.73	0.10 J	ND (0.13)	NA	NA
GM-07-10	3/27/2007	Swale	1,003,321,822	NA	0.19 J	0.21 J	0.12 J	0.15 J	ND (0.24)	ND (0.13)	NA	NA
GM-07-17	4/25/2007	Effluent	1,009,304,847	NA	0.72	0.78	0.47 J	0.62	0.080 J	ND (0.13)	NA	NA
GM-07-16	4/25/2007	Swale	1,009,304,847	NA	0.17 J	0.16 J	0.11 J	0.13 J	ND (0.24)	ND (0.13)	NA	NA
GM-07-21	5/22/2007	Effluent	1,014,883,740	NA	0.62	0.71	0.44 J	0.61	0.07 J	ND (0.13)	NA	NA
GM-07-20	5/22/2007	Swale	1,014,883,740	NA	0.12 J	0.13 J	0.090 J	0.11 J	ND (0.24)	ND (0.13)	NA	NA
GM-07-25	6/26/2007	Effluent	1,021,654,811	NA	0.77	0.77	0.61	0.78	0.090 J	0.50 U	5 U	2 U
GM-07-24	6/26/2007	Swale	1,021,654,811	NA	0.14 J	0.13 J	0.11 J	0.13 J	0.50 U	0.50 U	NA	NA

Sample ID Definition:

TPE-SU-2-95-1 -- Treatment plant effluent, startup February 1995, sample No. 1.

TPE-OP-7-95-1 -- Treatment plant effluent, operations July 1995, sample No. 1.

TPE-1-97 -- Treatment plant effluent in operation January 1997.

O-1-97 -- Treatment plant outfall in operation January 1997.

TPO-5-97 -- Treatment plant outfall in operation May 1997.

[a]= Action level increased to 7.0 µg/L as agreed by EPA in 6/6/06 meeting.

Sample numbers are sequential for the purposes of submitting blind samples to the laboratory.

Unless otherwise noted, results are reported in micrograms per liter (µg/L).

Flow reading from computer. (Flow values for 2/1/96, 2/15/96, 2/27/96, 3/25/96, 9/18/96 and 10/7/96 are estimated because of computer error.)

Samples TPE-SU-2-95-3* , TPE-OP-12-95-1* and TPE-OP-12-95-3* analyzed using EPA Method 502.2, other samples analyzed using EPA Method 524.2.

Duplicate samples are indicated by a dash (-) and number following the sample name.

ND ( ) = parameter not detected; detection limit in parenthesis.

J = Estimated value. Detected, but below quantitation limit.

X = Results may be influenced by carryover from the previous sample.

NR = No reading.

NA = Not analyzed for indicated parameter.

B = Analyte detected in method blank.

Bold indicates exceedence of Effluent Limits

Table A-2 (continued)
Cumulative Summary of Area 6 Effluent Sample Results

U.S. Navy 2007a

Well No.	Sample	Date	Total Gallons Pumped	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2 -DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
					Parameters							
	Compliance Levels				**5**	**200**	**800**	**70**	**7.0**[a]	**0.1**	**80**	**5**
PW-1	**Well PW-1**	8/25/1993	NR	7.20	**1400**	**2800**	ND (200)	NA	ND (200)	ND (200)	15	ND (5)
	PW-1-SU-2-95	2/10/1995	269,950	6.96	**850**	**1700**	12 J	NA	**41 J**	ND (100)	13	**9.3**
	PW20-SU-2-95	2/10/1995	269,950	6.96	**830**	**1600**	ND (120)	NA	**41 J**	ND (120)	14	**5**
	PW1-OP-9-95	9/19/1995	3,548,606	7.48	**480**	**1700**	ND (50)	NA	**62**	ND (50)	15	ND (3)
	PW1-OP-12-95	12/4/1995	6,482,542	8.00	**350**	**1000**	ND (50)	NA	**49 J**	ND (50)	ND (10)	ND (3)
	PW1-OP-3-96	3/25/1996	NR	8.68	**270**	**890**	ND (50)	NA	**30 J**	ND (50)	NA	NA
	PW1-11-96	11/1/1996	14,727,347	5.81	**290**	**420**	4.7 J	NA	**12 J**	ND (25)	ND (10)	ND (3)
	PW1-1-97	1/28/1997	16,659,479	6.99	**390**	**320**	ND (25)	NA	ND (25)	ND (25)	NA	NA
	PW1-5-97	5/1/1997	20,671,678	7.67	**320**	**230**	ND (10)	**120**	**8.1 J**	ND (10)	NA	NA
	PW26-5-97	5/1/1997	20,671,678	7.67	**310**	**240**	7.6 J	**130**	ND (10)	ND (10)	NA	NA
	PW-1-7-97	7/21/1997	24,342,052	7.20	**290**	**220**	ND (10)	**79**	4.5 J	ND (10)	NA	NA
	GW0006	10/28/1997	158,478,000	6.52	**300**	**290**	7.1	**130**	**11**	ND (0.20)	ND (10)	ND (3.0)
	GW0007	10/28/1997	158,478,000	6.52	**300**	**280**	7.5	**140**	**11**	ND (0.20)	11	ND (3.0)
	GW0096	1/20/1998	179,645,110	6.94	**220**	**320**	11	**150**	**13**	ND (1.0)	NA	NA
	GW0097	1/20/1998	179,645,110	6.94	**200**	**310**	10	**140**	**12**	ND (1.0)	NA	NA
	GW0142	4/16/1998	NR	6.70	**150**	**320**	10	**110 J**	**9.5**	ND (1.0)	NA	NA
	GW0193	7/29/1998	NR	6.50	**250**	**380**	7.8	**110**	**12**	ND (1.0)	NA	NA
	GW0194	7/29/1998	NR	6.50	**240**	**380**	7.5	**110**	**12**	ND (1.0)	NA	NA
	GW0243	10/27/1998	NR	6.70	**240**	**400**	6	**88**	**13**	ND (1.0)	ND (10)	ND (3.0)
	GW0244	10/27/1998	NR	6.70	**230**	**300**	5.4	**83**	**12**	ND (1.0)	ND (10)	ND (3.0)
	GW0315	1/27/1999	NR	6.54	**52**	130	3.7	66	**7.3**	ND (1.0)	NA	NA
	GW0316	1/27/1999	NR	6.54	**72**	140	3.5	**81**	6.6	ND (1.0)	NA	NA
	GW0367	4/19/1999	NR	NR	**148**	**200**	4.3	64	**10**	ND (1.0)	NA	NA
	GW0368	4/19/1999	NR	NR	**160**	**225**	4.3	68	**16**	ND (5.0)	NA	NA
	GW0422	7/27/1999	NR	7.50	**120**	**200**	4.3	**74**	**9.5**	ND (0.20)	NA	NA
	GW0468	11/29/1999	NR	7.49	**120**	100	4.6	**140**	**7.2**	ND (1.0)	ND (10)	ND (3.0)
	GW0469	11/29/1999	NR	7.49	**160**	160	5	**220**	**7.8**	ND (1.0)	ND (10)	ND (3)
	GW0534	1/24/2000	NR	6.99	**160**	190	4	**76**	**11**	ND (0.20)	NA	NA
	GW0535	1/24/2000	NR	6.99	**190**	**200 C**	3.8	**73**	**10**	ND (0.20)	NA	NA
	GW0585	4/26/2000	NR	6.82	**130**	130	4.1	52	**8.8**	ND (0.2)	NA	NA
	GW0586	4/26/2000	NR	6.82	**130**	140	4.2	52	**9.8**	ND (0.2)	NA	NA
	GW0636	7/26/2000	NR	7.30	**170 D**	**270 D**	4.4	67 D	**10**	ND (0.50)	6.8 B	ND (1.00)
	10104	10/24/2000	NR	6.5	**120**	150	4.4	51	**10**	ND (0.30)	NA	NA
	10576	1/9/2001	NR	5.93	**120 D**	170 D	3.9	41	**9.7**	ND (0.30)	NA	NA
	10797	4/10/2001	NR	6.28	**110 D**	140 D	4.1 D	43 D	**8.3 D**	ND (1.0)	NA	NA
	11401	7/10/2001	NR	5.33	**99 D**	130 D	4.3	44	**8.6**	ND (0.22)	NA	NA
	12140	11/9/2001	NR	6.42	**91 D**	130 D	3.7	34	**9.7**	ND (0.2)	NA	NA
	12724	1/16/2002	NR	6.16	**99 D**	110 D	3.6 D	39 D	**7.7 D**	ND (1.0)	NA	NA
	13118	4/19/2002	NR	5.67	**110 D**	100 D	3.8 D	45 D	6.8 D	ND (1)	NA	NA
	13921	7/10/2002	NR	6.40	**94 D**	96 D	4.2	39	6.6	ND (0.2)	NA	NA
	14937	11/22/2002	729,360,639	7.39	**78**	83	4.0	40	6.2	ND (0.2)	NA	NA
	15325	1/17/2003	744,089,851	7.94	**95**	110	3.9	38	6.8	0.06 J	NA	NA

Table A-3
Cumulative Summary of Area 6 Production Well Results

U.S. Navy 2007a

Well No.	Sample	Date	Total Gallons Pumped	Parameters: pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2 -DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
	Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	15726	4/24/2003	NA	7.73	**75**	89	3.0	35	6.8	ND (0.12)	NA	NA
	16123	6/26/2003	NA	8.00	**85**	91	3.5	40	5.8 J	ND (0.12)	NA	NA
	17122	11/13/2003	809,258,512	7.46	**75**	84	2.9	36	6.4	**0.20 J**	NA	NA
	17627	1/23/2004	821,260,961	6.62	**89**	84	2.3	36	**7.9**	**0.26 J**	NA	NA
	17930	4/9/2004	833,177,790	7.63	**83**	67	3.5	44	4.4	ND (0.12)	NA	NA
	19122	7/20/2004	857,412,204	7.32	**90**	65	3.3	46	4.4	ND (0.12)	NA	NA
	19949	11/9/2004	873,933,902	7.89	**74**	64	2.7	35	3.9	**0.14 J**	NA	NA
	20429	1/26/2005	891,867,371	7.51	**87**	60	3.1	43	5.4	**0.14 J**	NA	NA
	21034	4/29/2005	908,617,251	7.77	**100**	67	3.7 J	48 J	3.7 J	ND (0.13)	NA	NA
	21227	8/1/2005	931,768,116	7.95	**97 J[1]**	68 J[1]	2.5 J[1]	52 J[1]	**13 J[1]**	**0.34 J[1]**	NA	NA
	GM-05-001	10/28/2005	940,940,888	7.16	**84 D**	64 D	2.8	48	4.7	ND (0.13)	NA	NA
	GM-06-002	2/7/2006	961,949,977	7.26	**98 D**	50 D	4.4	50 D	2.8	ND (0.13)	NA	NA
	GM-06-073	5/11/2006	978,529,653	7.19	**86 D**	49 D	3.6	55	3.2	ND (0.13)	NA	NA
	GM-06-166	8/17/2006	985,555,459	7.15	**140 D**	71 D	6.0	**90 D**	3.2	ND (0.13)	NA	NA
	GM-06-401	11/6/2006	985,955,142	7.15	**210 D**	86 D	7.1	**140 D**	3.6	ND (0.13)	NA	NA
	GM-07-102	2/27/2007	997,338,797	6.89	**120 D**	59	4.1	**65 D**	3.9	ND (0.13)	NA	NA
	GM-07-102	5/14/2007	1,014,883,740	6.3	**120 D**	58 D	3.8	**64 D**	3	ND (0.13)	NA	NA
PW-2	Well PW-2	8/30/1993	NR	7.50	ND (1)	3.6	2.3	NA	ND (1)	**4.8**	ND (10)	ND (5)
	PW-2-SU-6-95	6/23/1995	NR	6.84	ND (5)	3.5 J	3.4 J	NA	ND (5)	**4.5 J**	NA	NA
	PW-2-OP-9-95	9/19/1995	2,723,433	6.83	ND (5)	ND (5)	2.2 J	NA	ND (5)	**5.9**	ND (10)	4.7
	PW-2-OP-12-95	12/5/1995	3,293,250	7.43	ND (5)	5.4	7.6	NA	ND (5)	**12**	ND (10)	ND (3)
	PW-2-OP-3-96	3/25/1996	3,293,384	6.90	ND (2)	7.3	7.2	NA	ND (2)	**7.8**	NA	NA
	PW2-11-96	11/1/1996	3,302,772	7.48	ND (5.0)	4.4 J	11	NA	ND (5.0)	ND (5.0)	38	3.1
	PW2-1-97	1/29/1997	3,309,560	6.91	ND (2.0)	5.1	13	NA	ND (2.0)	**0.98 J**	NA	NA
	PW2-5-97	5/1/1997	NR	6.40	ND (2.0)	4.8	13	ND (2.0)	ND (2.0)	**1.8 J**	NA	NA
	PW2-7-97	7/21/1997	3,313,958	7.10	ND (2.0)	5.6	12	ND (2.0)	ND (2.0)	**3.4**	NA	NA
	GW0144	4/16/1998	NR	6.80	ND (2.0)	3.4	18	ND (2.0)	ND (2.0)	**1.5**	NA	NA
PW-3	Well PW-3	8/29/1993	NR	7.50	**1900**	**4600**	ND (500)	NA	ND (500)	ND (500)	ND (10)	ND (5)
	PW-3-SU-2-95	2/10/1995	136,687	7.12	**1400**	**3700**	45 J	NA	**240 J**	ND (250)	4.4	**1**
	PW3-OP-9-95	9/19/1995	3,056,747	7.25	**870**	**4500**	ND (200)	NA	**410**	ND (200)	ND (10)	ND (5)
	PW20-OP-9-95	9/19/1995	3,056,747	7.72	**770**	**4500**	37 J	NA	**400**	ND (200)	ND (10)	ND (3)
	PW3-OP-12-95	12/4/1995	5,751,946	7.88	**700**	**3400**	150 J	NA	**340**	ND (200)	ND (10)	ND (3)
	PW3-OP-3-96	3/25/1996	10,542,702	7.15	**550**	**3200**	110	NA	**300**	ND (200)	NA	NA
	PW8-OP-3-96	3/25/1996	10,542,914	7.13	**500**	**2900**	110	NA	**330**	ND (100)	NA	NA
	PW3-11-96	11/1/1996	13,938,131	7.74	**560**	**2300**	79 J	NA	**180**	ND (100)	ND (10)	ND (3)
	PW20-11-96	11/1/1996	13,938,131	7.74	**510**	**2200**	110	NA	**170**	ND (100)	ND (10)	ND (3)
	PW3-1-97	1/28/1997	15,932,331	7.31	**620**	**1300**	57 J	NA	**77 J**	ND (100)	NA	NA
	PW3-5-97	5/1/1997	19,908,817	6.58	**420**	**930**	73	**120**	**150**	ND (25)	NA	NA
	PW3-7-97	7/21/1997	23,521,672	7.30	**440**	**1000**	65	**120**	**120**	ND (25)	NA	NA
	GW0009	10/14/1997	155,568,000	6.72	**440**	**590**	67	**140**	**83**	**0.3**	ND (10)	ND (3.0)
	GW0082	10/27/1997	158,220,000	NA	**NA**	**NA**	NA	NA	**NA**	NA	ND (10)	ND (3.0)
	GW0099	1/20/1998	179,645,110	7.06	**280**	**1300**	79	**109**	**120**	ND (1)	NA	NA

Table A-3 (Continued)
Cumulative Summary of Area 6 Production Well Results

U.S. Navy 2007a

Well No.	Sample	Date	Total Gallons Pumped	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2 -DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
					Parameters							
	Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	GW0145	4/16/1998	NR	6.80	**200**	**780**	71	**92 J**	**78**	ND (1.0)	NA	NA
	GW0196	7/29/1998	NR	6.60	**400**	**1100**	81	**110**	**110**	ND (5.0)	NA	NA
	GW0246	10/27/1998	NR	6.80	**370**	**1300**	70	**92**	**130**	ND (1.0)	ND (10)	ND (3.0)
	GW0317	1/27/1999	NR	6.75	**160**	**760**	65	**76**	**92**	ND (1.0)	NA	NA
	GW0369	4/19/1999	NR	NR	**270**	**950**	58	69	**110**	ND (10)	NA	NA
	GW0423	7/27/1999	NR	7.50	**200**	**760**	60	65	**89**	ND (0.20)	NA	NA
	GW0471	11/29/1999	NR	7.45	**310**	**300**	51	**130**	**36**	ND (1.0)	ND (10)	ND (3)
	GW0536	1/24/2000	NR	6.97	**280**	**810**	48	53	**36**	ND (0.20)	ND (10)	ND (3)
	GW0587	4/26/2000	NR	6.63	**240**	**1000**	62	41	**120**	ND (0.2)	NA	NA
	GW0637	7/26/2000	NR	6.97	**280 D**	**1600 D**	73 D	31	**210 D**	**0.3 J**	ND (4.00)	ND (1.00)
	10107	10/24/2000	NR	6.7	**200**	**910**	55 J	31 J	**120**	ND (0.30)	NA	NA
	10577	1/9/2001	NR	6.30	**210 D**	**1100 D**	51 J	26 J	**110 D**	ND (030)	NA	NA
	10798	4/10/2001	NR	6.33	**200 D**	**890 D**	55 D	27 D	**110 D**	ND (5.00)	NA	NA
	11402	7/10/2001	NR	6.14	**180 D**	**790 D**	47 D	22 D	**91 D**	ND (0.43)	NA	NA
	12132	11/9/2001	NR	5.95	**180 D**	**980 D**	50 D	23	**120 D**	**0.2 J**	NA	NA
	12722	1/16/2002	NR	6.49	**170 D**	**770 D**	45 D	19 D	**100 D**	ND (5.0)	NA	NA
	13119	4/19/2002	NR	6.2	**160 D**	**650 D**	42 D	18 D	**90 D**	ND (4)	NA	NA
	13922	7/10/2002	NR	6.64	**170 D**	**600 D**	36 D	18 D	**67 D**	ND (0.4)	NA	NA
	14936	11/22/2002	729,360,639	7.46	**150**	**440**	34	17	**78**	ND (0.2)	NA	NA
	15324	1/17/2003	744,089,851	8.13	**170**	**550**	33	16	**81**	0.20 J	NA	NA
	15724	4/24/2003	NA	7.66	**150**	**510**	34	16	**100**	0.8	NA	NA
	16122	6/26/2003	NA	7.86	**130**	**430**	30	12	**67 J**	ND (2.4)	NA	NA
	17121	11/13/2003	809,258,512	7.65	**140**	**420**	33	16	**91**	**0.8**	NA	NA
	17626	1/23/2004	821,260,961	6.73	**160**	**360**	29	15	**78**	**0.89**	NA	NA
	17929	4/9/2004	833,177,790	7.25	**170**	**380**	35	16	**66**	**0.13 J**	NA	NA
	19121	7/20/2004	857,412,204	7.29	**140**	**310**	31	15	**67**	**0.36 J**	NA	NA
	19948	11/9/2004	873,933,902	7.33	**120**	**240**	26	12	**60**	**1.3**	NA	NA
	20427	1/26/2005	891,867,371	7.12	**130**	**260**	27	12	**73**	**0.93**	NA	NA
	21033	4/29/2005	908,617,251	7.59	**120**	**230**	30	11	**62**	**0.15 J**	NA	NA
	21226	8/1/2005	931,768,116	7.76	**120**	**260**	31	10	**57**	ND (0.13)	NA	NA
	GM-05-002	10/28/2005	940,940,888	6.74	**110 D**	**240 D**	23	9.0	**53 D**	**0.58**	NA	NA
	GM-06-003	2/7/2006	961,949,977	6.80	**100 D**	170 D	30	8.7	**44**	ND (0.13)	NA	NA
	GM-06-074	5/11/2006	978,529,653	6.83	**87 D**	160 D	24	7.6	**51**	ND (0.13)	NA	NA
	GM-06-167	8/17/2006	985,555,459	6.85	**150 D**	130 D	30	13	**32**	ND (0.13)	NA	NA
	GM-06-402	11/6/2006	985,955,142	6.85	**160 D**	110 D	30	15	**28**	**0.13 J**	NA	NA
	GM-07-103	2/27/2007	997,338,797	6.35	**99 D**	170 D	22	7.5	**46**	**0.18 J**	NA	NA
	GM-07-203	5/16/2007	1,014,883,740	6.51	**100 D**	180 D	23	707	**46**	**0.090 J**	NA	NA
PW-4	Well PW-4	8/27/1993	NR	7.40	ND (1)	ND (1)	ND (1)	NA	ND (1)	**2.9**	ND (10)	ND (5)
	PW-4-SU-2-95	2/10/1995	207,175	6.95	ND (1)	2.9	ND (1)	NA	ND (1)	**3.4**	ND (10)	4.4
	PW-4-OP-9-95	9/19/1995	3,170,677	6.70	ND (5)	ND (5)	ND (5)	NA	ND (5)	**3.2 J**	ND (10)	ND (3)
	PW-4-OP-12-95	12/4/1995	5,683,690	7.91	ND (5)	3.0 J	1.9 J	NA	ND (5)	ND (5)	ND (10)	ND (3)
	PW-4-OP-3-96	3/25/1996	10,004,154	7.23	ND (2)	3	0.48 J	NA	ND (2)	**4.7**	NA	NA

Table A-3 (Continued)
Cumulative Summary of Area 6 Production Well Results

U.S. Navy 2007a

Well No.	Sample	Date	Total Gallons Pumped	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2 -DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
					Parameters							
	Compliance Levels				**5**	**200**	**800**	**70**	**7.0**[a]	**0.1**	**80**	**5**
	PW4-11-96	11/1/1996	12,826,590	7.55	ND (5.0)	3.1 J	0.93 J	NA	ND (5.0)	**1.7 J**	ND (10)	ND (3)
	PW4-1-97	1/29/1997	14,141,370	6.87	ND (2.0)	4.2 J	0.95 J	NA	ND (2.0)	ND (2.0)	NA	NA
	PW4-5-97	5/1/1997	16,756,447	6.47	ND (2.0)	3	1.2 J	ND (2.0)	ND (2.0)	**2.6**	NA	NA
	PW4-7-97	7/21/1997	19,550,072	7.10	ND (2.0)	2.6	1.4 J	ND (2.0)	ND (2.0)	**1.6 J**	NA	NA
	GW0010	10/27/1997	158,220,000	7.29	ND (0.2)	5.3	3.1	ND (0.20)	ND (0.20)	**1.6**	18	ND (3.0)
	GW0100	1/20/1998	179,645,110	7.17	ND (0.2)	5.1	4.1	ND (0.20)	ND (0.20)	**1.6**	NA	NA
	GW0146	4/16/1998	NR	6.90	ND (0.2)	9.2	4.7	ND (0.20)	ND (0.20)	**1.7**	NA	NA
	GW0197	7/29/1998	NR	6.60	ND (0.2)	4.1	4.5	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0247	10/27/1998	NR	6.80	ND (2.0)	3.7	4.1	ND (0.20)	ND (0.20)	**1.1**	ND (10)	ND (3.0)
	GW0318	1/27/1999	NR	6.74	ND (0.2)	2	2.9	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0370	4/26/1999	NR	NR	ND (0.20)	2.7	3.9	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0424	7/27/1999	NR	7.60	ND (0.20)	4.1	4.4	ND (0.20)	ND (0.20)	**2.8**	NA	NA
	GW0472	11/29/1999	NR	7.50	ND (0.20)	2.5	5.1	ND (0.20)	ND (0.20)	ND (1.0)	ND (10)	ND (3)
	GW0537	1/24/2000	NR	7.06	ND (0.20)	3.7	4.9	ND (0.20)	ND (0.24)	**0.89 J**	NA	NA
	GW0588	4/28/2000	NR	6.38	ND (0.2)	4.4	7.9	ND (0.2)	ND (0.3)	**2**	NA	NA
	GW0638	7/26/2000	NR	6.95	ND (0.50)	30	6.5	ND (0.50)	0.2 J	**1.2**	ND (4.00)	ND (1.00)
	10111	10/24/2000	NR	6.8	ND (0.20)	70	6.8	ND (0.20)	0.3 J	**1.1**	NA	NA
	10578	1/9/2001	NR	6.25	ND (020)	120 D	7.1	ND (0.20)	0.4 J	**1.3**	NA	NA
	10792	4/10/2001	NR	6.25	ND (0.5)	120 D	8.3	ND (0.50)	0.4 J	**1.4**	NA	NA
	11403	7/10/2001	NR	6.15	ND (0.12)	98	8.8	ND (0.12)	0.49 J	**1.4**	NA	NA
	12133	11/9/2001	NR	6.20	ND (0.2)	53 D	10	ND (0.1)	0.47 J	**1.2**	NA	NA
	12721	1/16/2002	NR	6.21	ND (0.8)	76 D	8 D	ND (0.4)	ND (0.8)	**1 JD**	NA	NA
	13120	4/19/2002	NR	6.31	ND (1)	100 D	9.4 D	ND (0.5)	ND (1)	**1.1 JD**	NA	NA
	13926	7/10/2002	NR	6.86	ND (0.2)	76 D	11	ND (0.1)	0.71	**0.96**	NA	NA
	14931	11/22/2002	729,360,639	7.48	ND (0.2)	83	13	ND (0.1)	0.80	**0.79**	NA	NA
	15320	1/17/2003	744,089,851	10.6	ND (0.055)	92	15	ND (0.067)	1.2 J	**1.1 J**	NA	NA
	15723	4/24/2003	NA	7.77	ND (0.081)	68	14	ND (0.067)	1.2	**0.93**	NA	NA
	16120	6/26/2003	NA	7.95	ND (0.081)	67	16	ND (0.067)	ND (1.1)	**0.80**	NA	NA
	17119	11/13/2003	809,258,512	7.87	0.10 J	49	16	ND (0.067)	1.8	**1.3**	NA	NA
	17622	1/23/2004	821,260,961	6.60	ND (0.081)	44	15	ND (0.067)	1.3	**1.2**	NA	NA
	17926	4/9/2004	833,177,790	7.48	ND (0.081)	41	17	ND (0.067)	0.96	**0.7**	NA	NA
	19117	7/20/2004	857,412,204	7.43	ND (0.081)	32	16	ND (0.067)	1.2	**0.86**	NA	NA
	19946	11/9/2004	873,933,902	7.46	ND (0.081)	28	14	ND (0.067)	1.0	**0.90**	NA	NA
	20426	1/26/2005	891,867,371	7.31	0.10 J	26	15	ND (0.069)	1.4	**0.78**	NA	NA
	21030	4/29/2005	908,617,251	7.56	ND (0.21)	28	16	ND (0.13)	1.0	**0.65**	NA	NA
	21221	8/1/2005	931,768,116	7.79	ND (0.21)	23	16	ND (0.13)	0.90	**0.61**	NA	NA
	GM-05-003	10/28/2005	940,940,888	6.89	ND (0.21)	17	9.8	ND (0.13)	2.4	**1.0**	NA	NA
	GM-06-403	11/9/2006	985,955,142	6.88	ND (0.21)	1.2	12	ND (0.13)	0.25 J	**0.44 J**	NA	NA
	GM-07-104	2/27/2007	997,338,797	6.64	ND (0.21)	44	11	ND (0.13)	0.44 J	**0.5**	NA	NA
	GM-07-204	5/16/2007	1,014,883,740	6.8	ND (0.21)	4.7	9.5	ND (0.13)	0.38 J	**0.47 J**	NA	NA
PW-5	Well PW-5	8/29/1993	NR	7.89	ND (1)	130	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (5)
	PW-5-SU-2-95	2/10/1995	217,216	7.35	ND (25)	**340**	ND (25)	NA	ND (25)	ND (25)	5.1	4.6

Table A-3 (Continued)
Cumulative Summary of Area 6 Production Well Results

U.S. Navy 2007a

Well No.	Sample	Date	Total Gallons Pumped	Parameters								
				pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2 -DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
	Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	PW5-OP-9-95	9/19/1995	2,703,569	7.48	ND (100)	**2100**	57 J	NA	ND (100)	ND (100)	ND (10)	ND (3)
	PW5-OP-12-95	12/4/1995	5,440,881	8.31	ND (100)	**2400**	240	NA	**72 J**	ND (100)	ND (10)	ND (3)
	PW20-OP-12-95	12/4/1995	5,440,881	8.31	ND (100)	**2400**	230	NA	**74 J**	ND (100)	ND (10)	ND (3)
	PW5-OP-3-96	3/25/1996	9,348,267	7.98	ND (100)	**2700**	330	NA	**42 J**	ND (100)	NA	NA
	PW5-11-96	11/1/1996	12,554,088	7.99	ND (250)	**2800**	280	NA	**55 J**	ND (250)	ND (10)	ND (3)
	PW5-1-97	1/28/1997	13,953,595	7.65	ND (250)	**3300**	290	NA	ND (250)	ND (250)	NA	NA
	PW5-5-97	5/1/1997	16,793,242	7.20	ND (100)	**2800**	330	ND (100)	**130**	ND (100)	NA	NA
	PW5-7-97	7/21/1997	19,149,742	7.70	ND (100)	**3000**	280	ND (100)	**120**	ND (100)	NA	NA
	GW0011	10/14/1997	155,568,000	7.30	**10**	**3100**	230	14	**130**	**0.47**	ND (10)	ND (3.0)
	GW0083	10/27/1997	158,220,000	NA	**NA**	**NA**	NA	NA	NA	NA	ND (10)	ND (3.0)
	GW0101	1/20/1998	179,645,110	7.72	**29**	**4300**	370	21	**210**	ND (1.0)	NA	NA
	GW0147	4/16/1998	NR	7.20	**29**	**2600**	390	19	**130**	ND (1.0)	NA	NA
	GW0198	7/29/1998	NR	7.00	**37**	**3300**	320	24	**190**	ND (1.0)	NA	NA
	GW0248	10/27/1998	NR	7.20	**76**	**3500**	410	27	**260**	ND (1.0)	ND (10)	ND (3.0)
	GW0319	1/27/1999	NR	7.44	**35**	**1900**	290	29	**180**	ND (1.0)	NA	NA
	GW0371	4/19/1999	NR	NR	**67**	**1700**	310	36	**190**	ND (10)	NA	NA
	GW0425	7/27/1999	NR	7.50	**92**	**1800**	310	50	**230**	ND (0.20)	NA	NA
	GW0426	7/27/1999	NR	7.50	**94**	**1800**	310	56	**230**	**1.3**	NA	NA
	GW0473	11/29/1999	NR	7.87	**160**	**2500**	300	**190**	**370**	ND (1.0)	ND (10)	ND (3)
	GW0538	1/24/2000	NR	7.55	**120**	**2400**	320	59	**350**	ND (0.20)	NA	NA
	GW0589	4/26/2000	NR	7.59	**130**	**1300**	310	52	**280**	ND (0.2)	NA	NA
	GW0639	7/26/2000	NR	7.51	**160 D**	**1700 D**	440 D	68 D	**450 D**	**0.73**	ND (4.00)	ND (1.00)
	10108	10/24/2000	NR	7.2	**120**	**1200**	310	53 J	**260**	**0.78 J**	NA	NA
	10579	1/9/2001	NR	6.69	**140 D**	**1300 D**	300 D	51 J	**260 D**	**0.61 J**	NA	NA
	10793/17094	4/10/2001	NR	6.82	**140 D**	**1100 D**	290 D	54 D	**230 D**	ND (5.0)	NA	NA
	11404	7/10/2001	NR	6.95	**130 D**	**1000 D**	270 D	49 D	**240 D**	**0.54 J**	NA	NA
	12139	11/9/2001	NR	6.80	**150 D**	**1100 D**	240 D	49	**240 D**	**0.57**	NA	NA
	12720	1/16/2002	NR	6.46	**150 D**	**970 D**	250 D	43 D	**240 D**	ND (10)	NA	NA
	13124	4/19/2002	NR	6.98	ND (4)	**1100 D**	240 D	47 D	**250 D**	ND (4)	NA	NA
	13923	7/10/2002	NR	6.80	**150 D**	**1100 D**	190 D	45 D	**190 D**	ND (1)	NA	NA
	14935	11/22/2002	729,360,639	7.90	**170**	**940**	220	38	**230**	**0.43 J**	NA	NA
	15722	4/24/2003	NA	8.26	**200 J**	**1100 J**	190 J	40 J	**290 J**	**2.1 J**	NA	NA
	16115	6/26/2003	NA	8.13	**180**	**990**	180	31	**210 J**	**0.50**	NA	NA
	17118	11/13/2003	809,258,512	7.73	**130**	**850**	130	26	**180**	**3.1**	NA	NA
	17625	1/23/2004	821,260,961	6.73	**160**	**960**	130	25 J	**300**	**3.5 J**	NA	NA
	17928	4/9/2004	833,177,790	7.84	**160**	**960**	140	22	**170**	**0.34 J**	NA	NA
	19120	7/20/2004	857,412,204	7.74	**130**	**790**	98	19	**160**	**0.76**	NA	NA
	19947	11/9/2004	873,933,902	7.91	**130**	**730**	110	17	**150**	**2.2**	NA	NA
	20425	1/26/2005	891,867,371	7.45	**150**	**1000**	120	21	**200**	**2.5**	NA	NA
	21031	4/29/2005	908,617,251	7.91	**140**	**880**	130	19	**170**	**0.83**	NA	NA
	21225	8/1/2005	931,768,116	8.07	**130**	**820**	120	17	**150**	**0.30 J**	NA	NA
	GM-05-004	11/1/2005	940,940,888	7.02	**150 D**	**1100 D**	110 D	18	**190 D**	**1.6**	NA	NA

Table A-3 (Continued)
Cumulative Summary of Area 6 Production Well Results

U.S. Navy 2007a

Well No.	Sample	Date	Total Gallons Pumped	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2 -DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
					Parameters							
	Compliance Levels				**5**	**200**	**800**	**70**	**7.0**[a]	**0.1**	**80**	**5**
	GM-06-005	2/7/2006	961,949,977	7.16	**140 D**	**670 D**	150 D	16	**150 D**	**0.34 J**	NA	NA
	GM-06-076	5/11/2006	978,529,653	7.00	**110 D**	**530 D**	82 D	13	**110 D**	**0.27 J**	NA	NA
	GM-06-169	8/17/2006	985,555,459	7.12	**220 D**	**1300 D**	150 D	23	**250 D**	**0.49 J**	NA	NA
	GM-06-404	11/6/2006	985,955,142	6.54	**230 D**	**1100 D**	160 D	25 D	**280 D**	ND (0.61)	NA	NA
	GM-07-105	2/27/2007	997,338,797	6.51	**130 D**	**580 D**	110 D	13	**150 D**	0.5	NA	NA
	GM-07-205	5/16/2007	1,014,883,740	6.73	**120 D**	**560 D**	92 D	12	**140 D**	0.27 J	NA	NA
PW-6	Well PW-6	8/30/1993	NR	8.01	ND (1)	1.1	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (5)
	PW-6-SU-2-95	2/10/1995	169,911	6.97	ND (1)	0.78 J	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (5)
	PW6-OP-9-95	9/19/1995	3,187,952	7.15	ND (2)	ND (2)	ND (2)	NA	ND (2)	ND (2)	ND (10)	ND (3)
	PW6-OP-12-95	12/4/1995	5,983,057	7.95	ND (5)	1.9 J	ND (5)	NA	ND (5)	ND (5)	ND (10)	ND (3)
	PW6-OP-3-96	3/25/1996	9,793,624	7.36	ND (1)	1.3	ND (1)	NA	ND (1)	ND (1)	NA	NA
	PW6-11-96	11/1/1996	12,751,209	7.81	ND (2.0)	1.4 J	ND (2.0)	NA	ND (2.0)	ND (2.0)	ND (10)	ND (3)
	PW6-1-97	1/28/1997	14,178,338	7.35	ND (2.0)	1.5 J	ND (2.0)	NA	ND (2.0)	ND (2.0)	NA	NA
	PW6-5-97	5/1/1997	16,744,676	6.70	ND (1.0)	0.52 J	ND (1.0)	ND (1.0)	ND (1.0)	**0.30 J**	NA	NA
	PW6-7-97	7/21/1997	18,708,723	7.20	ND (1.0)	1.3	ND (1.0)	ND (1.0)	ND (1.0)	**0.43 J**	NA	NA
	GW0012	10/27/1997	158,220,000	7.17	ND (0.20)	2	ND (0.20)	ND (0.20)	ND (0.20)	**0.5**	16	ND (3.0)
	GW0102	1/20/1998	179,645,110	7.18	**0.7**	7.3	0.32	ND (0.20)	0.37	ND (1)	NA	NA
	GW0148	4/16/1998	NR	6.80	ND (0.20)	ND (0.20)	20	ND (0.20)	ND (0.20)	ND (0.20)	NA	NA
	GW0199	7/29/1998	NR	6.60	ND (0.20)	2.4	0.38	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0245	10/27/1998	NR	6.80	ND (0.20)	2	0.38	ND (0.20)	ND (0.20)	ND (1.0)	ND (10)	ND (3)
	GW0320	1/27/1999	NR	6.73	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0372	4/19/1999	NR	NR	ND (0.20)	2.2	0.65	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0427	7/27/1999	NR	7.60	ND (0.20)	2.2	0.75	ND (0.20)	ND (0.20)	**1.6**	NA	NA
	GW0470	11/29/1999	NR	7.18	ND (0.20)	1.6	0.56	ND (0.20)	ND (0.20)	**1.1**	ND (10)	ND (3)
	GW0539	1/24/2000	NR	6.95	ND (0.20)	1.7	0.79 J	ND (0.20)	ND (0.24)	**0.62 J**	NA	NA
	GW0590	4/26/2000	NR	6.87	ND (0.2)	1.4	1.2	ND (0.2)	ND (0.3)	**0.8**	NA	NA
	GW0640	7/26/2000	NR	6.96	ND (0.50)	2.6	1.6	ND (0.50)	ND (0.50)	**0.85**	ND (4.00)	ND (1.00)
	10109	10/24/2000	NR	6.8	ND (0.20)	2.1	1.8	ND (0.20)	ND (0.10)	**0.74**	NA	NA
	10581	1/9/2001	NR	6.31	ND (0.20)	2.2	1.8	ND (0.20)	ND (0.20)	**0.7**	NA	NA
	10795	4/10/2001	NR	6.34	ND (0.50)	ND (2.3)	2.6	ND (0.50)	ND (0.50)	**0.9**	NA	NA
	11405	7/10/2001	NR	6.47	ND (0.12)	2.1	2.9	ND (0.12)	ND (0.12)	**0.93**	NA	NA
	12138	11/9/2001	NR	6.43	ND (0.2)	2.4	3.5	ND (0.1)	ND (0.2)	**0.79**	NA	NA
	12719	1/16/2002	NR	6.13	ND (0.2)	2	2.8	ND (0.1)	ND (0.2)	**0.72**	NA	NA
	13125	4/19/2002	NR	6.42	ND (0.2)	1.8	2.4	ND (0.1)	ND (0.2)	**0.55**	NA	NA
	13924	7/10/2002	NR	6.67	ND (0.2)	2	2.3	ND (0.1)	ND (0.2)	**0.65**	NA	NA
	14934	11/22/2002	729,360,639	7.44	ND (0.2)	2.1	2.3	ND (0.1)	ND (0.2)	**0.48 J**	NA	NA
	15323	1/17/2003	744,089,851	7.73	ND (0.055)	2.9	2.3	ND (0.067)	0.20 J	**0.64 J**	NA	NA
	15720	4/24/2003	NA	7.62	ND (0.081)	2.4	1.8	ND (0.067)	0.17 J	**0.58**	NA	NA
	16116	6/26/2003	NA	7.64	ND (0.50)	ND (3.6)	2.7	ND (0.067)	ND (0.50)	**0.51**	NA	NA
	17114	11/13/2003	809,258,512	5.98	ND (0.81)	3	2.4	ND (0.067)	0.27 J	**0.86**	NA	NA
	17620	1/23/2004	821,260,961	6.77	ND (0.081)	3	2.4	0.080 J	0.22 J	**0.76**	NA	NA
	17924	4/9/2004	833,177,790	7.33	ND (0.081)	2.5	3.0	0.12 J	0.24 J	**0.53**	NA	NA

Table A-3 (Continued)
Cumulative Summary of Area 6 Production Well Results

U.S. Navy 2007a

Well No.	Sample	Date	Total Gallons Pumped	pH	Parameters TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2 -DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
	Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	19116	7/20/2004	857,412,204	7.33	ND (0.081)	2.3	2.7	0.10 J	0.18 J	**0.54**	NA	NA
	19943	11/9/2004	873,933,902	7.68	ND (0.081)	2.0	2.3	0.070 J	ND (0.16)	**0.45 J**	NA	NA
	20424	1/26/2005	891,867,371	7.15	ND (0.081)	1.7	2.2	0.080 J	ND (0.16)	**0.47 J**	NA	NA
	21028	4/29/2005	908,617,251	7.32	ND (0.21)	2.1	2.4	ND (0.13)	ND (0.24)	**0.43 J**	NA	NA
	21224	8/1/2005	931,768,116	7.71	ND (0.21)	1.9	2.5	0.14 J	ND (0.24)	**0.41 J**	NA	NA
	GM-05-005	10/28/2005	940,940,888	6.75	ND (0.21)	1.9	2.0	0.19 J	ND (0.24)	**0.38 J**	NA	NA
	GM-06-006	2/6/2006	961,949,977	6.90	ND (0.21)	1.4	2.4	0.22 J	ND (0.24)	**0.36 J**	NA	NA
	GM-06-077	5/11/2006	978,529,653	6.84	ND (0.21)	2.2	2.1	0.20 J	0.26 J	**0.40 J**	NA	NA
	GM-06-170	8/17/2006	985,555,459	6.71	ND (0.21)	1.4	2.3	ND (0.13)	ND (0.24)	**0.38 J**	NA	NA
	GM-06-405	11/6/2006	985,955,142	6.71	ND (0.21)	0.98	2.0	ND (0.13)	ND (0.24)	**0.35 J**	NA	NA
	GM-07-106	2/27/2007	997,338,797	6.51	ND (0.21)	1.4	1.9	0.24 J	ND (0.24)	**0.39 J**	NA	NA
	GM-07-206	5/16/2007	1,014,883,740	6.69	ND (0.21)	1.7	2.0	0.24 J	0.12 J	**0.38 J**	NA	NA
PW-7	Well PW-7	8/27/1993	NR	7.28	ND (1)	3	ND (1)	NA	ND (1)	**4**	ND (10)	ND (5)
	PW-7-SU-2-95	2/10/1995	176,428	6.90	ND (1)	3.7	0.52 J	NA	ND (1)	**3.5**	ND (10)	ND (5)
	PW7-OP-9-95	9/19/1995	3,106,932	6.66	ND (5)	ND (5)	1.9 J	NA	ND (5)	**4.2 J**	ND (10)	ND (3)
	PW7-OP-12-95	12/4/1995	5,789,868	7.70	ND (5)	3.8 J	5.4	NA	ND (5)	ND (5)	ND (10)	ND (3)
	PW7-OP-3-96	3/25/1996	9,148,156	7.47	ND (2)	3.8	8	NA	ND (2)	**8.8**	NA	NA
	PW7-11-96	11/1/1996	12,095,080	NR	ND (5.0)	2.3 J	10	NA	ND (5.0)	**1.7 J**	ND (10)	ND (3)
	PW7-5-97	5/1/1997	16,591,460	6.48	ND (5.0)	1.1 J	15	ND (5.0)	ND (5.0)	**2.0 J**	NA	NA
	PW7-7-97	7/21/1997	19,239,365	7.20	ND (5.0)	1.2 J	12	ND (5.0)	ND (5.0)	**1.9 J**	NA	NA
	GW0013	10/27/1997	158,220,000	7.19	ND (0.20)	2.8	18	0.97	ND (0.20)	**1.5**	ND (10)	ND (3)
	GW0103	1/20/1998	179,645,110	7.05	1.6	8.8	20	1.9	ND (0.20)	**1**	NA	NA
	GW0143	4/16/1998	NR	6.70	0.21	2.5	23	1.7	ND (0.20)	**1.5**	NA	NA
	GW0149	4/16/1998	NR	6.70	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0200	7/29/1998	NR	6.60	ND (0.20)	1.7	20	1	ND (0.20)	ND (1.0)	NA	NA
	GW0245	10/27/1998	NR	6.80	ND (0.20)	1.8	19	1.2	ND (0.20)	ND (1.0)	ND (10)	ND (3)
	GW0321	1/27/1999	NR	6.70	ND (0.20)	1.4	14	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0373	4/19/1999	NR	NR	ND (0.20)	1.4	16	1.2	ND (0.20)	**1.6**	NA	NA
	GW0428	7/27/1999	NR	7.60	ND (0.20)	1	13	1	ND (0.20)	ND (0.20)	NA	NA
	GW0474	11/29/1999	NR	7.75	ND (0.20)	1.2	14	3.6	ND (0.20)	ND (1.0)	ND (10)	ND (3)
	GW0540	1/24/2000	NR	6.93	ND (0.20)	1.2	13	1	ND (0.24)	**0.48 J**	NA	NA
	GW0591	4/26/2000	NR	6.69	ND (0.2)	0.6	14	1	ND (0.3)	**1.4**	NA	NA
	GW0641	7/26/2000	NR	6.96	ND (0.50)	1.5	15	1.1	ND (0.50)	**0.77**	ND (4.00)	ND (1.00)
	10110	10/24/2000	NR	6.8	ND (0.20)	1.2	16	1.1	ND (0.10)	**0.7**	NA	NA
	10582	1/9/2001	NR	6.32	ND (0.20)	1.3	16	1.1	ND (0.20)	**0.7**	NA	NA
	10796	4/10/2001	NR	6.22	ND (0.50)	ND(1.1)	17	1.3	ND (0.50)	**0.72**	NA	NA
	12136/12137	11/9/2001	NR	6.39	ND (0.2)	1.2	18	1.2	ND (0.2)	**0.53**	NA	NA
	12717/12718	1/16/2002	NR	6.12	ND (0.2)	1.1	15	1.1	ND (0.2)	**0.57**	NA	NA
	13126	4/19/2002	NR	6.46	ND (0.2)	1	15	0.96	ND (0.2)	**0.58**	NA	NA
	13925	7/10/2002	NR	6.80	ND (0.2)	1	13	0.97	ND (0.2)	**0.61**	NA	NA
	14933	11/22/2002	729,360,639	7.37	ND (0.2)	0.86	12	0.79	ND (0.2)	**0.49 J**	NA	NA
	15322	1/17/2003	744,089,851	7.63	ND (0.055)	1.0	12	0.87	0.23 J	**0.76**	NA	NA

Table A-3 (Continued)
Cumulative Summary of Area 6 Production Well Results

U.S. Navy 2007a

Well No.	Sample	Date	Total Gallons Pumped	pH	Parameters TCE µg/L	 1,1,1-TCA µg/L	 1,1-DCA µg/L	 cis-1,2 -DCE µg/L	 1,1-DCE µg/L	 Vinyl Chloride µg/L	 Chromium µg/L	 Lead µg/L
	Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	15721	4/24/2003	NA	7.55	ND (0.081)	0.93	11	0.77	0.16 J	**0.78**	NA	NA
	16117	6/26/2003	NA	7.48	ND (0.081)	ND (0.76)	11	0.71	ND (0.16)	**0.51**	NA	NA
	17117	11/13/2003	809,258,512	7.80	ND (0.081)	0.83	11	0.75	ND (0.16)	**0.83**	NA	NA
	17624	1/23/2004	821,260,961	6.44	ND (0.081)	0.87	10	0.76	0.19 J	**0.82**	NA	NA
	17925	4/9/2004	833,177,790	7.09	ND (0.081)	0.61	11	0.74	0.19 J	**0.47 J**	NA	NA
	19119	7/20/2004	857,412,204	7.34	ND (0.081)	0.70	11	0.63	ND (0.16)	**0.61**	NA	NA
	19944	11/9/2004	873,933,902	7.43	ND (0.081)	0.69	7.6	0.52	ND (0.16)	**0.90**	NA	NA
	20423	1/26/2005	891,867,371	7.17	ND (0.081)	0.78	8.4	0.67	0.16 J	**0.78**	NA	NA
	21029	4/29/2005	908,617,251	7.4	ND (0.21)	0.86	9.3	0.61	ND (0.24)	**0.55**	NA	NA
	21222	8/1/2005	931,768,116	7.49	ND (0.21)	0.57	8.9	0.55	ND (0.24)	**0.51**	NA	NA
	GM-05-006	10/28/2005	940,940,888	NR	ND (0.21)	0.57	6.6	0.58	ND (0.24)	**0.54**	NA	NA
	GM-06-007	2/7/2006	961,949,977	6.94	ND (0.21)	0.58	9.8	0.53	ND (0.24)	**0.56**	NA	NA
	GM-06-078	5/11/2006	978,529,653	6.79	ND (0.21)	0.67	8.2	0.53	ND (0.24)	**0.59**	NA	NA
	GM-06-171	8/17/2006	985,555,459	6.68	ND (0.21)	0.69	8.3	0.56	ND (0.24)	**0.69**	NA	NA
	GM-06-406	11/6/2006	985,955,142	6.59	ND (0.21)	0.63	7.4	0.65	ND (0.24)	**0.63**	NA	NA
	GM-07-107	2/27/2007	997,338,797	6.57	ND (0.21)	0.74	7.8	0.56	ND (0.24)	**0.63**	NA	NA
	GM-07-207	5/14/2007	1,014,883,740	6.92	ND (0.21)	0.79	8	0.47 J	ND (0.24)	**0.71**	NA	NA
PW-8	PW8-9-96	9/18/1996	NR	7.02	ND (2.0)	8.1	ND (2.0)	NA	ND (2.0)	**2.3**	NA	NA
	PW8-11-96	11/1/1996	115,030	7.46	ND (5.0)	3.9 J	ND (5.0)	NA	ND (5.0)	ND (5.0)	ND (10)	ND (3)
	PW8-1-97	1/29/1997	880,198	6.80	ND (1.0)	2.4	ND (1.0)	NA	ND (1.0)	**0.88 J**	NA	NA
	PW8-5-97	5/3/1997	1,998,863	6.43	ND (2.0)	5.2	ND (2.0)	ND (2.0)	ND (2.0)	**2.7**	NA	NA
	PW8-7-97	7/21/1997	3,262,497	6.70	ND (2.0)	5	ND (2.0)	ND (2.0)	ND (2.0)	**2.7**	NA	NA
	GW0014	10/27/1997	158,220,000	7.08	0.26	6.9	0.6	ND (0.20)	ND (0.20)	**2**	ND (10)	ND (3)
	GW0104	1/20/1998	179,645,110	7.02	ND (0.20)	7.3	0.93	ND (0.20)	0.21	**1.9**	NA	NA
	GW0150	4/16/1998	NR	6.80	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0201	7/29/1998	NR	6.60	ND (0.20)	9.6	2	ND (0.20)	ND (0.20)	**1.8**	NA	NA
	GW0250	10/27/1998	NR	6.50	ND (0.20)	4.9	2.8	ND (0.20)	ND (0.20)	ND (1.0)	ND (10)	ND (3)
	GW0322	1/27/1999	NR	6.88	ND (0.20)	ND (0.20)	2.5	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0374	4/19/1999	NR	NR	ND (0.20)	2.5	3.3	ND (0.20)	ND (0.20)	**1.9**	NA	NA
	GW0429	7/27/1999	NR	7.60	ND (0.20)	1.9	3.3	ND (0.20)	ND (0.20)	**2.7**	NA	NA
	GW0475	11/29/1999	NR	7.25	ND (0.20)	2.9	1.2	ND (0.20)	ND (0.20)	ND (1.0)	ND (10)	ND (3)
	GW0541	1/24/2000	NR	7.05	ND (0.20)	3.3	0.71 J	ND (0.20)	ND (0.24)	**0.56 J**	NA	NA
	GW0592	4/26/2000	NR	6.66	ND (0.2)	1.2	5.7	ND (0.2)	ND (0.3)	**1.9**	NA	NA
	GW0642	7/26/2000	NR	7.21	ND (0.50)	2.2	6.7	ND (0.50)	0.2 J	**1.6**	ND (4.00)	ND (1.00)
	10113	10/24/2000	NR	6.90	ND (0.20)	1.7	6.8	ND (0.20)	0.3 J	**1.3**	NA	NA
	10583	1/9/2001	NR	6.40	ND (0.20)	1.4	5.5	ND (0.20)	ND (0.20)	**1.2**	NA	NA
	10790	4/10/2001	NR	6.28	ND (0.50)	ND (1.4)	7.7	ND (0.50)	ND (0.50)	**1.5**	NA	NA
	11406	7/10/2001	NR	6.47	ND (0.12)	1.3	7.1	ND (0.12)	0.19 J	**1.1**	NA	NA
	12134	11/9/2001	NR	6.42	ND (0.2)	1.6	7.9	ND (0.1)	ND (0.2)	**1.4**	NA	NA
	12715	1/16/2002	NR	5.81	ND (0.2)	1.1	6.6	ND (0.1)	ND (0.2)	**1.2**	NA	NA
	13123	4/19/2002	NR	6.32	ND (0.2)	1	6.4	ND (0.1)	ND (0.2)	**1**	NA	NA
	13927	7/10/2002	NR	6.84	ND (0.2)	1	6.6	ND (0.1)	ND (0.2)	**1.1**	NA	NA

Table A-3 (Continued)
Cumulative Summary of Area 6 Production Well Results

U.S. Navy 2007a

Well No.	Sample	Date	Total Gallons Pumped	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2 -DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
					Parameters							
	Compliance Levels				**5**	**200**	**800**	**70**	**7.0**[a]	**0.1**	**80**	**5**
	14929	11/22/2002	729,360,639	7.15	ND (0.2)	0.94	6.0	ND (0.1)	ND (0.2)	**0.87**	NA	NA
	15318	1/17/2003	744,089,851	7.26	ND (0.055)	1.2	6.6	ND (0.067)	0.31 J	**1.3 J**	NA	NA
	15718	4/24/2003	NA	7.74	ND (0.081)	0.89	5.3	ND (0.067)	0.19 J	**1.1**	NA	NA
	16118	6/26/2003	NA	7.84	ND (0.081)	ND (0.94)	6.3	ND (0.067)	ND (0.50)	**0.97**	NA	NA
	17115	11/13/2003	809,258,512	7.20	ND (0.081)	0.9	4.9	ND (0.067)	0.21 J	**1.4**	NA	NA
	17621	1/23/2004	821,260,961	6.42	ND (0.081)	0.99	5.2	ND (0.067)	0.19 J	**1.2**	NA	NA
	17923	4/9/2004	833,177,790	7.40	ND (0.081)	0.79	5.7	ND (0.067)	0.17 J	**0.88**	NA	NA
	19115	7/20/2004	857,412,204	7.66	ND (0.081)	0.69	4.9	ND (0.067)	ND (0.16)	**0.98**	NA	NA
	19942	11/9/2004	873,933,902	7.41	ND (0.081)	0.70	4.5	ND (0.067)	ND (0.16)	**0.81**	NA	NA
	20422	1/26/2005	891,867,371	7.22	ND (0.081)	0.77	4.9	ND (0.069)	0.18 J	**0.73**	NA	NA
	21027	4/29/2005	908,617,251	7.24	ND (0.21)	0.83	5.1	ND (0.13)	ND (0.24)	**0.70**	NA	NA
	21220	8/1/2005	931,768,116	7.52	ND (0.21)	0.54	4.7	ND (0.13)	ND (0.24)	**0.73**	NA	NA
	GM-05-007	10/28/2005	940,940,888	6.86	ND (0.21)	0.65	3.9	ND (0.13)	ND (0.24)	**0.62**	NA	NA
	GM-06-008	2/7/2006	961,949,977	7.02	ND (0.21)	0.47 J	5.3	ND (0.13)	ND (0.24)	**0.80**	NA	NA
	GM-06-079	5/11/2006	978,529,653	6.84	ND (0.21)	0.56	4.5	ND (0.13)	ND (0.24)	**0.69**	NA	NA
	GM-06-172	8/17/2006	985,555,459	6.75	ND (0.21)	0.46 J	5.4	ND (0.13)	ND (0.24)	**0.78**	NA	NA
	GM-06-407	11/6/2006	985,955,142	6.62	ND (0.21)	0.59	4.9	ND (0.13)	ND (0.24)	**0.79**	NA	NA
	GM-07-108	2/27/2007	997,338,797	6.64	ND (0.21)	0.56	4.4	ND (0.13)	ND (0.24)	**0.64**	NA	NA
	GM-07-208	5/14/007	1,014,883,740	6.76	ND (0.21)	0.51	4.2	ND (0.13)	0.080 J	**0.71**	NA	NA
PW-9	PW9-9-96	9/19/1996	NR	7.37	ND (2.0)	3.7	ND (2.0)	NA	ND (2.0)	ND (2.0)	NA	NA
	PW9-11-96	11/1/1996	226,345	7.61	ND (2.5)	3.7	ND (2.5)	NA	ND (2.5)	ND (2.5)	ND (10)	ND (3)
	PW9-1-97	1/29/1997	1,747,650	6.97	ND (2.5)	2.6	ND (2.5)	NA	ND (2.5)	ND (2.5)	NA	NA
	PW9-5-97	5/1/1997	5,330,864	6.62	ND (2.5)	4.3	ND (2.5)	ND (2.5)	ND (2.5)	**1.0 J**	NA	NA
	PW30-7-97	7/21/1997	NR	6.70	ND (2.0)	4.3	ND (2.5)	ND (2.5)	ND (2.5)	**1.2 J**	NA	NA
	PW9-7-97	7/21/1997	NR	6.70	ND (2.5)	3.9	ND (2.5)	ND (2.5)	ND (2.5)	**1.4 J**	NA	NA
	GW0015	10/27/1997	158,220,000	7.14	ND (0.20)	6.3	ND (0.20)	ND (0.20)	ND (0.20)	**0.81**	ND (10)	ND (3)
	GW0105	1/20/1998	179,645,110	7.06	ND (0.20)	6.6	ND (0.20)	ND (0.20)	0.2	ND (1.0)	NA	NA
	GW0202	7/29/1998	NR	6.60	ND (0.20)	5.6	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0251	10/27/1998	NR	6.80	ND (0.20)	4.5	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	ND (10)	ND (3)
	GW0323	1/27/1999	NR	6.74	ND (0.20)	4	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0375	4/19/1999	NR	NR	ND (0.20)	4.5	ND (0.20)	ND (0.20)	ND (0.20)	**1.5**	NA	NA
	GW0430	7/27/1999	NR	7.70	ND (0.20)	3.5	ND (0.20)	ND (0.20)	ND (0.20)	**2.1**	NA	NA
	GW0476	11/29/1999	NR	7.23	ND (0.20)	3.3	1.2	ND (0.20)	ND (0.20)	**2.1**	ND (10)	ND (3)
	GW0542	1/24/2000	NR	6.72	ND (0.20)	4	0.69 J	ND (0.20)	ND (0.24)	**0.82 J**	NA	NA
	GW0593	4/26/2000	NR	6.55	ND (0.2)	4.3	1.2	ND (0.2)	ND (0.3)	**2.4**	NA	NA
	GW0643	7/26/2000	NR	7.11	ND (0.50)	4.3	1.5	ND (0.50)	**0.2 J**	**1.3**	NA	NA
	GW0644	7/26/2000	NR	7.11	ND (0.50)	4.3	1.3	ND (0.50)	0.2 J	**1.2**	ND (4.00)	ND (1.00)
	10112	10/24/2000	NR	6.8	ND (0.20)	3.6	1.7	ND (0.20)	0.2 J	**1.5**	NA	NA
	10584	1/9/2001	NR	6.38	ND (0.20)	4.1	1.7	ND (0.20)	0.2 J	**1.2**	NA	NA
	10791	4/10/2001	NR	6.25	ND (0.50)	ND (3.1)	2.2	ND (0.50)	ND (0.50)	**1.3**	NA	NA
	11407	7/10/2001	NR	6.49	ND (0.12)	2.6	2.4	ND (0.12)	0.22 J	**1.3**	NA	NA
	12135	11/9/2001	NR	6.44	ND (0.2)	3.4	2.4	ND (0.1)	ND (0.2)	**1**	NA	NA

Table A-3 (Continued)
Cumulative Summary of Area 6 Production Well Results

U.S. Navy 2007a

Well No.	Sample	Date	Total Gallons Pumped	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2 -DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
					Parameters							
	Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	12716	1/16/2002	NR	6.15	ND (0.2)	2.8	2.3	ND (0.1)	0.24 J	**1.1**	NA	NA
	13122	4/19/2002	NR	6.3	ND (0.2)	2.9	2.7	ND (0.1)	0.21 J	**1.1**	NA	NA
	13928	7/10/2002	NR	6.82	ND (0.2)	2.4	2.7	ND (0.1)	0.21 J	**1**	NA	NA
	14930	11/22/2002	729,360,639	7.42	ND (0.2)	2.0	2.9	ND (0.1)	ND (0.2)	**0.83**	NA	NA
	15319	1/17/2003	744,089,851	7.92	ND (0.055)	2.5	3.3	ND (0.067)	0.34 J	**1.2 J**	NA	NA
	15719	4/24/2003	NA	7.77	ND (0.081)	2.4	3.1	ND (0.067)	0.29 J	**1.2**	NA	NA
	16119	6/26/2003	NA	7.87	ND (0.081)	ND (2.1)	3.4	ND (0.067)	ND (0.50)	**0.94**	NA	NA
	17116	11/13/2003	809,258,512	7.57	ND (0.081)	2	3.6	ND (0.067)	0.27 J	**1.2**	NA	NA
	17922	4/9/2004	833,177,790	6.91	ND (0.081)	1.7	4.4	ND (0.067)	0.20 J	**0.85**	NA	NA
	19114	7/20/2004	857,412,204	7.52	ND (0.081)	1.3	4.1	ND (0.067)	0.20 J	**0.89**	NA	NA
	19941	11/9/2004	873,933,902	7.83	ND (0.081)	1.1	4.0	ND (0.067)	0.23 J	**0.79**	NA	NA
	20421	1/26/2005	891,867,371	7.46	ND (0.081)	1.2	4.3	ND (0.069)	0.23 J	**0.94**	NA	NA
	21026	4/29/2005	908,617,251	6.65	ND (0.21)	1.0	5.4	ND (0.13)	ND (0.24)	**0.91**	NA	NA
	21219	8/1/2005	931,768,116	7.41	ND (0.21)	1.0	5.6	ND (0.13)	ND (0.24)	**0.78**	NA	NA
	GM-05-008	11/1/2005	940,940,888	6.98	ND (0.21)	0.93	3.7	ND (0.13)	0.24 J	**0.84**	NA	NA
	GM-06-009	2/7/2006	961,949,977	7.09	ND (0.21)	0.68	6.8	ND (0.13)	ND (0.24)	**0.79**	NA	NA
	GM-06-080	5/11/2006	978,529,653	6.92	ND (0.21)	0.84	5.5	ND (0.13)	ND (0.24)	**0.68**	NA	NA
	GM-06-173	8/17/2006	985,555,459	6.88	ND (0.21)	0.72	7.3	ND (0.13)	ND (0.24)	**0.87**	NA	NA
	GM-06-408	11/6/2006	985,955,142	6.44	ND (0.21)	0.63	6.5	ND (0.13)	ND (0.24)	**0.74**	NA	NA
	GM-07-109	2/27/2007	997,338,797	6.68	ND (0.21)	0.79	5.8	ND (0.13)	ND (0.24)	**0.65**	NA	NA
	GM-07-209	5/14/2007	1,014,883,740	6.95	ND (0.21)	0.76	6.1	ND (0.13)	0.11 J	**0.73**	NA	NA

Notes: (1) Unless otherwise noted, results are reported in micrograms per liter (µg/L).

[a]= Action level increased to 7.0 µg/L as agreed by EPA in 6/6/06 meeting.

NR - No reading. NA - Not analyzed for indicated parameter.

B - Analyte found in associated method blank at a level that is significant relative to the sample result

D - Diluted

J[1] - Sample exceeded holding time, estimated concentration.

J - Estimated value; detected, but below quantitation limit.

C - Estimated value; detected above linear range.

ND ( ) - indicated parameter not detected; detection limit in parenthesis.

Startup and operation samples analyzed by EPA Method 601. 1993 samples analyzed using EPA Method 524.2.

Effluent limitations are shown on this table for comparison to groundwater quality.

Duplicate samples are grouped with the correct Extraction Well No. but have a blind sample name.

Sample ID Definition: PW1-SU-2-95 -- Production well number, startup February 1995.

PW1-OP-12-95 -- Production well number in operation December 1995.

PW1-1-97 -- Production well number in operation January 1997.

Bold indicates exceedence of compliance levels.

Table A-3 (Continued)

Cumulative Summary of Area 6 Production Well Results

U.S. Navy 2007a

Well No.	Sample ID	Sample Date	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
			Parameters								
Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
6-S-2	6S2-SU-2-95	2/11/1995	7.72	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	7	0.8
	6S2-OP-9-95	9/24/1995	7.90	ND (1)	0.50 J	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6S2-OP-12-95	12/6/1995	7.80	0.28 J	1.3	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6S2-OP-3-96	3/26/1996	7.63	ND (1)	2.3	ND (1)	NA	ND (1)	ND (1)	NA	NA
	6S2-OP-8-96	8/27/1993	7.63	ND (1.0)	ND (1.0)	ND (1.0)	NA	ND(1.0)	ND(1.0)	NA	NA
	6S2-10-96	10/29/96	7.43	ND (1.0)	ND (1.0)	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (10)	ND (3)
	6S2-1-97	1/28/1997	7.20	ND (1.0)	0.69J	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	6S2-4-97	4/29/1997	7.04	0.33 J	0.79 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	6S2-7-97	7/22/1997	7.40	ND (1.0)	0.32 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	GW0016	10/14/1997	NA	0.24	0.57	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (10)	ND (3)
	GW0106	1/19/1998	7.50	ND (0.2)	ND (0.5)	ND (0.2)	ND (0.2)	ND (0.2)	ND (1.0)	NA	NA
	GW0152	4/13/1998	7.30	0.56	ND (0.5)	ND (0.2)	ND (0.2)	ND (0.2)	ND (1.0)	NA	NA
	GW0203	7/27/1998	6.90	ND (0.20)	1.2	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0252	10/19/1998	6.50	ND (0.20)	0.97	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0324	1/25/1999	7.01	ND (0.20)	1.5	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0376	4/21/1999	8.40	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0431	7/26/1999	7.50	ND (0.20)	0.55	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.2)	NA	NA
	GW0477	11/19/1999	7.20	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0543	1/25/2000	7.50	ND (0.20)	ND (0.30)	ND (0.20)	ND (0.20)	ND (0.24)	ND (0.20)	NA	NA
	10132	10/26/2000	7.3	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	10586	1/9/2001	7.00	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.20)	ND (0.20)	ND (0.30)	NA	NA
	12109	11/6/2001	6.90	ND (0.2)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	12702	1/14/2002	6.59	ND (0.20)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.20)	NA	NA
	14911	11/19/2002	8.10	ND (0.20)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.20)	NA	NA
	15301	1/13/2003	7.82	ND (0.055)	ND (0.053)	ND (0.048)	ND (0.067)	ND (0.064)	ND (0.045)	NA	NA
	17105	11/11/2003	6.47	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	17602	1/19/2003	6.51	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	17901	4/5/2004	7.87	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	20409	1/18/2005	7.72	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.069)	ND (0.16)	ND (0.12)	NA	NA
	21003	4/25/2005	7.24	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-05-009	10/24/2005	7.22	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-081	5/9/2006	7.31	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-409	11/14/2006	7.25	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-07-210	5/9/2007	7/25	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
6-S-3	6S3-SU-2-95	2/13/1995	7.32	ND (2.5)	2.0 J	ND (2.5)	NA	ND (2.5)	ND (2.5)	ND (10)	ND (5)
	6S3-OP-9-95	9/21/1995	6.90	ND (5)	ND (5)	ND (5)	NA	ND (5)	ND (5)	ND (10)	ND (3)
	6S3-OP-12-95	12/7/1995	6.80	ND (5)	ND (5)	ND (5)	NA	ND (5)	**4.5 J**	ND (10)	ND (3)
	6S3-OP-3-96	3/26/1996	6.98	ND (5)	3.7 J	ND (5)	NA	ND (5)	ND (5)	NA	NA
	6S3-10-96	10/31/96	6.84	2.4	7.2	ND (2.0)	NA	ND (2.0)	ND (2.0)	ND (10)	ND (3)
	6S3-1-97	1/28/1997	7.00	ND (2.0)	2	ND (2.0)	NA	ND (2.0)	ND (2.0)	NA	NA
	6S3-4-97	4/29/1997	6.93	ND (2.5)	1.5 J	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	NA	NA
	6S3-7-97	7/22/1997	7.10	ND (2.5)	1.7 J	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	NA	NA
	GW0017	10/14/1997	7.30	0.27	2.6	ND (0.20)	ND (0.20)	ND (0.20)	**0.79**	ND (10)	ND (3)
	GW0153	4/13/1998	6.90	ND (0.20)	3.2	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0253	10/19/1998	6.10	ND (0.20)	3.9	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0377	4/21/1999	8.10	ND (0.20)	5.6	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0478	11/19/1999	7.00	ND (0.20)	7	ND (0.20)	ND (0.20)	0.26	ND (1.0)	NA	NA
	10131	10/26/2000	6.5	ND (0.20)	13 J	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	12108	11/6/2001	6.41	ND (0.2)	11	0.34 J	ND (0.1)	ND (0.2)	**0.4 J**	NA	NA
	14905	11/18/2002	7.50	ND (0.20)	8.4	0.75	ND (0.10)	0.20 J	**0.43 J**	NA	NA

Table A-4

Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	Parameters								
			pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	17104	11/11/2003	6.68	ND (0.081)	7.3	1	ND (0.067)	0.31 J	**0.6**	NA	NA
	19917	11/3/2004	7.16	ND (0.081)	6.1	1.6	ND (0.067)	0.24 J	**0.45 J**	NA	NA
	20401	1/17/2005	7.23	ND (0.081)	5.9	1.9	ND (0.069)	0.32 J	**0.39 J**	NA	NA
	GM-05-010	10/26/2005	6.67	ND (0.21)	5.8	2.6	ND (0.13)	ND (0.24)	**0.33 J**	NA	NA
	GM-06-010	2/8/2006	6.85	ND (0.21)	4.3	2.9	ND (0.13)	ND (0.24)	**0.36 J**	NA	NA
	GM-06-082	5/8/2006	6.61	ND (0.21)	4.5	2.5	ND (0.13)	0.28 J	**0.40 J**	NA	NA
	GM-06-174	8/15/2006	6.83	ND (0.21)	4.8	3.0	ND (0.13)	ND (0.24)	**0.43 J**	NA	NA
	GM-06-410	11/13/2006	6.76	ND (0.21)	4.2	2.9	ND (0.13)	ND (0.24)	**0.45 J**	NA	NA
	GM-07-110	2/21/2007	6.74	ND (0.21)	3.5	2.7	ND (0.13)	0.37 J	**0.47 J**	NA	NA
	GM-07-211	5/8/2007	6.56	ND (0.21)	4.3	2.9	ND (0.13)	0.21 J	**0.46 J**	NA	NA
6-S-6	6-S-6	9/9/1993	7.39	**470**	**5300**	ND (250)	NA	**460**	ND (250)	12	ND (3)
	6S6-SU-2-95	2/14/1995	7.63	**330**	**1200**	ND (200)	NA	**90 J**	ND (200)	3.5	ND (5)
	6S6-OP-9-95	9/22/1995	7.39	**230**	**1700**	ND (100)	NA	**80 J**	ND (100)	ND (10)	ND (3)
	6S6-OP-12-95	12/7/1995	7.20	**220**	**2000**	ND (100)	NA	**150**	ND (100)	ND (10)	ND (3)
	6S6-OP-3-96	3/27/1996	7.40	**880**	**3000**	ND (100)	NA	**340**	ND (100)	NA	NA
	6S6-10-96	10/30/96	7.33	**690**	**1000**	ND (50)	NA	**110**	ND (50)	ND (10)	ND (3)
	6S6-1-97	1/30/1997	7.10	**800**	**730**	ND (25)	NA	**95**	ND (25)	NA	NA
	6S31-1-97	1/30/1997	7.10	**680**	**690**	ND (20)	NA	**94**	ND (20)	NA	NA
	6S6-2-97	2/3/1997	7.40	**770**	**640**	ND (50)	NA	**97**	ND (50)	NA	NA
	6S32-2-97	2/3/1997	7.40	**800**	**740**	ND (25)	NA	**91**	ND (25)	NA	NA
	6S6-5-97	5/2/1997	7.07	**540**	**290**	ND (25)	**80**	**40**	ND (25)	NA	NA
	6S6-7-97	7/23/1997	7.22	**500**	120	ND (25)	**87**	**31**	ND (25)	NA	NA
	GW0018	10/15/1997	6.90	**400**	130	1.3	77	**24**	ND (0.2)	ND (10)	ND (3)
	GW0019	10/15/1997	6.90	**370**	89	1.3	73	**24**	ND (0.2)	ND (10)	ND (3)
	GW0107	1/20/1998	7.20	**350**	**210**	0.96	**75**	**31**	ND (1.0)	NA	NA
	GW0154	4/14/1998	6.90	**370**	100	1.1	**76**	**22**	ND (1.0)	NA	NA
	GW0204	7/28/1998	6.70	**290**	160	2.7	50	**23**	ND (1.0)	NA	NA
	GW0205	7/28/1998	6.70	**260**	150	3.2	47	**23**	ND (1.0)	NA	NA
	GW0254	10/23/1998	6.40	**340**	57	1.2	47	**15**	ND (1.0)	NA	NA
	GW0255	10/23/1998	6.40	**340**	55	1.2	45	**15**	ND (1.0)	NA	NA
	GW0325	1/26/1999	6.85	**210**	100	ND (0.20)	37	**16**	ND (1.0)	NA	NA
	GW0326	1/26/1999	6.85	**210**	95	1.1	37	**16**	ND (1.0)	NA	NA
	GW0379	4/22/1999	7.70	**210**	54	6.1	37	**14**	ND (5.0)	NA	NA
	GW0379	4/22/1999	7.70	**190**	46	5	32	**12**	ND (1.0)	NA	NA
	GW0432	7/28/1999	8.10	**230**	46	0.83	37	**13**	ND (0.20)	NA	NA
	GW0479	11/24/1999	7.50	**170**	**1200**	3.7	44	**18**	ND (1.0)	NA	NA
	GW0544	1/27/2000	7.00	**300**	**2700**	3	33	**90**	ND (0.20)	NA	NA
	GW0545	1/27/2000	7.00	**300**	**1800**	2.8	33	**86**	ND (0.20)	NA	NA
	GW0596	4/25/2000	6.51	**260**	**2800**	5	32	**200**	ND (0.2)	NA	NA
	GW0597	4/25/2000	6.51	**290**	**2900**	5	33	**220**	ND (0.2)	NA	NA
	GW0645	7/24/2000	7.15	**500 D**	**4100 D**	6.7	36	**550 D**	**0.2 J**	NA	NA
	10123	10/26/2000	7.1	**400**	**3700**	14 J	39 J	**350**	ND (0.30)	NA	NA
	10600	1/11/2001	6.80	**390 D**	**4400 D**	14 J	36 J	**380 D**	ND (0.30)	NA	NA
	10815	4/12/2001	6.73	**350 D**	**3800 D**	10 J	30 D	**340 D**	ND (13.0)	NA	NA
	11417	7/12/2001	6.47	**300 JD**	**4900 D**	7.2 JD	29 JD	**340 JD**	**1.1 UJ**	NA	NA
	12144	11/13/2001	6.57	**360 D**	**4100 D**	6.1	34	**370 D**	ND (0.2)	NA	NA
	12714	1/15/2002	6.39	**290 D**	**3700 D**	5.2 JD	24 D	**310 D**	ND (4.0)	NA	NA
	13116	4/16/2002	6.48	**310 D**	**2800 D**	ND (10)	24 JD	**280 D**	ND (20)	NA	NA
	13937	7/11/2002	6.68	**250 D**	**2800 D**	3.6 JD	24 D	**270 D**	ND (2)	NA	NA
	14940	11/22/2002	7.66	**260**	**2200**	3.7	19	**300**	ND (0.20)	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

U.S. Navy 2007a

Well No.	Sample ID	Sample Date	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
			Parameters								
Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	15315	1/14/2003	8.08	**300 JD**	**3300 JD**	5.0 J	21 J	**470 JD**	**0.26 J**	NA	NA
	15716	4/24/2003	7.85	**260 J**	**4300 J**	4.6 J	21 J	**470 J**	**0.28 J**	NA	NA
	16113	6/26/2003	7.68	**240**	**3900**	4.0	18	**410 J**	**0.15 J**	NA	NA
	17146	11/21/2003	7.46	**250**	**3700**	4.3 J	17 J	**510**	**0.22 J**	NA	NA
	17617	1/23/2004	6.53	**230**	**3400**	3.9 J	16 J	**420**	**0.20 J**	NA	NA
	17920	4/7/2004	7.68	**220**	**3400**	3.3	14	**420**	ND (0.12)	NA	NA
	19113	7/20/2004	7.24	**180 J**	**2500 J**	2.8 J	12 J	**360 J**	**0.13 J**	NA	NA
	19939	11/8/2004	7.87	**170**	**1900**	2.4 J	9.5 J	**340**	**0.14 J**	NA	NA
	20420	1/25/2005	7.65	**160**	**1800**	2.3 J	11 J	**370**	**0.14 J**	NA	NA
	21024	4/27/2005	7.79	**170**	**2200**	3.4 J	11 J	**360**	0.13 UJ	NA	NA
	21216	7/27/2005	7.89	**140**	**710**	2.6	7.9	**240**	ND (0.13)	NA	NA
	GM-05-011	11/10/2005	7.43	**170 D**	**490 D**	5.2	8.9	**210 D**	ND (0.13)	NA	NA
	GM-06-011	2/21/2006	7.64	**160 D**	**830 D**	4.3	7.8	**180 D**	ND (0.13)	NA	NA
	GM-06-083	5/11/2006	7.41	**130 D**	**910 D**	4.6	6.9	**180 D**	ND (0.13)	NA	NA
	GM-06-175	8/17/2006	7.31	**160 D**	**1200 D**	3.6	7.1	**260 D**	ND (0.13)	NA	NA
	GM-06-411	11/16/2006	7.38	**170 D**	**1300 D**	2.3	7.1	**350 D**	ND (0.13)	NA	NA
	GM-07-111	2/23/2007	7.39	**130 D**	**710 D**	2.4	5.7	**260 D**	ND (0.13)	NA	NA
	GM-07-212	5/11/2007	7.45	**130 D**	**510 D**	3	5.7	**220 D**	ND (0.13)	NA	NA
6-S-7	6S7-10-96	10/29/96	6.95	ND (1.0)	ND (1.0)	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (10)	ND (3)
	6S7-2-97	2/3/1997	6.90	1.4	2	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	6S7-4-97	4/30/1997	5.99	ND (1.0)	0.27 J	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	6S7-7-97	7/28/1997	7.15	0.95 J	1.2	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	GW0020	10/17/1997	6.80	1.2	2.8	ND (0.2)	ND (0.2)	ND (0.2)	ND (1.0)	ND (10)	ND (3)
	GW0256	10/19/1998	6.10	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0481	11/22/1999	6.50	ND (0.20)	ND (0.30)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	NA	NA
	10140	10/31/2000	6.8	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	12101	11/5/2001	6.50	ND (0.2)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	17107	11/11/2003	7.15	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	19902	11/1/2004	7.43	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	GM-05-012	10/6/2005	6.65	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-412	11/14/2006	6.64	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
6-S-10	6-S-10	9/11/1993	10.40	ND (5)	21	ND (5)	NA	ND (5)	ND (5)	14	**18**
	6S10-SU-2-95	2/15/1995	8.08	ND (1)	3.7	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (5)
	6S10-OP-9-95	9/22/1995	7.48	ND (1)	5.2	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6S10-OP-12-95	12/9/1995	7.89	1.5	11	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6S10-OP-3-96	3/28/1996	7.40	4.4	20	0.21 J	NA	0.90 J	ND (1)	NA	NA
	6S10-11-96	11/2/1996	7.75	1	2.7	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (10)	ND (3)
	6S10-2-97	2/3/1997	7.60	0.81 J	1.2	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	6S10-5-97	5/1/1997	7.62	ND (1.0)	1.6	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	6S10-7-97	7/28/1997	8.05	ND (1.0)	0.28 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	GW0021	10/28/1997	7.30	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	ND (10)	ND (3)
	GW0155	4/13/1998	7.70	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0257	10/19/1998	6.70	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0380	4/19/1999	7.60	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0482	11/18/1999	7.80	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0598	4/24/2000	7.14	ND (0.2)	ND (0.3)	ND (0.1)	ND (0.2)	ND (0.3)	ND (0.2)	NA	NA
	10121	10/25/2000	7.2	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	10799	4/10/2001	6.64	ND (0.50)	ND (0.66)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	NA	NA
	12103	11/5/2001	6.75	ND (0.2)	0.68	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	13101	4/15/2002	6.15	ND (0.2)	0.46 J	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

U.S. Navy 2007a

Well No.	Sample ID	Sample Date	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
			Parameters								
Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	14906	11/19/2002	7.99	ND (0.20)	0.60	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.20)	NA	NA
	15704	4/21/2003	8.08	ND (0.081)	1.0	ND (0.066)	ND (0.067)	0.34 J	ND (0.12)	NA	NA
	17133	11/18/2003	7.22	ND (0.081)	2.2	0.070 J	ND (0.067)	0.77	ND (0.12)	NA	NA
	17902	4/5/2004	7.99	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	19921	11/4/2004	7.89	ND (0.081)	1.3	ND (0.066)	ND (0.067)	0.44 J	ND (0.12)	NA	NA
	21015	4/27/2005	8.01	ND (0.21)	1.4	ND (0.16)	ND (0.13)	0.42 J	ND (0.13)	NA	NA
	GM-05-013	11/1/2005	8.98	ND (0.21)	7.1	0.33 J	ND (0.13)	2.9	ND (0.13)	NA	NA
	GM-06-085	5/10/2006	9.07	ND (0.21)	6.6	0.53	ND (0.13)	2.0	ND (0.13)	NA	NA
	GM-06-413	11/13/2006	7.56	ND (0.21)	0.92	ND (0.16)	ND (0.13)	0.33 J	ND (0.13)	NA	NA
	GM-07-213	5/9/2007	7.37	ND (0.21)	0.19 J	0.040 J	ND (0.13)	0.080 J	ND (0.13)	NA	NA
6-S-11	6-S-11	9/13/1993	7.29	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	**120**	**32**
	6S11-SU-2-95	2/15/1995	7.24	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (5)
	6S11-OP-9-95	9/26/1995	7.09	ND (1)	1.3	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6S11-OP-12-95	12/9/1995	7.08	1.4	8.5	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6S11-OP-3-96	3/27/1996	7.12	ND (1)	1.8	ND (1)	NA	ND (1)	ND (1)	NA	NA
	6S11-11-96	11/2/96	NR	ND (1.0)	ND (1.0)	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (10)	ND (3)
	6S11-2-97	2/3/1997	6.80	1	1.3	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	6S11-4-97	4/30/1997	6.75	ND (1.0)	7.9	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	6S11-7-97	7/24/1997	7.04	0.98 J	0.27 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	GW0022	10/16/1997	7.09	1.8	2.3	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (10)	ND (3)
	GW0108	1/19/1998	7.40	ND (0.2)	ND (0.5)	ND (0.2)	ND (0.2)	ND (0.2)	ND (1.0)	NA	NA
	GW0156	4/14/1998	7.10	ND (0.2)	ND (0.5)	ND (0.2)	ND (0.2)	ND (0.2)	ND (1.0)	NA	NA
	GW0206	7/27/1998	6.90	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0258	10/23/1998	6.50	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0327	1/25/1999	7.25	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0381	4/20/1999	8.30	ND (0.20)	0.51	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0433	7/26/1999	7.60	ND (0.20)	0.43	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	NA	NA
	GW0483	11/19/1999	6.90	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0546	1/24/2000	7.30	ND (0.20)	ND (0.30)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	NA	NA
	10139	10/31/2000	6.7	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	10585	1/9/2001	6.60	ND (0.20)	ND (0.20)	0.2J	ND (0.20)	ND (0.20)	ND (0.30)	NA	NA
	12107	11/6/2001	6.56	ND (0.2)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	12701	1/14/2002	6.33	ND (0.2)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	14908	11/19/2002	7.70	ND (0.20)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.20)	NA	NA
	15302	1/13/2003	7.41	ND (0.055)	ND (0.053)	ND (0.048)	ND (0.067)	ND (0.064)	ND (0.045)	NA	NA
	17106	11/11/2003	7.19	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	177601	1/19/2004	6.42	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	17904	4/5/2004	7.45	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	19905	11/2/2004	7.37	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	21001	4/25/2005	6.86	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-05-014	11/1/2005	6.83	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-086	5/12/2006	6.81	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-414	11/17/2006	6.78	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-07-214	5/11/2007	6.81	0.20 J	0.21 J	0.030 J	ND (0.13)	0.23 J	ND (0.13)	NA	NA
6-S-12	6S12-OP-12-95	12/8/1995	7.20	1.4	7.2	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6S12-10-96	10/31/96	7.05	1.9	5.2	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (10)	ND (3)
	6S12-1-97	1/28/1997	6.80	1.2	1.9	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	6S12-5-97	5/1/1997	6.74	ND (1.0)	1.5	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	6S12-7-97	7/24/1997	7.00	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	GW0023	10/16/1997	6.70	0.71	1.6	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	ND (10)	ND (3)

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
			Parameters								
Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	GW0259	10/20/1998	6.50	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0484	11/17/1999	7.00	ND (0.20)	**2.7**	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	10141	10/31/2000	6.0	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	12110	11/6/2001	6.52	ND (0.2)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	14909	11/19/2002	7.58	ND (0.20)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.20)	NA	NA
	17112	11/12/2003	7.57	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	19906	11/2/2004	7.31	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	GM-05-015	11/3/2005	6.83	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-415	11/14/2006	7.00	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
6-S-13	6-S-13	9/13/1993	7.44	NA	NA	NA	NA	NA	NA	**120**	**16**
	6S13-SU-2-95	2/13/1995	7.76	ND (25)	**340**	41	NA	ND (25)	ND (25)	ND (10)	ND (5)
	6S13-OP-9-95	9/25/1995	7.84	ND (25)	**660**	310	NA	**25**	ND (25)	ND (10)	ND (5)
	6S13-OP-12-95	12/8/1995	7.40	**12 J**	**370**	580	NA	**36 J**	ND (40)	ND (10)	3.9
	6S13-OP-3-96	3/27/1996	8.00	ND (25)	160	460	NA	**10 J**	ND (25)	NA	NA
	6S13-10-96	10/30/96	7.84	ND (20)	**210**	250	NA	**12 J**	ND (20)	ND (10)	ND (3)
	6S13-1-97	1/18/1997	7.50	ND (20)	**210**	510	NA	ND (20)	ND (20)	NA	NA
	6S13-4-97	4/30/1997	8.04	ND (10)	130	300	ND (10)	**17**	ND (10)	NA	NA
	6S13-7-97	7/28/1997	7.30	ND (10)	65	210	ND (10)	**7.9 J**	ND (10)	NA	NA
	GW0024	10/15/1997	7.44	**5**	68	330	0.66	**9.3**	**0.53**	ND (10)	ND (3)
	GW0157	4/15/1998	7.50	1.8	54	240	ND (0.20)	**14**	ND (1.0)	NA	NA
	GW0207	7/28/1998	7.20	0.25	160	370	ND (0.20)	**8.7**	ND (1.0)	NA	NA
	GW0213	7/28/1998	7.20	0.25	140	360	ND (0.20)	**9.5**	ND (1.0)	NA	NA
	GW0260	10/26/1998	6.80	ND (2.0)	44	190	ND (2.0)	5.7	ND (10)	NA	NA
	GW0261	10/26/1998	6.80	ND (2.0)	51	190	ND (2.0)	5.9	ND (10)	NA	NA
	GW0382	4/22/1999	7.90	ND (2.0)	51	110	ND (2.0)	5.5	ND (1.0)	NA	NA
	GW0434	7/28/1999	7.80	4	36	110	ND (2.0)	5.3	ND (0.20)	NA	NA
	GW0485	11/24/1999	8.10	1.5	100	240	0.63	**10**	ND (1.0)	NA	NA
	GW0486	11/24/1999	8.10	2	160	360	ND (0.20)	**12**	ND (1.0)	NA	NA
	GW0547	1/28/2000	7.50	0.65 J	130	260	ND (0.20)	**33**	ND (0.20)	NA	NA
	GW0600	4/25/2000	6.92	ND (0.2)	44	120	ND (0.2)	7	ND (0.2)	NA	NA
	10127	10/26/2000	7.3	ND (0.20)	93 J	120 J	ND (0.20)	**14 J**	ND (0.30)	NA	NA
	10598	1/11/2001	6.80	ND (2.0)	**210 D**	180 D	ND (2.0)	**33 D**	ND (3.0)	NA	NA
	10809	4/11/2001	6.87	ND (0.50)	64	120 D	ND (0.50)	**13**	ND (0.50)	NA	NA
	12142	11/13/2001	6.65	ND (0.2)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	12712	1/15/2002	6.59	ND (0.2)	41 D	72	ND (0.1)	**12**	ND (0.2)	NA	NA
	13114	4/16/2002	6.69	ND (1)	27 D	69 D	ND (0.5)	**10 D**	ND (1)	NA	NA
	14938	11/22/2002	8.05	ND (0.20)	35	73	ND (0.10)	**18**	ND (0.20)	NA	NA
	15312	1/14/2003	8.29	ND (0.055)	49	81 D	ND (0.067)	**28 J**	**0.25 J**	NA	NA
	15712	4/22/2003	7.96	ND (0.081)	27	79	ND (0.067)	**18**	**0.92**	NA	NA
	17141	11/20/2003	8.19	ND (0.081)	21	45	ND (0.067)	**15**	**0.9**	NA	NA
	17614	1/21/2004	6.67	ND (0.081)	11	33	ND (0.067)	**8.3**	**1.3**	NA	NA
	17916	4/6/2004	7.68	ND (0.081)	17	48	ND (0.067)	**12**	ND (0.12)	NA	NA
	19931	11/5/2004	7.58	ND (0.081)	11	32	ND (0.067)	**8.5**	**0.45 J**	NA	NA
	20417	1/24/2005	7.23	ND (0.081)	5.6	27	ND (0.069)	5.4	**0.75**	NA	NA
	21020	4/27/2005	7.58	ND (0.21)	14	38	ND (0.13)	**11**	ND (0.13)	NA	NA
	GM-05-016	11/3/2005	7.24	ND (0.21)	8.7	29	ND (0.13)	**7.5**	**0.54**	NA	NA
	GM-06-012	2/7/2006	7.37	0.42 J	8.0	47	0.15 J	**7.1**	ND (0.13)	NA	NA
	GM-06-087	5/8/2006	7.16	ND (0.21)	5.2	30	ND (0.13)	4.7	ND (0.13)	NA	NA
	GM-06-177	8/15/2006	7.33	ND (0.21)	3.7	37	ND (0.13)	6.4	ND (0.13)	NA	NA
	GM-06-416	11/9/2006	7.16	ND (0.21)	130 D	140 D	ND (0.13)	110 D	0.32 J	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	Parameters pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	GM-07-113	2/21/2007	7.16	ND (0.21)	59 D	130 D	ND (0.13)	66 D	0.83	NA	NA
	GM-07-215	5/9/2007	6.99	ND (0.21)	22.0	55 D	ND (0.13)	24	0.18 J	NA	NA
6-S-14	6S14-SU-2-95	2/14/1995	7.39	ND (1)	4.8	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (5)
	6S14-OP-9-95	9/24/1995	6.68	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (5)
	6S14-OP-3-96	3/26/1996	6.84	ND (1)	0.64 J	0.72 J	NA	ND (1)	**1.2**	NA	NA
	GW0025	10/15/1997	6.78	4.1	13	1.1	0.37	0.38	**0.5**	ND (10)	ND (3)
	GW0262	10/23/1998	6.50	ND (0.20)	ND (0.50)	1.1	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0383	4/21/1999	7.70	ND (0.20)	ND (0.50)	0.61	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0487	11/18/1999	7.50	ND (0.20)	ND (0.50)	0.48	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	10135	10/27/2000	6.9	ND (0.20)	ND (0.20)	1.7 J	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	12122	11/7/2001	6.64	ND (0.2)	ND (0.1)	0.83	ND (0.1)	ND (0.2)	**0.21 J**	NA	NA
	14918	11/20/2002	7.80	ND (0.20)	0.18 J	1.1	ND (0.10)	ND (0.20)	ND (0.20)	NA	NA
	17124	11/13/2003	8.50	ND (0.081)	ND (0.11)	0.42 J	ND (0.067)	ND (0.16)	**0.13 J**	NA	NA
	19924	11/4/2004	7.45	ND (0.081)	ND (0.11)	0.67	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	GM-05-017	10/27/2005	7.00	ND (0.21)	ND (0.21)	0.73	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-417	11/16/2006	7.31	ND (0.21)	ND (0.21)	0.46 J	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
6-S-15	6S15-SU-2-95	2/14/1995	7.47	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (5)
	6S15-OP-9-95	9/24/1995	7.30	ND (1)	1.7	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6S15-OP-12-95	12/6/1995	6.80	ND (1)	0.75 J	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6S15-7-97	7/25/1997	6.96	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	NA	NA
	GW0026	10/28/1997	6.60	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	ND (10)	ND (3)
	GW0263	10/21/1998	6.50	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
6-S-19	6S19-SU-2-95	2/13/1995	7.10	ND (2)	7.7	ND (2)	NA	ND (2)	**2.5**	ND (10)	ND (5)
	6S19-OP-9-95	9/21/1995	6.77	ND (5)	ND (5)	ND (5)	NA	ND (5)	ND (5)	ND (10)	ND (3)
	6S19-OP-12-95	12/7/1995	6.80	ND (5)	6.7	ND (5)	NA	ND (5)	**4.2 J**	ND (10)	ND (3)
	6S19-OP-3-96	3/29/1996	6.80	**6.6**	42	ND (2)	NA	1.5 J	ND (2)	NA	NA
	6S19-OP-8-96	8/27/1996	6.74	ND (1.0)	3.9	ND(1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	6S19-10-96	10/31/96	7.05	4.7	20	ND (2.0)	NA	0.37 J	ND (2.0)	ND (10)	ND (3)
	6S19-1-97	1/28/1997	6.90	ND (2.0)	7.1	ND (2.0)	NA	ND (2.0)	ND (2.0)	NA	NA
	6S19-4-97	4/29/1997	7.02	ND (2.5)	5.1	ND (2.5)	ND (2.5)	ND (2.5)	**0.99 J**	NA	NA
	6S19-7-97	7/23/1997	6.91	ND (2.5)	3.4	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	NA	NA
	GW0027	10/14/1997	7.20	ND (0.2)	5.4	ND (0.2)	ND (0.2)	1.6	**2**	ND (10)	ND (3)
	GW0109	1/19/1998	7.00	ND (0.2)	8.1	ND (0.2)	ND (0.2)	ND (0.2)	ND (1.0)	NA	NA
	GW0158	4/13/1998	6.70	ND (0.2)	8.4	ND (0.2)	ND (0.2)	ND (0.2)	**1.4**	NA	NA
	GW0208	7/27/1998	6.60	ND (0.20)	8.7	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0264	10/22/1998	6.30	ND (0.20)	9.1	ND (0.20)	ND (0.20)	ND (0.20)	**1.3**	NA	NA
	GW0265	10/22/1998	6.30	ND (0.20)	9.3	ND (0.20)	ND (0.20)	ND (0.20)	**1.3**	NA	NA
	GW0328	1/25/1999	6.69	ND (0.20)	7.7	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0329	1/25/1999	6.69	ND (0.20)	7.5	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0385	4/21/1999	8.10	ND (0.20)	7.1	ND (0.20)	ND (0.20)	ND (0.20)	**1.9**	NA	NA
	GW0385	4/21/1999	8.10	ND (0.20)	6.9	ND (0.20)	ND (0.20)	ND (0.20)	**1.8**	NA	NA
	GW0435	7/26/1999	7.50	ND (0.20)	7.9	ND (0.20)	ND (0.20)	ND (0.20)	**3.2**	NA	NA
	GW0436	7/26/1999	7.50	ND (0.20)	7.3	ND (0.20)	ND (0.20)	ND (0.20)	**3.2**	NA	NA
	GW0488	11/19/1999	7.10	ND (0.20)	6.5	ND (0.20)	ND (0.20)	ND (0.20)	**3.6**	NA	NA
	GW0548	1/25/2000	6.90	ND (0.20)	7.9	0.22 J	ND (0.20)	ND (0.24)	**1.6**	NA	NA
	GW0549	1/25/2000	6.90	ND (0.20)	7	ND (0.20)	ND (0.20)	ND (0.24)	**1.5**	NA	NA
	GW0602	4/24/2000	6.80	ND (0.2)	8.5	0.4 J	ND (0.2)	ND (0.3)	**3.3**	NA	NA
	GW0603	4/24/2000	6.80	ND (0.2)	8.5	0.4 J	ND (0.2)	ND (0.3)	**3.3**	NA	NA
	GW0646	7/24/2000	5.65	ND (0.50)	8.2	0.5 J	ND (0.50)	0.3 J	**2.9**	NA	NA
	10130	10/26/2000	6.6	ND (0.20)	6.9 J	0.5 J	ND (0.20)	0.3 J	**3 J**	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	Parameters								
			pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
Compliance Levels				**5**	**200**	**800**	**70**	**7.0**[a]	**0.1**	**80**	**5**
	10587	1/10/2001	6.10	ND (0.20)	9	0.52	ND (0.20)	0.3 J	**2.5**	NA	NA
	10806	4/11/2001	6.08	ND (0.50)	ND (6.1)	0.57	ND (0.50)	0.3 J	**3.3**	NA	NA
	11411	7/11/2001	6.45	ND (0.12)	5.5	0.58	ND (0.12)	0.29 J	**3.2**	NA	NA
	12119	11/7/2001	6.46	ND (0.2)	6.4	0.74	ND (0.1)	0.31 J	**3.1**	NA	NA
	12707	1/15/2002	6.10	ND (0.2)	10	1.3	ND (0.1)	0.39 J	**3**	NA	NA
	13103	4/15/2002	6.12	ND (0.2)	5.7	0.64	ND (0.1)	0.34 J	**3**	NA	NA
	13929	7/10/2002	6.45	ND (0.2)	6.7	1.1	ND (0.1)	0.41 J	**2.7**	NA	NA
	14913	11/19/2002	7.31	ND (0.20)	6.2	1.1	ND (0.10)	0.39 J	**2.3**	NA	NA
	15304	1/13/2003	7.79	ND (0.055)	5.7	0.66	ND (0.067)	ND (0.50)	**3.2**	NA	NA
	15703	4/21/2003	7.36	ND (0.081)	7.1	0.96	ND (0.067)	0.58	**2.8**	NA	NA
	16104	6/24/2003	7.25	ND (0.081)	6.4	0.99	ND (0.067)	ND (0.50)	**2.3**	NA	NA
	17128	11/17/2003	7.71	ND (0.081)	7	1.3	ND (0.067)	0.72	**3**	NA	NA
	17604	1/19/2004	6.33	ND (0.081)	5.6	1.2	ND (0.067)	0.5	**2.3**	NA	NA
	17906	4/5/2004	7.30	ND (0.081)	6.1	1.7	ND (0.067)	0.86	**2.6**	NA	NA
	19102	7/19/2004	6.98	ND (0.081)	6.0	1.9	ND (0.067)	0.53	**2.6**	NA	NA
	19911	11/2/2004	7.14	ND (0.081)	5.2	1.9	ND (0.067)	0.53	**2.1**	NA	NA
	20402	1/17/2005	7.38	ND (0.081)	4.8	2.1	ND (0.069)	0.51	**1.7**	NA	NA
	21014	4/26/2005	6.77	ND (0.21)	5.9	2.7	ND (0.13)	0.57	**2.3**	NA	NA
	21203	7/26/2005	7.22	ND (0.21)	4.2	2.2	ND (0.13)	0.44 J	**2.4**	NA	NA
	GM-05-018	10/27/2005	6.77	ND (0.21)	3.3	1.0	ND (0.13)	0.38 J	**1.9**	NA	NA
	GM-06-014	2/8/2006	6.97	ND (0.21)	2.7	3.0	ND (0.13)	0.38 J	**2.2**	NA	NA
	GM-06-088	5/8/2006	6.75	ND (0.21)	3.1	2.2	ND (0.13)	0.40 J	**1.9**	NA	NA
	GM-06-178	8/15/2006	6.86	ND (0.21)	2.3	1.5	ND (0.13)	0.32 J	**1.8**	NA	NA
	GM-06-418	11/7/2006	6.94	ND (0.21)	2.1	3.5	ND (0.13)	0.40 J	**1.5**	NA	NA
	GM-07-114	2/21/2007	6.76	ND (0.21)	2.2	1.9	ND (0.13)	0.39 J	**1.7**	NA	NA
	GM-07-216	5/7/2007	6.84	ND (0.21)	2.5	4.2	ND (0.13)	0.43 J	**1.4**	NA	NA
6-S-21	6S21-SU-2-95	2/13/1995	7.62	ND (50)	**810**	ND (50)	NA	**29 J**	ND (50)	ND (10)	0.8
	6S21-OP-9-95	9/21/1995	8.13	ND (50)	**920**	ND (50)	NA	**32 J**	ND (50)	ND (10)	ND (3)
	6S21-OP-12-95	12/10/95	7.14	ND (25)	**360**	ND (25)	NA	**17 J**	ND (25)	ND (10)	ND (3)
	6S21-OP-3-96	3/27/1996	7.55	ND (10)	**350**	ND (10)	NA	**11**	ND (10)	NA	NA
	6S21-OP-8-96	8/27/1996	7.01	2.8 J	**260**	ND(10)	NA	**16**	ND(10)	NA	NA
	6S21-10-96	10/30/96	7.25	ND (10)	**240**	ND (10)	NA	**7.9 J**	ND (10)	ND (10)	ND (3)
	6S21-1-97	1/31/1997	7.20	ND (10)	**360**	ND (10)	NA	**12**	ND (10)	NA	NA
	6S21-2-97	2/3/1997	7.10	ND (10)	**340**	ND (10)	NA	**10**	ND (10)	NA	NA
	6S30-1-97	1/30/1997	7.10	ND (10)	160	ND (10)	NA	**8.7 J**	ND (10)	NA	NA
	6S21-5-97	5/2/1997	6.80	ND (10)	**290**	ND (10)	ND (10)	**14**	ND (10)	NA	NA
	6S21-7-97	7/23/1997	7.30	ND (10)	**240**	ND (10)	ND (10)	**15**	ND (10)	NA	NA
	GW0028	10/14/1997	7.50	0.26	**310**	0.64	ND (0.2)	**20**	ND (0.2)	ND (10)	ND (3)
	GW0029	10/14/1997	7.50	0.28	**330**	0.64	ND (0.2)	**20**	ND (0.2)	ND (10)	ND (3)
	GW0110	1/20/1998	7.30	ND (0.2)	**360**	ND (0.2)	ND (0.2)	**21**	ND (1.0)	NA	NA
	GW0111	1/20/1998	7.30	ND (0.2)	**340**	ND (0.2)	ND (0.2)	**20**	ND (1.0)	NA	NA
	GW0159	4/14/1998	7.10	ND (0.2)	**380**	ND (0.2)	ND (0.2)	**18**	ND (1.0)	NA	NA
	GW0209	7/29/1998	6.90	2.1	**300**	0.25	ND (0.20)	**17**	ND (1.0)	NA	NA
	GW0266	10/26/1998	6.70	ND (0.20)	**310**	ND (0.20)	ND (0.20)	**11**	ND (1.0)	NA	NA
	GW0330	1/25/1999	7.25	ND (0.20)	82	ND (0.20)	ND (0.20)	**7.5**	ND (1.0)	NA	NA
	GW0386	4/22/1999	8.10	ND (0.20)	120	ND (0.20)	ND (0.20)	**11**	ND (1.0)	NA	NA
	GW0437	7/28/1999	8.00	ND (0.20)	110	ND (0.20)	ND (0.20)	**9.9**	ND (0.20)	NA	NA
	GW0490	11/24/1999	7.50	ND (0.20)	87	ND (0.20)	ND (0.20)	**8**	ND (1.0)	NA	NA
	GW0550	1/27/2000	7.20	4.9	110	ND (0.20)	0.28 J	**9.2**	ND (0.20)	NA	NA
	GW0604	4/28/2000	6.50	ND (0.2)	84	ND (0.1)	ND (0.2)	**9.7**	ND (0.2)	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
				Parameters							
Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	GW0647	7/25/2000	6.97	ND (0.50)	92 D	ND (0.50)	ND (0.50)	**7.3**	ND (0.50)	NA	NA
	10115	10/25/2000	6.6	ND (0.20)	0.4 J	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	10596	1/11/2001	6.30	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.20)	ND (0.20)	ND (0.30)	NA	NA
	10812	4/12/2001	6.34	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	NA	NA
	11415	7/11/2001	6.58	ND (0.12)	2.8	ND (0.091 U)	ND (0.12)	0.64	ND (0.22)	NA	NA
	12117	11/7/2001	6.54	ND (0.2)	0.39 J	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.1)	NA	NA
	12703	1/14/2002	6.25	ND (0.2)	2.1	ND (0.1)	ND (0.1)	0.31 J	ND (0.2)	NA	NA
	13105	4/15/2002	6.09	ND (0.2)	1.2	ND (0.1)	ND (0.1)	0.65	ND (0.2)	NA	NA
	13931	7/10/2002	6.51	ND (0.2)	5.4	ND (0.1)	ND (0.1)	1.5	ND (0.2)	NA	NA
	14920	11/21/2002	7.32	ND (0.20)	5.6	ND (0.10)	ND (0.10)	0.50	ND (0.20)	NA	NA
	15305	1/13/2003	8.03	ND (0.055)	6.6	ND (0.048)	ND (0.067)	ND (0.63)	ND (0.045)	NA	NA
	15701	4/21/2003	7.55	ND (0.081)	5.3	ND (0.066)	ND (0.067)	0.38 J	ND (0.12)	NA	NA
	16102	6/24/2003	7.45	ND (0.081)	ND (6.5)	ND (0.066)	ND (0.067)	ND (0.50)	ND (0.12)	NA	NA
	17130	11/18/2003	8.38	ND (0.081)	5.7	ND (0.066)	ND (0.067)	0.48 J	ND (0.12)	NA	NA
	17606	1/21/2004	6.67	ND (0.081)	5.2	ND (0.066)	ND (0.067)	0.52	ND (0.12)	NA	NA
	17907	4/5/2004	7.24	ND (0.081)	3.9	ND (0.066)	ND (0.067)	ND (0.12)	ND (0.12)	NA	NA
	19103	7/19/2004	7.23	ND (0.081)	3.4	ND (0.066)	ND (0.067)	0.31 J	ND (0.12)	NA	NA
	19904	11/1/2004	7.58	ND (0.081)	7.5	ND (0.066)	ND (0.067)	0.85	ND (0.12)	NA	NA
	20404	1/17/2005	7.53	ND (0.081)	3.9	ND (0.066)	ND (0.069)	0.72	ND (0.12)	NA	NA
	21005	4/25/2005	7.15	ND (0.21)	5.3 J	ND (0.16)	ND (0.13)	0.44 J	ND (0.13)	NA	NA
	21201	7/26/2005	7.37	ND (0.21)	5.4	ND (0.16)	ND (0.13)	0.37 J	ND (0.13)	NA	NA
	GM-05-019	10/31/2005	6.97	ND (0.21)	0.71	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-015	2/6/2006	7.14	ND (0.21)	4.2	ND (0.16)	ND (0.13)	0.28 J	ND (0.13)	NA	NA
	GM-06-089	5/9/2006	6.98	ND (0.21)	5.5	ND (0.16)	ND (0.13)	0.39 J	ND (0.13)	NA	NA
	GM-06-179	8/15/2006	7.34	ND (0.21)	1.7	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-419	11/9/2006	7.05	ND (0.21)	30	ND (0.16)	ND (0.13)	2.4	ND (0.13)	NA	NA
	GM-07-115	2/20/2007	7.05	ND (0.21)	13	ND (0.16)	ND (0.13)	1.7	ND (0.13)	NA	NA
	GM-07-217	5/1/7507	7.02	ND (0.21)	5.4	ND (0.16)	ND (0.13)	0.84	ND (0.13)	NA	NA
6-S-22	6S22-SU-2-95	2/14/1995	7.94	**5.8**	14	ND (1)	NA	1.3	ND (1)	ND (10)	ND (5)
	6S22-OP-9-95	9/25/1995	8.12	ND (1)	8.7	0.53 J	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6S30-OP-9-95	9/25/1995	8.12	ND (1)	9.1	0.57 J	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6S22-OP-12-95	12/11/1995	7.66	0.93 J	5.2	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6S22-OP-3-96	3/28/1996	7.60	1.7	ND (1)	0.56 J	NA	ND (1)	ND (1)	NA	NA
	6S22-11-96	11/5/1996	6.89	ND (1.0)	0.91 J	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (10)	ND (3)
	6S40-11-96	11/5/1996	6.89	ND (1.0)	0.73 J	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (10)	ND (3)
	6S22-1-97	1/30/1997	7.00	3.6	1.6	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	6S22-5-97	5/3/1997	6.45	**5.1**	1.7	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	6S22-7-97	7/25/1997	6.80	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	GW0030	10/16/1997	6.63	0.44	0.87	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	ND (10)	ND (3)
	GW0267	10/21/1998	6.70	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0491	11/18/1999	7.50	ND (0.20)	1.2	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	10119	10/25/2000	6.9	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	12104	11/5/2001	6.52	ND (0.2)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	14903	11/18/2002	7.59	ND (0.20)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.20)	NA	NA
	17103	11/11/2003	6.50	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	19908	11/2/2004	7.32	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	GM-05-020	10/31/2005	6.95	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-420	11/13/2006	7.06	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
6-S-23	6-S-23	9/10/1993	7.51	ND (1)	4.4	5.8	NA	ND (1)	**2.4**	**51**	17
	6S23-SU-2-95	2/14/1995	7.15	ND (1)	3.6	1.1	NA	ND (1)	**0.47 J**	ND (10)	ND (5)

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
				Parameters							
Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	6S23-OP-9-95	9/24/1995	6.60	**5.8**	32	3.4	NA	2.2 J	**2.6**	ND (10)	ND (3)
	6S23-OP-3-96	3/26/1996	6.65	ND (1)	2.6	4.6	NA	ND (1)	**1.7**	NA	NA
	GW0031	10/15/1997	6.57	**7.7**	38	4.2	0.77	1	**0.42**	ND (10)	ND (3)
	GW0161	4/14/1998	6.60	ND (0.20)	ND (0.50)	6.7	ND (0.20)	ND (0.20)	**1.1**	NA	NA
	GW0268	10/23/1998	6.00	ND (0.20)	1.8	5.3	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0387	4/21/1999	7.60	ND (0.20)	0.83	3.4	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0492	11/22/1999	6.90	ND (0.20)	0.78	2.6	0.48	ND (0.20)	ND (1.0)	NA	NA
	10134	10/27/2000	6.6	ND (0.20)	0.63 J	4.3 J	0.4 J	ND (0.10)	**0.54 J**	NA	NA
	12121	11/7/2001	6.15	ND (0.2)	2.2	5.3	ND (0.1)	ND (0.2)	**1.9**	NA	NA
	14917	11/20/2002	7.07	ND (0.20)	0.88	3.6	0.38 J	ND (0.20)	**0.49 J**	NA	NA
	17139	11/20/2003	6.81	ND (0.081)	1.1	3.2	0.27 J	0.17 J	**0.78**	NA	NA
	19923	11/4/2004	6.85	ND (0.081)	1.0	2.8	0.19 J	ND (0.16)	**0.82**	NA	NA
	GM-05-021	10/27/2005	6.39	ND (0.21)	0.96	2.0	0.14 J	0.26 J	**0.71**	NA	NA
	GM-06-421	11/9/2006	6.43	ND (0.21)	0.78	2.9	ND (0.13)	ND (0.24)	**0.51**	NA	NA
6-S-24	6-S-24	9/13/1993	7.71	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	**92**	**9.5**
	6S24-SU-2-95	2/15/1995	8.05	3.3 J	76	ND (5)	NA	**8.2**	ND (5)	**7.7**	ND (5)
	6S24-OP-9-95	9/26/1995	8.05	2	64	ND (2)	NA	ND (2)	ND (2)	ND (10)	ND (3)
	6S24-OP-12-95	12/8/1995	7.40	**21**	100	ND (5)	NA	6.4	ND (5)	ND (10)	ND (3)
	6S24-OP-3-96	3/29/1996	7.90	**5.1**	34	0.80 J	NA	0.66 J	ND (1)	NA	NA
	6S24-OP-8-96	8/17/1996	8.20	ND (4.0)	67	ND (4.0)	NA	0.88 J	ND (4.0)	NA	NA
	6S24-10-96	10/30/96	7.84	1.6 J	120	ND (5.0)	NA	ND (5.0)	ND (5.0)	ND (10)	ND (3)
	6S24-1-97	1/28/1997	7.50	1.3 J	140	ND (5.0)	NA	ND (5.0)	ND (5.0)	NA	NA
	6S24-5-97	5/1/1997	7.58	ND (10)	**270**	ND (10)	ND (10)	ND (10)	ND (10)	NA	NA
	6S24-7-97	7/24/1997	7.73	ND (10)	**260**	ND (10)	ND (10)	ND (10)	ND (10)	NA	NA
	GW0032	10/16/1997	7.61	1.6	**230**	ND (0.2)	ND (0.2)	**22**	ND (0.2)	ND (10)	ND (3)
	GW0112	1/20/1998	8.00	ND (0.2)	98	ND (0.2)	ND (0.2)	0.44	ND (1.0)	NA	NA
	GW0162	4/15/1998	7.60	**5.9**	29	ND (0.2)	0.55	0.87	ND (1.0)	NA	NA
	GW0210	7/28/1998	7.30	1.1	26	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0210	10/26/1998	6.70	3.4	17	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0331	1/26/1999	7.45	ND (0.20)	11	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0388	4/22/1999	7.90	0.31	9.7	ND (0.20)	ND (0.20)	0.3	ND (1.0)	NA	NA
	GW0438	7/26/1999	7.70	ND (0.20)	6.9	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	NA	NA
	GW0478	11/19/1999	7.90	ND (0.20)	5.5	ND (0.20)	ND (0.20)	0.22	ND (1.0)	NA	NA
	GW0551	1/26/2000	7.60	ND (0.20)	5.6	ND (0.20)	ND (0.20)	ND (0.24)	ND (0.20)	NA	NA
	GW0606	4/24/2000	7.26	ND (0.2)	5.7	ND (0.1)	ND (0.2)	ND (0.3)	ND (0.2)	NA	NA
	GW0648	7/25/2000	7.77	ND (0.50)	4.2	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	NA	NA
	10142	10/31/2000	7.5	ND (0.20)	3.8 J	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	10591	1/10/2001	7.00	ND (0.20)	3.3	ND (0.10)	ND (0.20)	ND (0.20)	ND (0.30)	NA	NA
	10805	4/11/2001	6.30	ND (0.50)	ND (3.0)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	NA	NA
	11409	7/11/2001	7.05	ND (0.12)	3.4	ND (0.091)	ND (0.12)	ND (0.12)	ND (0.12)	NA	NA
	12112	11/6/2001	7.11	ND (0.2)	4.5	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	12705	1/14/2002	6.89	ND (0.2)	4.2	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	13104	4/15/2002	6.8	ND (0.2)	4	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	13933	7/10/2002	7.01	ND (0.2)	3.8	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	14910	11/19/2002	8.47	ND (0.20)	3.8	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.20)	NA	NA
	15308	1/14/2003	8.52	ND (0.055)	4.7	ND (0.048)	ND (0.067)	ND (0.5)	ND (0.045)	NA	NA
	15705	4/21/2003	8.38	ND (0.081)	5.5	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	16105	6/24/2003	8.24	ND (0.081)	ND (6.0)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	17113	11/12/2003	7.26	ND (0.081)	11	ND (0.066)	ND (0.067)	0.31 J	ND (0.12)	NA	NA
	17610	1/21/2004	7.00	ND (0.081)	16	ND (0.066)	ND (0.067)	0.29 J	ND (0.12)	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
			Parameters								
Compliance Levels				**5**	**200**	**800**	**70**	**7.0**[a]	**0.1**	**80**	**5**
	17908	4/6/2004	8.29	ND (0.081)	14	ND (0.066)	ND (0.067)	0.17 J	ND (0.12)	NA	NA
	19109	7/20/2004	7.69	ND (0.081)	33	ND (0.066)	ND (0.067)	0.79	ND (0.12)	NA	NA
	19907	11/2/2004	8.18	ND (0.081)	39	ND (0.066)	ND (0.067)	1.2	ND (0.12)	NA	NA
	20412	1/24/2005	7.65	ND (0.081)	ND (52)	ND (0.066)	ND (0.069)	1.1	ND (0.12)	NA	NA
	21012	4/26/2005	7.67	ND (0.21)	87	ND (0.16)	ND (0.13)	0.27 J	ND (0.13)	NA	NA
	21214	7/27/2005	8.1	ND (0.21)	100	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-05-022	11/7/2005	7.65	ND (0.21)	140 D	ND (0.16)	ND (0.13)	**10**	ND (0.13)	NA	NA
	GM-06-017	2/10/2006	7.76	ND (0.21)	130 D	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-091	5/12/2006	7.67	ND (0.21)	130 D	ND (0.16)	ND (0.13)	0.35 J	ND (0.13)	NA	NA
	GM-06-181	8/18/2006	7.51	ND (0.21)	160 D	ND (0.16)	ND (0.13)	0.37	ND (0.13)	NA	NA
	GM-06-423	11/14/2006	7.68	ND (0.21)	150 D	ND (0.16)	ND (0.13)	0.43 J	ND (0.13)	NA	NA
	GM-07-116	2/26/2007	7.64	ND (0.21)	140 D	ND (0.16)	ND (0.13)	4.4	ND (0.13)	NA	NA
	GM-07-218	5/11/2007	7.68	0.90 J	160 D	ND (0.16)	ND (0.13)	0.12 J	ND (0.13)	NA	NA
6-S-25	6-S-25	9/9/1993	6.78	ND (200)	**3200**	ND (200)	NA	ND (200)	ND (200)	**740**	**12**
	6S25-SU-2-95	2/13/1995	7.96	ND (100)	**2500**	ND (100)	NA	**26 J**	ND (100)	3.5	ND (5)
	6S25-OP-9-95	9/25/1995	8.35	ND (100)	**2400**	ND (100)	NA	ND (100)	ND (100)	ND (10)	ND (3)
	6S25-OP-12-95	12/8/1995	7.40	**19 J**	**1600**	ND (50)	NA	**56**	ND (50)	ND (10)	ND (3)
	6S25-OP-3-96	3/27/1996	9.00	ND (100)	**1400**	ND (100)	NA	ND (100)	ND (100)	NA	NA
	6S25-OP-8-96	8/17/1996	8.20	ND (200)	**3100**	ND (200)	NA	**67 J**	ND (200)	NA	NA
	MW20-OP-8-96	8/17/1996	8.20	ND (200)	**3200**	ND (200)	NA	ND (200)	ND (200)	NA	NA
	6S25-10-96	10/30/96	7.97	ND (200)	**2300**	ND (200)	NA	ND (200)	ND (200)	ND (10)	1.1 B
	6S25-1-97	1/28/1997	7.80	ND (200)	**3500**	ND (200)	NA	ND (200)	ND (200)	NA	NA
	6S25-4-97	4/30/1997	8.24	ND (100)	**2700**	ND (100)	ND (100)	ND (100)	ND (100)	NA	NA
	6S25-7-97	7/28/1997	7.79	ND (100)	**3300**	ND (100)	ND (100)	ND (100)	ND (100)	NA	NA
	GW0033	10/15/1997	NA	**15**	**2200**	3.7	1.6	**25**	ND (0.2)	ND (10)	ND (3)
	GW0113	1/20/1998	8.00	1.1	**4300**	2.1	ND (0.2)	**54**	ND (1.0)	NA	NA
	GW0163	4/15/1998	7.70	3.3	**810**	7.9	ND (0.2)	**35**	ND (1.0)	NA	NA
	GW0211	7/28/1998	7.40	0.51	**5100**	6.7	ND (0.20)	**67**	ND (1.0)	NA	NA
	GW0270	10/26/1998	7.10	2.1	**3600**	4.3	ND (0.20)	**50**	ND (1.0)	NA	NA
	GW0271	10/26/1998	7.10	2.3	**3800**	4.8	ND (0.20)	**50**	ND (1.0)	NA	NA
	GW0332	1/26/1999	7.74	**17**	**2900**	1.1	2.3	**37**	ND (1.0)	NA	NA
	GW0389	4/23/1999	8.10	**10**	**1800**	1.1	1.6	**57**	ND (1.0)	NA	NA
	GW0439	7/28/1999	7.90	2.8	**2200**	2	ND (0.20)	**49**	ND (0.20)	NA	NA
	GW0494	11/24/1999	8.10	2.3	**3200**	4.5	0.38	**110**	ND (1.0)	NA	NA
	GW0552	1/28/2000	7.90	0.84 J	**3500**	4.6	ND (0.20)	**92**	ND (0.20)	NA	NA
	GW0607	4/25/2000	7.32	ND (0.2)	**1800**	1	ND (0.2)	**59**	ND (0.2)	NA	NA
	GW0649	7/24/2000	7.69	ND (0.50)	**1400 D**	0.4 J	ND (0.50)	**130 D**	ND (0.50)	NA	NA
	GW0650	7/24/2000	7.69	ND (0.50)	**1500 D**	0.4 J	ND (0.50)	**44E**	ND (0.50)	NA	NA
	10128	10/26/2000	7.6	ND (0.20)	**1100 J**	0.5 J	ND (0.20)	**44 J**	ND (0.30)	NA	NA
	10599	1/11/2001	7.20	ND (2.00)	**860 D**	ND (1.00)	ND (2.00)	**24 D**	ND (3.00)	NA	NA
	10814	4/12/2001	7.17	ND (2.5)	**690 D**	ND (2.5)	ND (2.5)	**29 D**	ND (2.5)	NA	NA
	11418	7/12/2001	7.12	ND (0.12)	**650 D**	0.28 J	ND (0.12)	**31**	ND (0.22)	NA	NA
	12143	11/13/2001	7.09	ND (0.2)	**510 D**	0.23 J	ND (0.1)	**43**	ND (0.2)	NA	NA
	12713	1/15/2002	6.90	ND (0.2)	**310 D**	0.2 J	ND (0.1)	**27**	ND (0.2)	NA	NA
	13115	4/16/2002	7.02	ND (2)	**330 D**	ND (1)	ND (1)	**34 D**	ND (2)	NA	NA
	13938	7/11/2002	7.31	ND (0.2)	**310 D**	0.15 J	ND (0.1)	**28**	ND (0.2)	NA	NA
	14941	11/22/2002	8.43	0.25 J	**220**	0.16 J	ND (0.10)	**30**	ND (0.20)	NA	NA
	15313	1/14/2003	8.80	ND (0.055)	**340 JD**	0.25 J	ND (0.067)	**43 J**	ND (0.045)	NA	NA
	15715	4/23/2003	8.54	0.10 J	**350**	0.23 J	ND (0.067)	**47**	ND (0.12)	NA	NA
	16112	6/25/2003	8.52	ND (0.081)	160	0.10 J	ND (0.067)	**26**	ND (0.12)	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	Parameters								
			pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
Compliance Levels				**5**	**200**	**800**	**70**	**7.0**[a]	**0.1**	**80**	**5**
	17142	11/20/2003	8.13	ND (0.081)	100	0.090 J	ND (0.067)	**22**	ND (0.12)	NA	NA
	17615	1/21/2004	6.93	ND (0.081)	100	0.090 J	ND (0.067)	**24**	ND (0.12)	NA	NA
	17917	4/6/2004	8.29	ND (0.081)	88	0.10 J	ND (0.067)	**20**	ND (0.12)	NA	NA
	19112	7/20/2004	7.75	ND (0.081)	65	ND (0.066)	ND (0.067)	**14**	ND (0.12)	NA	NA
	19937	11/8/2004	8.38	ND (0.081)	66	0.070 J	ND (0.067)	**17**	ND (0.12)	NA	NA
	20418	1/24/2005	7.81	ND (0.081)	110	0.11 J	ND (0.069)	**28**	ND (0.12)	NA	NA
	21021	4/27/2005	8.26	ND (0.21)	120	ND (0.16)	ND (0.13)	**24**	ND (0.13)	NA	NA
	21215	7/27/2005	8.12	ND (0.21)	130	ND (0.16)	ND (0.13)	**22**	ND (0.13)	NA	NA
	GM-05-023	11/7/2005	7.63	0.23 J	**220 D**	ND (0.16)	ND (0.13)	**43**	ND (0.13)	NA	NA
	GM-06-018	2/9/2006	7.71	0.65	130 D	ND (0.16)	ND (0.13)	**22**	ND (0.13)	NA	NA
	GM-06-092	5/11/2006	7.61	ND (0.21)	78 D	ND (0.16)	ND (0.13)	**18**	ND (0.13)	NA	NA
	GM-06-182	8/17/2006	7.5	ND (0.21)	**480 D**	0.19 J	ND (0.13)	**39**	ND (0.13)	NA	NA
	GM-06-424	11/17/2006	7.56	ND (0.21)	**510 D**	0.32 J	ND (0.13)	**55**	ND (0.13)	NA	NA
	GM-07-117	2/23/2007	7.53	ND (0.21)	**240 D**	ND (0.16)	ND (0.13)	**30**	ND (0.13)	NA	NA
	GM-07-220	5/10/2007	7.66	0.070 J	**220 D**	0.060 J	ND (0.13)	**24**	ND (0.13)	NA	NA
6-S-26	6S26-11-96	11/3/1996	7.28	ND (1.0)	0.48 J	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (10)	ND (3)
	6S26-2-97	2/3/1997	7.40	0.28 J	0.46 J	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	6S26-5-97	5/1/1997	7.41	ND (1.0)	0.69 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	6S26-7-97	7/28/1997	7.76	2	1	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	GW0034	10/17/1997	7.35	0.87	1.4	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	ND (10)	ND (3)
	GW0272	10/19/1998	6.30	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0496	11/18/1999	7.70	ND (0.20)	1.7	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	10133	10/26/2000	7.3	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	12102	11/5/2001	7.02	ND (0.2)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	14907	11/19/2002	8.28	ND (0.20)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.20)	NA	NA
	16101	6/24/2003	8.13	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	17108	11/11/2003	7.70	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	19901	11/1/2004	8.23	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	GM-05-024	11/3/2005	7.57	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-425	11/16/2006	7.53	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
6-S-27	6S27-9-96	9/16/1996	8.26	ND (10)	140	ND (10)	NA	4.7 J	ND (10)	NA	NA
	6S27-10-96	10/31/96	8.01	ND (5.0)	73	ND (5.0)	NA	3.2 J	ND (5.0)	ND (10)	ND (3)
	6S27-1-97	1/28/1997	7.80	ND (5.0)	42	ND (5.0)	NA	ND (5.0)	ND (5.0)	NA	NA
	6S27-5-97	5/2/1997	7.81	ND (2.5)	34	ND (2.5)	ND (2.5)	2.7	ND (2.5)	NA	NA
	6S27-7-97	7/24/1997	7.65	1.2	20	ND (2.5)	ND (2.5)	1.9	ND (2.5)	NA	NA
	GW0035	10/27/1997	8.10	1	25	ND (0.20)	ND (0.20)	3.7	ND (0.2)	ND (10)	ND (3)
	GW0114	1/20/1998	8.10	ND (0.2)	18	ND (0.20)	ND (0.20)	2.1	ND (1.0)	NA	NA
	GW0164	4/16/1998	7.80	4.2	19	ND (0.20)	ND (0.20)	2.2	ND (1.0)	NA	NA
	GW0212	7/27/1998	7.50	ND (0.20)	17	ND (0.20)	ND (0.20)	1.4	ND (1.0)	NA	NA
	GW0273	10/23/1998	7.20	ND (0.20)	9.8	ND (0.20)	ND (0.20)	1.2	ND (1.0)	NA	NA
	GW0333	1/26/1999	7.72	ND (0.20)	6.5	ND (0.20)	ND (0.20)	1.1	ND (1.0)	NA	NA
	GW0390	4/20/1999	7.70	ND (0.20)	2.3	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0440	7/26/1999	7.50	ND (0.20)	5.8	ND (0.20)	ND (0.20)	0.78	ND (0.20)	NA	NA
	GW0497	11/19/1999	8.00	ND (0.20)	6.8	ND (0.20)	ND (0.20)	0.79	ND (1.0)	NA	NA
	GW0553	1/27/2000	7.40	ND (0.20)	8.2	ND (0.20)	ND (0.20)	0.94 J	ND (0.20)	NA	NA
	GW0608	4/25/2000	7.23	ND (0.2)	7.8	ND (0.2)	ND (0.2)	0.8	ND (0.2)	NA	NA
	GW0651	7/25/2000	7.93	ND (0.50)	6.3	ND (0.50)	ND (0.50)	0.79	ND (0.50)	NA	NA
	10145	10/31/2000	7.6	ND (0.20)	5.5 J	ND (0.20)	ND (0.20)	0.69 J	ND (0.30)	NA	NA
	10592	1/10/2001	7.00	ND (0.20)	5.2	ND (0.10)	ND (0.20)	0.69	ND (0.30)	NA	NA
	10802	4/11/2001	6.67	ND (0.50)	ND (4.7)	ND (0.50)	ND (0.50)	0.62	ND (0.50)	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
				Parameters							
Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	11412	7/11/2001	7.23	ND (0.12)	5.3	ND (0.091)	ND (0.12)	0.59	ND (0.22)	NA	NA
	12115	11/6/2001	7.20	ND (0.2)	9	ND (0.1)	ND (0.1)	0.88	ND (0.2)	NA	NA
	12704	1/14/2002	6.91	ND (0.2)	5.5	ND (0.1)	ND (0.1)	0.49 J	ND (0.2)	NA	NA
	13108	4/16/2002	7.15	ND (0.2)	3.2	ND (0.1)	ND (0.1)	0.32 J	ND (0.2)	NA	NA
	13932	7/10/2002	7.27	ND (0.2)	3.8	ND (0.1)	ND (0.1)	0.49 J	ND (0.2)	NA	NA
	14915	11/20/2002	8.18	ND (0.20)	2.8	ND (0.10)	ND (0.10)	0.32 J	ND (0.20)	NA	NA
	15306	1/14/2003	8.55	ND (0.055)	ND (3.4)	ND (0.048)	ND (0.067)	ND (0.50)	ND (0.045)	NA	NA
	15706	4/22/2003	8.44	ND (0.081)	3.3	ND (0.066)	ND (0.067)	0.43 J	ND (0.12)	NA	NA
	16106	6/25/2003	8.27	ND (0.081)	ND (2.9)	ND (0.066)	ND (0.067)	ND (0.50)	ND (0.12)	NA	NA
	17111	11/12/2003	7.11	ND (0.081)	3.3	ND (0.066)	ND (0.067)	0.66	ND (0.12)	NA	NA
	17605	1/20/2004	6.80	ND (0.081)	2.9	ND (0.066)	ND (0.067)	0.44 J	ND (0.12)	NA	NA
	17909	4/6/2004	8.34	ND (0.081)	2.4	ND (0.066)	ND (0.067)	0.20 J	ND (0.12)	NA	NA
	19107	7/20/2004	7.71	ND (0.081)	2.4	ND (0.066)	ND (0.067)	0.27 J	ND (0.12)	NA	NA
	19915	11/3/2004	7.81	ND (0.081)	1.5	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	20407	1/18/2005	8.06	ND (0.081)	2	ND (0.066)	ND (0.069)	0.18 J	ND (0.12)	NA	NA
	21008	4/26/2005	7.01	ND (0.21)	1.5	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	21211	7/27/2005	8.09	ND (0.21)	2.5	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-05-025	11/2/2005	7.61	ND (0.21)	3.4	ND (0.16)	ND (0.13)	0.29 J	ND (0.13)	NA	NA
	GM-06-019	2/9/2006	7.74	ND (0.21)	2.0	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-093	5/9/2006	7.59	ND (0.21)	3.0	ND (0.16)	ND (0.13)	0.27 J	ND (0.13)	NA	NA
	GM-06-184	8/16/2006	8.04	ND (0.21)	4.2	ND (0.16)	ND (0.13)	0.29 J	ND (0.13)	NA	NA
	GM-06-426	11/9/2006	7.74	ND (0.21)	4.7	ND (0.16)	ND (0.13)	0.35 J	ND (0.13)	NA	NA
	GM-07-118	2/22/2007	7.54	ND (0.21)	3.6	ND (0.16)	ND (0.13)	0.37 J	ND (0.13)	NA	NA
	GM-07-221	5/8/2007	7.58	ND (0.21)	3.4	0.050 J	ND (0.13)	0.25 J	ND (0.13)	NA	NA
6-S-28	6S28-9-96	9/17/1996	8.09	ND (1.0)	ND (1.0)	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	6S28-10-96	10/31/96	7.60	1.4	3.3	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (10)	ND (3)
	6S28-1-97	1/28/1997	7.30	**12**	11	ND (1.0)	NA	0.32 J	ND (1.0)	NA	NA
	6S28-5-97	5/2/1997	7.20	ND (1.0)	0.51 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	6S28-7-97	7/24/1997	6.94	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	GW0036	10/27/1997	7.50	0.21	1.1	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (10)	ND (3)
	GW0165	4/14/1998	7.20	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0274	10/20/1998	6.50	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0391	4/20/1999	8.10	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0498	11/17/1999	7.20	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	10144	10/31/2000	6.7	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	12114	11/6/2001	6.41	ND (0.2)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	14943	11/25/2002	7.23	ND (0.055)	ND (0.053)	ND (0.048)	ND (0.067)	ND (0.064)	ND (0.045)	NA	NA
	17110	11/12/2003	7.13	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	19916	11/3/2004	7.40	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	GM-05-026	11/2/2005	6.93	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-427	11/9/2006	7.02	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-07-221	5/8/2007	7.58	ND (0.21)	3.4	0.050 J	ND (0.13)	0.25 J	ND (0.13)	NA	NA
6-S-29	6S29-5-97	5/2/1997	6.73	0.63 J	7.8	2.2	ND (1.0)	ND (1.0)	**5.3**	NA	NA
	6S29-7-97	7/22/1997	6.93	ND (5.0)	5.5	ND (5.0)	ND (5.0)	ND (5.0)	**4.9 J**	NA	NA
	GW0037	10/28/1997	6.60	ND (0.2)	7.2	3.1	ND (0.2)	ND (0.2)	**4.4**	ND (10)	ND (3)
	GW0038	10/28/1997	6.60	ND (0.2)	6	2.5	ND (0.2)	ND (0.2)	**3.3**	ND (10)	ND (3)
	GW0115	1/19/1998	7.00	ND (0.2)	8.1	3.4	ND (0.2)	0.2	**5.2**	NA	NA
	GW0166	4/13/1998	6.80	ND (0.2)	7.1	4.1	ND (0.2)	ND (0.2)	**5.6**	NA	NA
	GW0213	7/28/1998	6.50	ND (0.20)	7.7	3.6	ND (0.20)	ND (0.20)	**4.2**	NA	NA
	GW0275	10/22/1998	6.40	ND (0.20)	8.3	4.2	ND (0.20)	ND (0.20)	**5.5**	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
				Parameters							
Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	GW0276	10/22/1998	6.40	ND (0.20)	8	3.9	ND (0.20)	ND (0.20)	**5.3**	NA	NA
	GW0334	1/25/1999	6.80	ND (0.20)	7.4	3.3	ND (0.20)	ND (0.20)	**4.8**	NA	NA
	GW0392	4/21/1999	7.70	ND (0.20)	7.4	3.5	ND (0.20)	0.39	**5.9**	NA	NA
	GW0441	7/26/1999	7.60	ND (0.20)	7.7	3.4	ND (0.20)	0.49	**9**	NA	NA
	GW0499	11/24/1999	7.30	1.6	7.6	2.8	ND (0.20)	0.66	**4.1**	NA	NA
	GW0500	11/24/1999	7.30	2.5	8	3	0.73	0.96	**3.9**	NA	NA
	GW0554	1/26/2000	6.70	ND (0.20)	6.3	3.3	ND (0.20)	3.3	**3**	NA	NA
	GW0610	4/24/2000	6.82	ND (0.2)	8.2	5	ND (0.2)	0.5 J	**4.7**	NA	NA
	GW0652	7/24/2000	7.39	ND (0.50)	7.5	5.4	ND (0.50)	0.5 J	**4.2**	NA	NA
	10129	10/26/2000	6.6	ND (0.20)	8.2 J	7.3 J	ND (0.20)	0.59 J	**4.6 J**	NA	NA
	10588	1/10/2001	6.20	ND (0.20)	9.1	7.2	ND (0.20)	0.66	**4**	NA	NA
	10807	4/11/2001	6.08	ND (0.50)	7.3	7.4	ND (0.50)	0.57	**4.5**	NA	NA
	11408	7/10/2001	6.14	ND (0.12)	6	7.1	ND (0.12)	0.58	**4.3**	NA	NA
	12120	11/7/2001	6.47	ND (0.2)	3.6	5.3	ND (0.1)	0.28 J	**3.7**	NA	NA
	12706	1/14/2002	6.12	ND (0.2)	7.6	8.8	ND (0.1)	0.61	**3.8**	NA	NA
	13102	4/15/2002	6.11	ND (0.2)	5.6	7.4	ND (0.1)	0.54	**3.8**	NA	NA
	13930	7/10/2002	6.37	ND (0.2)	5.7	7.5	ND (0.1)	0.67	**3.6**	NA	NA
	14912	11/19/2002	7.30	ND (0.20)	3.9	5.5	ND (0.10)	0.41 J	**2.7**	NA	NA
	15303	1/13/2003	7.80	ND (0.055)	3.4	4.1	ND (0.067)	ND (0.50)	**3.4**	NA	NA
	15702	4/21/2003	7.32	ND (0.081)	4.2	5.2	ND (0.067)	0.55	**3.4**	NA	NA
	16103	6/24/2003	7.19	ND (0.081)	3.6	5.1	ND (0.067)	ND (0.50)	**2.9**	NA	NA
	17127	11/17/2003	7.55	ND (0.081)	3.8	5.4	ND (0.067)	0.57	**3.8**	NA	NA
	17603	1/19/2003	6.35	ND (0.081)	3.8	5.6	ND (0.067)	0.64	**3.1**	NA	NA
	17905	4/5/2004	7.22	ND (0.081)	2.3	3.6	ND (0.067)	0.41 J	**2.7**	NA	NA
	19101	7/19/2004	6.96	ND (0.081)	2.5	4.9	ND (0.067)	0.37 J	**2.2**	NA	NA
	19910	11/2/2004	7.13	ND (0.081)	2.4	3.9	ND (0.067)	0.44 J	**2.5**	NA	NA
	20403	1/17/2005	7.37	ND (0.081)	3	7.5	ND (0.069)	0.7	**2.6**	NA	NA
	21013	4/26/2005	6.79	ND (0.21)	2.6	5.1	ND (0.13)	0.34 J	**2.5**	NA	NA
	21202	7/26/2005	7.19	ND (0.21)	1.7	4.4	ND (0.13)	0.28 J	**2.5**	NA	NA
	GM-05-027	10/27/2005	6.80	ND (0.21)	2.7	6.2	ND (0.13)	0.61	**1.7**	NA	NA
	GM-06-020	2/8/2006	6.98	ND (0.21)	1.8	7.8	ND (0.13)	0.41 J	**2.1**	NA	NA
	GM-06-094	5/8/2006	6.77	ND (0.21)	1.5	5.4	ND (0.13)	0.38 J	**1.7**	NA	NA
	GM-06-185	8/15/2006	6.98	ND (0.21)	1.7	7.5	ND (0.13)	0.45 J	**1.6**	NA	NA
	GM-06-428	11/7/2006	6.95	ND (0.21)	1.5	8.5	ND (0.13)	0.55	**1.6**	NA	NA
	GM-07-119	2/20/2007	6.83	ND (0.21)	1.3	6.5	ND (0.13)	0.38 J	**1.3**	NA	NA
	GM-07-222	5/7/2007	6.77	ND (0.21)	1.6	8.6	ND (0.13)	0.53	**1.7**	NA	NA
6-S-30	17131	11/18/2003	6.83	ND (0.081)	50	ND (0.066)	ND (0.067)	**8.1**	ND (0.12)	NA	NA
	17607	1/21/2004	6.44	ND (0.081)	30	ND (0.066)	ND (0.067)	5.7	ND (0.12)	NA	NA
	17911	4/6/2004	7.37	ND (0.081)	24	ND (0.066)	ND (0.067)	**7.3**	ND (0.12)	NA	NA
	19104	7/19/2004	7.04	ND (0.081)	21	ND (0.066)	ND (0.067)	3.2	ND (0.12)	NA	NA
	19930	11/5/2004	7.17	ND (0.081)	27	ND (0.066)	ND (0.067)	4.1	ND (0.12)	NA	NA
	20413	1/24/2005	7	ND (0.081)	18	ND (0.066)	ND (0.069)	3.9	ND (0.12)	NA	NA
	21017	4/27/2005	7.44	ND (0.21)	26	ND (0.16)	ND (0.13)	3.6	ND (0.13)	NA	NA
	21209	7/26/2005	7.42	ND (0.21)	25	ND (0.16)	ND (0.13)	3.5	ND (0.13)	NA	NA
	GM-05-028	11/4/2005	7.00	ND (0.21)	39	ND (0.16)	ND (0.13)	4.4	ND (0.13)	NA	NA
	GM-06-021	2/8/2006	7.18	ND (0.21)	36	ND (0.16)	ND (0.13)	3.5	ND (0.13)	NA	NA
	GM-06-095	5/10/2006	7.01	ND (0.21)	53	ND (0.16)	ND (0.13)	4.8	ND (0.13)	NA	NA
	GM-06-186	8/16/2006	7.32	ND (0.21)	59	ND (0.16)	ND (0.13)	5.2	ND (0.13)	NA	NA
	GM-06-429	11/13/2006	7.14	ND (0.21)	29	ND (0.16)	ND (0.13)	3	ND (0.13)	NA	NA
	GM-07-120	2/22/2007	6.96	ND (0.21)	24	ND (0.16)	ND (0.13)	3.6	ND (0.13)	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
				Parameters							
Compliance Levels				**5**	**200**	**800**	**70**	**7.0**[a]	**0.1**	**80**	**5**
	GM-07-223	5/8/2007	7.04	ND (0.21)	29	ND (0.16)	ND (0.13)	3.9	ND (0.13)	NA	NA
6-S-31	17132	11/18/2003	6.63	**21**	75	0.13 J	0.33 J	**29**	ND (0.12)	NA	NA
	17608	1/21/2004	6.20	**22**	80	0.15 J	0.38 J	**27**	ND (0.12)	NA	NA
	19712	4/6/2004	6.96	**19**	92	0.17 J	0.35 J	**30**	ND (0.12)	NA	NA
	19106	7/19/2004	6.74	**14**	38	0.10 J	0.22 J	**8.9**	ND (0.12)	NA	NA
	19926	11/4/2004	7.1	**16**	58	0.13 J	0.23 J	**17**	ND (0.12)	NA	NA
	20414	1/24/2005	6.69	**17**	66	0.16 J	0.29 J	**19**	ND (0.12)	NA	NA
	21018	4/27/2005	7.18	**19**	92	0.22 J	0.36 J	**23**	ND (0.13)	NA	NA
	21208	7/26/2005	7.19	**19**	92	0.24 J	ND (0.13)	**15**	ND (0.13)	NA	NA
	GM-05-029	11/4/2005	6.80	**18**	98 D	0.17 J	0.25 J	**20**	ND (0.13)	NA	NA
	GM-06-022	2/9/2006	6.95	**18**	66 D	0.24 J	0.31 J	**16**	ND (0.13)	NA	NA
	GM-06-096	5/10/2006	6.75	**30**	**230 D**	0.56	0.53	**35**	ND (0.13)	NA	NA
	GM-06-187	8/16/2006	7.02	**22**	90 D	0.22 J	ND (0.13)	**22**	ND (0.13)	NA	NA
	GM-06-431	11/13/2006	6.88	**22**	78 D	0.21 J	0.38 J	**20**	ND (0.13)	NA	NA
	GM-07-121	2/22/2007	6.86	**16**	41	ND (0.16)	0.28 J	**12**	ND (0.13)	NA	NA
	GM-07-224	5/10/2007	6.76	**16**	54	0.14 J	0.24 J	**12**	ND (0.13)	NA	NA
MW-5	MW-5	9/13/1993	7.62	ND (1)	1.1	ND (1)	NA	ND (1)	ND (1)	37	**22**
	MW5-SU-2-95	2/15/1995	7.49	ND (2)	0.42 J	ND (2)	NA	ND (2)	ND (2)	3.6	ND (5)
	MW5-OP-9-95	9/27/1995	7.63	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	MW5-OP-12-95	12/11/1995	7.50	ND (2)	ND (2)	ND (2)	NA	ND (2)	ND (2)	ND (10)	ND (3)
	MW5-OP-3-96	3/28/1996	7.66	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA
	MW5-OP-8-96	8/16/1996	7.75	ND (1.0)	ND(1.0)	ND(1.0)	NA	ND (1.0)	ND(1.0)	NA	NA
	MW5-11-96	11/1/96	7.51	ND (1.0)	0.43 J	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (10)	ND (3)
	MW5-1-97	1/29/1997	7.50	ND (1.0)	0.24 J	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	MW5-5-97	5/2/1997	7.21	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	MW5-7-97	7/24/1997	7.22	ND (1.0)	0.40 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	GW0039	10/27/1997	7.73	0.33	1.2	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	ND (10)	ND (3)
	GW0167	4/14/1998	7.30	ND (0.20)	4.1	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0277	10/20/1998	6.70	ND (0.20)	5.6	0.23	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0393	4/22/1999	7.80	ND (0.20)	5.3	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0501	11/24/1999	8.40	ND (0.20)	5.1	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0611	4/25/2000	6.53	ND (0.2)	27	0.6	ND (0.2)	ND (0.3)	ND (0.2)	NA	NA
	10146	11/1/2000	7.1	ND (0.20)	41 J	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	10803/10804	4/11/2001	6.51	ND (0.50)	32	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	NA	NA
	12127	11/8/2001	6.67	ND (0.2)	23	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	13109	4/16/2002	6.85	ND (0.2)	25	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	14916	11/20/2002	8.18	ND (0.20)	26	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.20)	NA	NA
	15307	1/14/2003	8.39	ND (0.055)	67 D	ND (0.048)	ND (0.067)	ND (0.50)	ND (0.045)	NA	NA
	15707	4/22/2003	8.27	ND (0.081)	77	ND (0.066)	ND (0.067)	1.8	ND (0.12)	NA	NA
	16107	6/25/2003	8.33	ND (0.081)	82	ND (0.066)	ND (0.067)	ND (0.50)	ND (0.12)	NA	NA
	17126	11/17/2003	7.71	ND (0.081)	74	ND (0.066)	ND (0.067)	0.78	ND (0.12)	NA	NA
	17618	1/23/2004	6.78	ND (0.081)	84	ND (0.066)	ND (0.067)	1.4	ND (0.12)	NA	NA
	17910	4/6/2004	7.90	ND (0.081)	89	ND (0.066)	ND (0.067)	0.82	ND (0.12)	NA	NA
	19108	7/20/2004	7.56	ND (0.081)	65	ND (0.066)	ND (0.067)	0.78	ND (0.12)	NA	NA
	19920	11/4/2004	8.02	ND (0.081)	66	0.070 J	ND (0.067)	2.0	ND (0.12)	NA	NA
	20408	1/18/2005	NA	ND (0.081)	60	0.20 J	ND (0.069)	2.1	ND (0.12)	NA	NA
	21011	4/26/2005	7.65	ND (0.21)	44	ND (0.16)	ND (0.13)	0.35 J	ND (0.13)	NA	NA
	21210	7/27/2005	8.07	ND (0.21)	47	0.27 J	ND (0.13)	0.32 J	ND (0.13)	NA	NA
	GM-05-032	11/2/2005	6.81	ND (0.21)	40	0.62	ND (0.13)	1.3	ND (0.13)	NA	NA
	GM-06-026	2/9/2006	7.72	ND (0.21)	33	0.66	ND (0.13)	0.28 J	ND (0.13)	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
Compliance Levels				**5**	**200**	**800**	**70**	**7.0**[a]	**0.1**	**80**	**5**
	GM-06-100	5/9/2006	7.58	ND (0.21)	35	0.72	ND (0.13)	0.43 J	ND (0.13)	NA	NA
	GM-06-191	8/16/2006	7.87	ND (0.21)	38	0.92	ND (0.13)	0.40 J	ND (0.13)	NA	NA
	GM-06-433	11/9/2006	7.49	ND (0.21)	33	0.6	ND (0.13)	0.31 J	ND (0.13)	NA	NA
	GM-07-124	2/27/2007	7.18	ND (0.21)	18	0.42 J	ND (0.13)	1.3	ND (0.13)	NA	NA
	GM-07-227	5/8/2007	7.35	ND (0.21)	11	ND (0.16)	ND (0.13)	0.14 J	ND (0.13)	NA	NA
MW-6	MW6-OP-3-96	3/28/1996	7.80	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA
	MW6-OP-8-96	8/16/1996	8.00	ND (1.0)	ND (1.0)	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	MW6-10-96	10/31/96	7.61	ND (1.0)	ND (1.0)	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (10)	ND (3)
	MW6-1-97	1/29/1997	7.90	ND (1.0)	ND (1.0)	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	MW6-4-97	5/2/1997	NR	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	MW6-7-97	7/24/1997	7.60	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	GW0040	10/27/1997	8.35	0.53	0.71	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	ND (10)	ND (3)
	GW0278	10/20/1998	6.90	ND (0.20)	0.58	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0502	11/19/1999	7.50	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	10143	10/31/2000	7.3	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	12113	11/6/2001	6.95	ND (0.2)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	14914	11/20/2002	8.17	ND (0.20)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.20)	NA	NA
	16124	6/26/2003	7.71	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	17109	11/12/2003	7.68	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	19914	11/3/2004	7.95	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	GM-05-033	11/2/2005	7.28	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-434	11/8/2006	7.37	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
MW-7	MW7-SU-2-95	2/14/1995	7.54	**350 J**	**3500**	ND (500)	NA	ND (500)	ND (500)	8.1	ND (5)
	6S31-SU-2-95	2/14/1995	7.54	**180 J**	**2400**	ND (500)	NA	**350 J**	ND (500)	9.7	ND (5)
	MW7-OP-9-95	9/22/1995	7.80	**390**	**3700**	ND (200)	NA	**330**	ND (200)	ND (10)	ND (3)
	MW7-OP-12-95	12/8/1995	7.20	**520**	**5200**	ND (500)	NA	ND (500)	ND (500)	ND (10)	ND (3)
	MW7-OP-3-96	3/28/1996	7.10	**480**	**5300**	160 J	NA	**380**	ND (200)	NA	NA
	MW-32-OP-3-96	3/28/1996	7.10	**520**	**5400**	150 J	NA	**370**	ND (200)	NA	NA
	MW7-OP-8-96	8/27/1996	7.01	**670**	**3500**	110	NA	**270**	ND (100)	NA	NA
	MW7-10-96	10/31/96	7.45	**720**	**3300**	37 J	NA	**190 J**	ND (200)	19	ND (3)
	MW7-1-97	1/29/1997	6.80	**1000**	**1600**	150	NA	**120**	ND (50)	NA	NA
	MW7-5-97	5/2/1997	6.99	**660**	**350**	63	**290**	**51**	ND (50)	NA	NA
	MW18-5-97	5/2/1997	7.00	**790**	**450**	ND (50)	**330**	**67**	ND (50)	NA	NA
	MW7-7-97	7/28/1997	6.80	**530**	**220**	65	**230**	**49**	ND (20)	NA	NA
	MW99-5-97	7/28/1997	6.80	**800**	**290**	67	**270**	**57**	ND (20)	NA	NA
	GW0041	10/14/1997	6.93	**420**	140	49	**160**	**32**	**0.28**	ND (10)	ND (3)
	GW0116	1/20/1998	7.10	**440**	**230**	75	**180**	**48**	ND (1.0)	NA	NA
	GW0121	1/20/1998	7.10	**400**	190	71	**160**	**40**	ND (1.0)	NA	NA
	GW0168	4/15/1998	6.90	**280**	160	48	**110**	**23**	ND (1.0)	NA	NA
	GW0174	4/15/1998	6.90	**380**	**330**	85	**170**	**44**	ND (1.0)	NA	NA
	GW0214	7/29/1998	6.50	**450**	**600**	58	**150**	**41**	ND (1.0)	NA	NA
	GW0279	10/27/1998	6.40	**510**	**460**	63	**180**	**51**	ND (1.0)	NA	NA
	GW0335	1/26/1999	6.90	**340**	**760**	45	**150**	**63**	ND (1.0)	NA	NA
	GW0410	4/22/1999	8.00	**390**	**480**	55	**120**	**78**	ND (10)	NA	NA
	GW0442	7/28/1999	8.10	**270**	**380**	58	**100**	**92**	ND (0.20)	NA	NA
	GW0503	11/23/1999	7.40	**170**	**330**	34	**88**	**55**	ND (1.0)	NA	NA
	GW0555	1/27/2000	7.20	**270**	**560**	50	59	**78**	ND (0.20)	NA	NA
	GW0612	4/25/2000	6.65	**250**	**260**	59	48	**67**	ND (0.2)	NA	NA
	10122	10/25/2000	6.9	**260**	**210**	1.5	27	**51**	ND (0.30)	NA	NA
	10597	1/11/2001	6.50	**250 D**	180 D	1.1	20	**46**	ND (0.30)	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
			Parameters								
Compliance Levels				**5**	**200**	**800**	**70**	**7.0**[a]	**0.1**	**80**	**5**
	10811	4/12/2001	6.46	**250 D**	**210 D**	1 J	18 D	**50 D**	ND (2.5)	NA	NA
	12131	11/8/2001	6.42	**200 D**	190 D	1.5	16	**48**	ND (0.2)	NA	NA
	12724	1/16/2002	6.16	**200 D**	140 D	1.2 JD	13 D	**38 D**	ND (2.0)	NA	NA
	13113	4/16/2002	6.28	**190 D**	110 D	1.3 JD	13 D	**33 D**	ND (1)	NA	NA
	14939	11/22/2002	7.30	**140**	84	0.74	8.8	**20**	ND (0.20)	NA	NA
	15314	1/14/2003	7.44	**150 D**	86 D	0.62	8.9	**24 J**	ND (0.045)	NA	NA
	15714	4/23/2003	7.24	**140**	76	0.51	8.1	**21**	ND (0.12)	NA	NA
	17145	11/21/2003	6.57	**110**	69	1.2	7	**19**	ND (0.12)	NA	NA
	17616	1/21/2004	6.15	**140**	78	0.34 J	7.6	**25**	ND (0.12)	NA	NA
	17919	4/7/2004	6.60	**120**	62	1.2	7.2	**18**	ND (0.12)	NA	NA
	19938	11/8/2004	7.12	**99**	59	0.40 J	5.2	**22**	ND (0.12)	NA	NA
	20419	1/24/2005	6.68	**120**	64	1.4	6.3	**25**	ND (0.12)	NA	NA
	21022	4/27/2005	7.02	**110**	55	0.77	5.4	**20**	ND (0.13)	NA	NA
	GM-05-034	11/7/2005	6.65	**100 D**	64 D	4.9	4.5	**23**	**0.19 J**	NA	NA
	GM-06-027	2/9/2006	6.78	**100 D**	56	9.3	5.1	**18**	ND (0.13)	NA	NA
	GM-06-101	5/10/2006	6.65	**85 D**	49	4.4	4.6	**16**	ND (0.13)	NA	NA
	GM-06-192	8/17/2006	6.53	**100 D**	54	2.1	4.0	**15**	ND (0.13)	NA	NA
	GM-06-435	11/16/2006	6.59	**99 D**	51	3.3	4.3	**16**	ND (0.13)	NA	NA
	GM-07-125	2/23/2007	6.69	**76 D**	34	3.1	3.9	**11**	ND (0.13)	NA	NA
	GM-07-228	5/10/2007	6.70	**110 D**	54	0.33 J	3.9	**16**	ND (0.13)	NA	NA
MW-8	MW8-SU-2-95	2/14/1995	7.16	ND (2.5)	5.1	ND (2.5)	NA	ND (2.5)	ND (2.5)	ND (10)	ND (5)
	MW8-OP-9-95	9/24/1995	6.99	ND (5)	3.7 J	ND (5)	NA	ND (5)	ND (5)	ND (10)	ND (3)
	MW8-OP-12-95	12/9/1995	6.93	1.2 J	13	ND (2)	NA	ND (2)	**0.89 J**	ND (10)	ND (3)
	MW20-OP-12-95	12/9/1995	6.93	1.9 J	14	3.6 J	NA	ND (5)	ND (5)	ND (10)	ND (3)
	MW8-OP-3-96	3/28/1996	7.30	ND (2)	3.7	0.72 J	NA	ND (2)	**0.90 J**	NA	NA
	MW8-10-96	10/30/96	6.00	**6.2**	8.8	0.54 J	NA	0.55 J	ND (2)	ND (10)	ND (3)
	MW8-1-97	1/29/1997	6.80	ND (2.0)	4.4	0.62 J	NA	ND (2.0)	ND (2.0)	NA	NA
	MW8-4-97	4/29/1997	6.85	ND (2.0)	2	ND (2.0)	ND (2.0)	ND (2.0)	**0.60 J**	NA	NA
	MW8-7-97	7/25/1997	6.90	ND (2.0)	2.6	ND (2.0)	ND (2.0)	ND (2.0)	**0.99 J**	NA	NA
	GW0042	10/17/1997	6.80	0.5	6	1.3	ND (0.2)	0.55	**1.1**	ND (10)	ND (3)
	GW0280	10/22/1998	6.40	ND (0.20)	2.6	2.1	ND (0.20)	ND (0.20)	**1.1**	NA	NA
	GW0394	4/21/1999	7.70	ND (0.20)	2.5	2.3	ND (0.20)	ND (0.20)	**1.6**	NA	NA
	GW0504	11/24/1999	7.30	**92**	13	2.8	ND (0.20)	**55**	**1.1**	NA	NA
	10138	10/30/2000	0.0	ND (0.20)	3.3 J	4.1 J	ND (0.20)	0.2 J	**0.99 J**	NA	NA
	12123	11/7/2001	6.44	ND (0.2)	2.1	ND (0.1)	ND (0.1)	ND (0.2)	**0.71**	NA	NA
	14922	11/21/2002	7.37	ND (0.20)	2.1	4.1	ND (0.10)	ND (0.20)	**0.52**	NA	NA
	17138	11/20/2003	7.07	ND (0.081)	2.8	3.4	ND (0.067)	0.25 J	**0.7**	NA	NA
	19925	11/4/2004	7.1	ND (0.081)	3.9	2.4	ND (0.067)	0.27 J	**0.72**	NA	NA
	GM-05-035	11/1/2005	6.75	ND (0.21)	2.9	2.0	ND (0.13)	0.30 J	**0.50**	NA	NA
	GM-06-436	11/16/2006	6.77	ND (0.21)	1.4	2.1	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
MW-9	MW9-OP-3-96	3/26/1996	6.75	ND (2.5)	7.8	ND (2.5)	NA	ND (2.5)	ND (2.5)	NA	NA
	MW9-2-97	2/3/1997	7.00	0.5 J	6.3	ND (2.5)	NA	ND (2.5)	ND (2.5)	NA	NA
	MW9-4-97	4/29/1997	7.28	ND (5)	5.7	ND (5)	ND (5)	ND (5)	ND (5)	NA	NA
	MW9-7-97	7/25/1997	6.82	ND (5)	9.2	ND (5)	ND (5)	ND (5)	ND (5)	NA	NA
	GW0043	10/28/1997	6.54	ND (0.20)	13	0.65	ND (0.20)	ND (0.20)	ND (0.2)	ND (10)	ND (3)
	GW0281	10/22/1998	6.60	ND (0.20)	4	1.7	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0505	11/29/1999	7.40	1.4	11	2.5	ND (0.20)	0.72	ND (1.0)	NA	NA
	10136	10/30/2000	6.6	ND (0.20)	1 J	5.4 J	ND (0.20)	0.2 J	**0.57 J**	NA	NA
	12125	11/8/2001	6.35	ND (0.2)	0.71	4.3	ND (0.1)	ND (0.2)	**0.83**	NA	NA
	14923	11/21/2002	7.46	ND (0.20)	ND (0.10)	5.0	ND (0.10)	ND (0.20)	**0.42 J**	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

U.S. Navy 2007a

Well No.	Sample ID	Sample Date	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
				Parameters							
Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	17134	11/18/2003	7.99	ND (0.081)	0.11 J	5.2	ND (0.067)	ND (0.16)	**0.64**	NA	NA
	19927	11/5/2004	7.02	ND (0.081)	ND (0.11)	5.9	ND (0.067)	ND (0.16)	**0.85**	NA	NA
	GM-05-036	10/27/2005	6.74	ND (0.21)	ND (0.21)	6.2	ND (0.13)	ND (0.24)	**0.52**	NA	NA
	GM-06-437	11/16/2006	6.85	ND (0.21)	ND (0.21)	9.5	ND (0.13)	ND (0.24)	**0.69**	NA	NA
MW-10	MW10-SU-2-95	2/14/1995	6.92	ND (2.5)	11	21	NA	ND (2.5)	**11**	ND (10)	ND (5)
	MW10-OP-9-95	9/24/1995	6.63	ND (5)	ND (5)	23	NA	ND (5)	**11**	ND (10)	ND (3)
	MW10-OP-12-95	12/6/1995	6.80	1.4 J	2.5 J	31	NA	ND (5)	**20**	ND (10)	ND (3)
	MW10-OP-3-96	3/26/1996	6.76	ND (1)	0.57 J	29	NA	ND (1)	ND (1)	NA	NA
	MW10-7-97	7/25/1997	6.98	ND (2.0)	ND (2.0)	18	ND (2.0)	ND (2.0)	**3.4**	NA	NA
	GW0044	10/29/1997	6.62	ND (0.20)	ND (0.50)	19	0.27	ND (0.20)	**0.79**	ND (10)	ND (3)
	GW0045	10/29/1997	6.62	ND (0.20)	ND (0.50)	19	0.27	ND (0.20)	**0.81**	ND (10)	ND (3)
	GW0169	4/14/1998	6.80	ND (0.20)	ND (0.50)	25	0.37	ND (0.20)	**1.6**	NA	NA
	GW0282	10/22/1998	6.50	ND (0.20)	ND (0.50)	17	0.23	ND (0.20)	ND (1.0)	NA	NA
	GW0395	4/21/1999	7.60	ND (0.20)	ND (0.50)	15	0.36	ND (0.20)	**1.5**	NA	NA
	GW0506	11/23/1999	6.90	0.26	ND (0.50)	9.1	0.53	ND (0.20)	ND (1.0)	NA	NA
	GW0614	4/24/2000	6.92	ND (0.2)	ND (0.3)	8.7	0.2 J	ND (0.3)	**0.9**	NA	NA
	10137	10/30/2000	6.6	ND (0.20)	ND (0.20)	11 J	0.3 J	ND (0.10)	**0.4 J**	NA	NA
	10800	4/10/2001	6.41	ND (0.50)	ND (0.50)	6.4	0.2 J	ND (0.50)	ND (0.50)	NA	NA
	12126	11/8/2001	6.26	ND (0.2)	ND (0.1)	6.9	0.22 J	ND (0.2)	**0.38 J**	NA	NA
	13110	4/16/2002	6.39	ND (0.2)	ND (0.1)	18	0.26 J	ND (0.2)	**0.62**	NA	NA
	14925	11/21/2002	7.20	ND (0.20)	ND (0.10)	16	0.24 J	ND (0.20)	**0.67**	NA	NA
	15708	4/22/2003	7.26	ND (0.081)	ND (0.11)	16	0.15 J	ND (0.16)	**0.66**	NA	NA
	17135	11/18/2003	7.83	ND (0.081)	ND (0.11)	17	0.17 J	ND (0.16)	**0.97**	NA	NA
	17903	4/5/2004	7.13	ND (0.081)	ND (0.11)	16	0.18 J	ND (0.16)	**0.85**	NA	NA
	19928	11/5/2004	6.89	ND (0.081)	ND (0.11)	6.8	0.20 J	ND (0.16)	**0.81**	NA	NA
	21002	4/25/2005	7.09	ND (0.21)	ND (0.21)	5.4	0.26 J	ND (0.24)	**0.65**	NA	NA
	GM-05-037	11/1/2005	6.65	ND (0.21)	ND (0.21)	5.6	0.27 J	ND (0.24)	**0.77**	NA	NA
	GM-06-438	11/14/2006	6.76	ND (0.21)	ND (0.21)	7.4	0.30 J	ND (0.24)	**0.79**	NA	NA
MW-11	MW11-OP-9-95	9/24/1995	7.56	2.2	11	ND (1)	NA	0.71 J	ND (1)	ND (10)	ND (3)
	MW11-OP-12-95	12/8/1995	7.60	3.2	25	ND (1)	NA	1.6	ND (1)	ND (10)	ND (3)
	MW11-OP-3-96	3/26/1996	7.23	ND (1)	4.9	ND (1)	NA	ND (1)	ND (1)	NA	NA
	MW11-11-96	11/1/96	8.40	1.7	9.1	1.4	NA	0.21 J	ND (1.0)	ND (10)	ND (3)
	MW11-1-97	1/29/1997	7.60	0.54 J	7.4	1.1	NA	ND (1.0)	ND (1.0)	NA	NA
	MW11-4-97	4/30/1997	8.45	0.38 J	6.1	ND (1.0)	0.96 J	0.72 J	ND (1.0)	NA	NA
	MW11-7-97	7/22/1997	7.80	0.43 J	4.8	0.68 J	0.97 J	ND (1.0)	ND (1.0)	NA	NA
	GW0046	10/28/1997	7.21	0.3	2.9	0.31	0.58	ND (0.2)	ND (1.0)	ND (10)	ND (3)
	GW0283	10/22/1998	7.00	ND (0.20)	2	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0507	11/29/1999	7.60	0.63	3.6	0.28	0.45	ND (0.20)	ND (1.0)	NA	NA
	10147	11/1/2000	6.9	ND (0.20)	0.91 J	0.1 J	0.2 J	ND (0.10)	ND (0.30)	NA	NA
	12118	11/7/2001	6.54	ND (0.2)	0.66	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	14924	11/21/2002	7.57	ND (0.20)	0.47 J	ND (0.10)	0.13 J	ND (0.20)	ND (0.20)	NA	NA
	17137	11/20/2003	6.67	ND (0.081)	0.45 J	ND (0.066)	0.080 J	ND (0.16)	ND (0.12)	NA	NA
	19922	11/4/2004	7.21	ND (0.081)	0.29 J	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	GM-05-038	10/27/2005	6.70	ND (0.21)	0.29 J	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-439	11/13/2006	6.79	ND (0.21)	0.29 J	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
MW-14	MW14-OP-3-96	3/26/1996	7.18	ND (1)	1.6	ND (1)	NA	ND (1)	ND (1)	NA	NA
	MW14-11-96	11/2/96	7.30	ND (1.0)	2	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (10)	ND (3)
	MW14-1-97	1/29/1997	7.20	ND (1.0)	9.3	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	MW14-4-97	4/30/1997	8.02	ND (1.0)	0.72 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	MW14-7-97	7/22/1997	7.45	ND (1.0)	0.65 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	Parameters pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	GW0047	10/28/1997	7.11	ND (0.20)	0.62	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	ND (10)	ND (3)
N6-37	N-637	9/11/1993	7.51	**370**	**890**	ND (50)	NA	ND (50)	ND (50)	**77**	**150**
	N637-SU-2-95	2/14/1995	7.72	**450**	**930**	ND (100)	NA	**29 J**	ND (100)	6.8	ND (5)
	N637-OP-9-95	9/26/1995	7.18	**480**	**710**	ND (50)	NA	**29 J**	ND (50)	ND (10)	ND (3)
	N637-OP-12-95	12/11/1995	7.64	**280**	**240**	2.8 J	NA	**16**	ND (10)	ND (10)	ND (3)
	N637-OP-3-96	3/28/1996	7.08	**230**	98	ND (10)	NA	3.3 J	ND (10)	NA	NA
	N637-11-96	11/5/1996	6.80	**150**	29	ND (1.0)	NA	2.3	ND (1.0)	ND (10)	ND (3)
	N637-1-97	1/30/1997	7.10	**180**	22	ND (10)	NA	ND (10)	ND (10)	NA	NA
	N637-5-97	5/3/1997	6.74	**100**	7.2	ND (5.0)	1.9 J	ND (5.0)	ND (5.0)	NA	NA
	N637-7-97	7/25/1997	6.40	**110**	9.5	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	NA	NA
	GW0048	10/27/1997	6.71	**100**	17	ND (0.2)	6.2	2.1	ND (0.2)	ND (10)	ND (3)
	GW0117	1/20/1998	6.60	**58**	37	ND (0.2)	3.5	2	ND (1.0)	NA	NA
	GW0170	4/15/1998	6.40	**62**	58	1.5	6.4	3.1	ND (1.0)	NA	NA
	GW0160	4/15/1998	6.40	**53**	60	1.6	5.9	3.2	ND (1.0)	NA	NA
	GW0215	7/28/1998	6.20	**61**	23	ND (0.20)	3.7	0.77	ND (1.0)	NA	NA
	GW0216	7/28/1998	6.20	**54**	24	ND (0.20)	3.6	0.75	ND (1.0)	NA	NA
	GW0284	10/27/1998	6.20	**120**	73	2.1	9.7	4.3	ND (1.0)	NA	NA
	GW0336	1/26/1999	6.42	**37**	12	ND (0.20)	2	ND (0.20)	ND (1.0)	NA	NA
	GW0337	1/26/1999	6.42	**35**	11	ND (0.20)	2	ND (0.20)	ND (1.0)	NA	NA
	GW0396	4/22/1999	8.00	**39**	14	ND (0.20)	2.1	1.1	ND (1.0)	NA	NA
	GW0443	7/27/1999	7.70	**39**	15	ND (0.20)	2.5	1.1	ND (0.20)	NA	NA
	GW0508	11/23/1999	6.50	**32**	25	ND (0.20)	7.9	1.2	ND (1.0)	NA	NA
	GW0556	1/27/2000	6.40	**31**	12	ND (0.20)	1.3	0.82 J	ND (0.20)	NA	NA
	GW0557	1/27/2000	6.40	**37**	16	ND (0.20)	2	0.93 J	ND (0.20)	NA	NA
	GW0615	4/25/2000	5.99	**59**	73	1.9	3.4	6.3	ND (0.2)	NA	NA
	GW0653	7/25/2000	6.47	**35**	15	0.1 J	1.8	0.91	ND (0.50)	NA	NA
	10116	10/25/2000	6.1	**21**	5.7	ND (0.20)	0.79	0.56	ND (0.30)	NA	NA
	10593	1/10/2001	5.80	**19**	5.3	ND (0.10)	0.62	0.5 J	ND (0.30)	NA	NA
	10808	4/11/2001	5.84	**29**	11	0.2 J	2.6	0.7	ND (0.50)	NA	NA
	11413	7/11/2001	6.22	**43**	20	0.62	6.7	0.96	ND (0.22)	NA	NA
	12130	11/8/2001	6.14	**52 D**	26	0.73	9.7	1.2	ND (0.2)	NA	NA
	12708	1/15/2002	5.99	**72 D**	31 D	0.98 JD	15 D	1.1 D	ND (0.4)	NA	NA
	13106	4/15/2002	5.92	**66 D**	22 D	0.7 JD	12 D	1.3 JD	ND (1)	NA	NA
	13934	7/11/2002	6.41	**46**	19	0.7	11	1.2	ND (0.2)	NA	NA
	14926	11/21/2002	7.44	**40**	5.8	0.18 J	3.6	0.44 J	ND (0.20)	NA	NA
	15309	1/14/2003	7.59	**24**	6.8	0.080 J	1.0	ND (0.53)	ND (0.045)	NA	NA
	15709	4/22/2003	7.29	**30**	10	0.28 J	4.2	0.68	ND (0.12)	NA	NA
	16109	6/25/2003	7.23	**21**	ND (4.2)	ND (0.066)	0.79	ND (0.50)	ND (0.12)	NA	NA
	17140	11/20/2003	7.10	**20**	6.1	0.080 J	1.3	0.36 J	ND (0.12)	NA	NA
	17609	1/21/2004	6.42	**21 J**	7.5	0.13 J	2.5	0.62	ND (0.12)	NA	NA
	17913	4/6/2004	7.27	**20**	5.3	0.13 J	2.3	0.57	ND (0.12)	NA	NA
	19105	7/19/2004	7.05	**32**	3.6	0.10 J	2.4	0.16 J	ND (0.12)	NA	NA
	19929	11/5/2004	7.28	**26**	3.8	0.080 J	1.3	0.22 J	ND (0.12)	NA	NA
	20415	1/24/2005	7.13	**22**	5.6	0.17 J	3.4	0.43 J	ND (0.12)	NA	NA
	21016	4/27/2005	7.43	**23**	4.6	ND (0.16)	1.6	ND (0.24)	ND (0.13)	NA	NA
	21205	7/26/2005	7.46	**21**	3.6	ND (0.16)	1.3	ND (0.24)	ND (0.13)	NA	NA
	GM-05-039	11/4/2005	7.05	**10**	4.5	ND (0.16)	1.1	0.30 J	ND (0.13)	NA	NA
	GM-06-029	2/8/2006	7.18	**12**	3.3	ND (0.16)	1.5	ND (0.24)	ND (0.13)	NA	NA
	GM-06-103	5/10/2006	7.05	**23**	8.4	0.34 J	4.2	0.42 J	ND (0.13)	NA	NA
	GM-06-193	8/17/2006	6.92	**28**	12	0.58	6.1	0.43 J	ND (0.13)	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

Well No.	Sample ID	Sample Date	Parameters pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	GM-06-440	11/13/2006	7.16	**13**	6.8	0.27 J	2.4	0.31 J	ND (0.13)	NA	NA
	GM-07-126	2/21/2007	7.04	**11**	2.9	ND (0.16)	1	0.40 J	ND (0.13)	N	NA
	GM-07-229	5/10/2007	7.01	**19**	5.5	0.16 J	2.4	0.25 J	ND (0.13)	N	NA
N6-38	N638-OP-3-96	3/29/1996	8.20	ND (100)	**3600**	ND (100)	NA	**91 J**	ND (100)	NA	NA
	N638-11-96	11/5/1996	6.99	ND (100)	**1400**	ND (100)	NA	**46 J**	ND (100)	ND (10)	ND (3)
	N638-1-97	1/30/1997	7.10	**23**	**670**	ND (20)	NA	**45**	ND (20)	NA	NA
	N638-4-97	5/3/1997	7.25	**8.4 J**	**380**	ND (20)	ND (20)	**17 J**	ND (20)	NA	NA
	N638-7-97	7/25/1997	6.89	**24**	**330**	ND (20)	ND (20)	**41**	ND (20)	NA	NA
	GW0049	10/27/1997	7.10	**38**	**680**	1.8	13	**87**	ND (0.2)	ND (10)	ND (3)
	GW0050	10/27/1997	7.10	**38**	**650**	1.7	13	**96**	ND (0.2)	ND (10)	ND (3)
	GW0118	1/20/1998	7.20	**19**	**250**	0.32	1.6	**32**	ND (1.0)	NA	NA
	GW0171	4/15/1998	6.90	**34**	**310**	3.4	6.2	**38**	ND (1.0)	NA	NA
	GW0217	7/29/1998	6.50	**27**	**540**	1.6	1.6	**42**	ND (1.0)	NA	NA
	GW0285	10/27/1998	6.70	**44**	**280**	0.98	3.7	**34**	ND (1.0)	NA	NA
	GW0286	10/27/1998	6.70	**46**	**290**	1.1	4	**34**	ND (1.0)	NA	NA
	GW0338	1/26/1999	6.87	**9.5**	190	ND (0.20)	ND (0.20)	**27**	ND (1.0)	NA	NA
	GW0397	4/22/1999	7.90	**18**	**260**	ND (0.20)	ND (0.20)	**38**	ND (5.0)	NA	NA
	GW0444	7/27/1999	7.70	**9.6**	98	ND (0.20)	ND (0.20)	**28**	ND (0.20)	NA	NA
	GW0509	11/23/1999	7.70	**8.2**	110	ND (0.20)	ND (0.20)	**30**	ND (1.0)	NA	NA
	GW0510	11/23/1999	7.70	**9**	100	ND (0.20)	ND (0.20)	**27**	ND (1.0)	NA	NA
	GW0558	1/27/2000	6.90	**11**	140	ND (0.20)	0.30 J	**31**	ND (0.20)	NA	NA
	GW0616	4/25/2000	6.33	**10**	88	ND (0.1)	ND (0.2)	**25**	ND (0.2)	NA	NA
	GW0654	7/25/2000	6.78	**10**	110 D	0.2 J	0.3 J	**28**	ND (0.50)	NA	NA
	10120	10/25/2000	6.7	**9.8**	78	0.2 J	0.3 J	**28**	ND (0.30)	NA	NA
	10595	1/10/2001	6.10	**8.7**	81 D	0.2 J	0.2 J	**23**	ND (0.30)	NA	NA
	10813	4/12/2001	6.32	**8.9**	74	0.2 J	0.2 J	**12**	ND (0.50)	NA	NA
	11414	7/11/2001	6.43	**9.5**	110 D	0.21 J	0.27 J	**24**	ND (0.22)	NA	NA
	12128/12128	11/7/2001	6.28	**8.6**	109 D	0.15 J	ND (0.1)	**24**	ND (0.2)	NA	NA
	12709/12710	1/15/2002	6.03	**7.1**	65 D	0.12 J	0.12 J	**23**	ND (0.2)	NA	NA
	13111	4/16/2002	5.92	**6.1 D**	68 D	ND (0.2)	ND (0.2)	**16 D**	ND (0.4)	NA	NA
	13935	7/11/2002	6.42	**7.1**	94 D	0.16 J	0.2 J	**17**	ND (0.2)	NA	NA
	14927	11/21/2002	NA	**6.7**	100	0.14 J	0.15 J	**15**	ND (0.20)	NA	NA
	15310	1/14/2003	7.64	**6.9**	130 D	0.18 J	0.17 J	**18 J**	ND (0.045)	NA	NA
	15710	4/22/2003	7.30	**5.2**	93	0.11 J	0.10 J	**15**	ND (0.12)	NA	NA
	16110	6/25/2003	7.34	**6.1**	100	0.15 J	0.14 J	**15**	ND (0.12)	NA	NA
	17143	11/20/2003	6.94	4.8	110	0.14 J	0.11 J	**14**	ND (0.12)	NA	NA
	17612	1/21/2004	6.41	4.9	92	0.090 J	0.13 J	**12**	ND (0.12)	NA	NA
	17914	4/6/2004	7.31	4.2	64	0.14 J	0.13J	0.10 J	ND (0.12)	NA	NA
	19110	7/20/2004	7.03	3.6	60	0.12 J	0.090 J	**8.8**	ND (0.12)	NA	NA
	19933	11/8/2004	7.49	3.4	77	0.13 J	0.11 J	**9.0**	ND (0.12)	NA	NA
	20410	1/18/2005	7.37	**5.4**	93	0.37 J	0.91	**15**	ND (0.12)	NA	NA
	21019	4/27/2005	7.53	3.0	29	ND (0.16)	ND (0.13)	**7.9**	ND (0.13)	NA	NA
	21207	7/26/2005	7.49	4.1	110	0.20 J	ND (0.13)	**7.9**	ND (0.13)	NA	NA
	GM-05-040	11/4/2005	7.09	3.7	120 D	0.16 J	0.27 J	**18**	ND (0.13)	NA	NA
	GM-06-030	2/8/2006	7.25	3.7	61 D	0.21 J	0.26 J	**7.1**	ND (0.13)	NA	NA
	GM-06-104	5/10/2006	7.11	3.7	68 D	0.20 J	0.27 J	**7.8**	ND (0.13)	NA	NA
	GM-06-194	8/15/2006	7.38	**5.0**	100 D	0.47 J	0.72	**8.6**	ND (0.13)	NA	NA
	GM-06-441	11/13/2006	7.15	**4.2**	110 J	0.39 J	0.37 J	**9.8**	ND (0.13)	NA	NA
	GM-07-127	2/21/2007	7.05	**2.9**	39	ND (0.16)	0.14 J	**6.8**	ND (0.13)	NA	NA
	GM-07-230	5/10/2007	7.04	**2.8**	40	0.080 J	0.13 J	**5.9**	ND (0.13)	NA	NA

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
			Parameters								
Compliance Levels				**5**	**200**	**800**	**70**	**7.0**[a]	**0.1**	**80**	**5**
6-I-1	6I1-OP-9-95	9/25/1995	8.51	ND (1)	1.9	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6I1-OP-12-95	12/11/1995	8.04	0.41 J	2.7	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6I1-OP-3-96	3/28/1996	8.40	0.93J	3	ND (1)	NA	ND (1)	ND (1)	NA	NA
	6I1-11-96	11/5/1996	8.41	0.39 J	0.97 J	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (10)	ND (3)
	6I1-1-97	1/30/1997	8.40	2.6	2.8	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	6I1-5-97	5/3/1997	8.40	ND (1.0)	0.66 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	6I1-7-97	7/25/1997	8.25	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	GW0051	10/16/1997	8.40	0.36	0.62	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	ND (10)	ND (3)
	GW0288	10/21/1998	7.80	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0511	11/17/1999	8.30	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	10118	10/25/2000	8.1	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	12105	11/5/2001	7.61	ND (0.2)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	14904	11/18/2002	9.22	ND (0.20)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.20)	NA	NA
	17102	11/11/2003	8.06	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	19909	11/2/2004	8.09	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	GM-05-041	10/31/2005	7.66	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-442	11/13/2006	8.11	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
6-I-3	6I3-SU-2-95	2/14/1995	7.91	ND (1)	3.9	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (5)
	6I3-OP-9-95	9/27/1995	8.15	ND (1)	0.82 J	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6I3-OP-12-95	12/7/1995	7.20	ND (1)	0.52 J	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6I3-OP-3-96	3/27/1996	7.80	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA
	6I3-10-96	10/30/96	7.97	ND (1.0)	ND (1.0)	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (10)	ND (3)
	6I3-1-97	1/29/1997	7.70	4	4.7	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	6I3-5-97	5/2/1997	7.58	ND (1.0)	0.96 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	6I3-7-97	7/23/1997	7.80	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	GW0052	10/15/1997	7.60	1.9	1.1	ND (0.20)	0.2	0.21	ND (1.0)	ND (10)	ND (3)
	GW0288	10/21/1998	7.30	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0512	11/16/1999		ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	10124	10/26/2000	8.6	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	12124	11/8/2001	6.99	ND (0.2)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	14921	11/21/2002	8.84	ND (0.20)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.20)	NA	NA
	17129	11/18/2003	9.29	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	19919	11/3/2004	9.63	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	GM-05-042	10/31/2005	7.40	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-443	11/16/2006	7.92	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
6-I-6	6I6-SU-2-95	2/15/1995	8.47	1.3	5.9	ND (1)	NA	ND (1)	ND (1)	NA	NA
	6I6-OP-9-95	9/27/1995	8.05	0.24 J	1.4	ND (1)	NA	ND (1)	ND (1)	NA	NA
	6I6-OP-12-95	12/9/1995	7.97	ND (1)	3	ND (1)	NA	ND (1)	ND (1)	NA	NA
	6I6-OP-3-96	3/27/1996	8.23	ND (1)	0.35 J	ND (1)	NA	ND (1)	ND (1)	NA	NA
	6I6-11-96	11/2/96	8.19	ND (1.0)	0.42 J	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	6I6-1-97	1/29/1997	8.10	0.31 J	0.74 J	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	6I6-4-97	4/30/1997	7.80	ND (1.0)	0.48 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	6I6-7-97	7/24/1997	7.90	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	GW0053	10/16/1997	8.19	1.3	2	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	ND (10)	ND (3)
	GW0289	10/21/1998	7.50	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0516	11/17/1999	8.50	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
6-I-8	6I8-SU-2-95	2/13/1995	7.90	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	3.8	ND (5)
	6I8-OP-9-95	9/21/1995	8.14	ND (1)	1.4	ND (1)	NA	ND (1)	ND (1)	ND (10)	ND (3)
	6I8-OP-12-95	12/10/1995	7.56	0.38 J	3	0.48 J	NA	ND (1)	ND (1)	ND (10)	ND (3)

Table A-4 (continued)

Cumulative Summary of Area 6 Monitoring Well Results

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Well No.	Sample ID	Sample Date	pH	TCE µg/L	1,1,1-TCA µg/L	1,1-DCA µg/L	cis-1,2-DCE µg/L	1,1-DCE µg/L	Vinyl Chloride µg/L	Chromium µg/L	Lead µg/L
				Parameters							
Compliance Levels				**5**	**200**	**800**	**70**	**7.0[a]**	**0.1**	**80**	**5**
	6I8-OP-3-96	3/27/1996	7.85	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA
	6I8-10-96	10/30/96	7.53	ND (1.0)	ND (1.0)	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (10)	ND (3)
	6I8-1-97	1/31/1997	7.60	1.1	1.3	ND (1.0)	NA	ND (1.0)	ND (1.0)	NA	NA
	6I8-5-97	5/2/1997	7.72	ND (1.0)	0.54 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	6I8-7-97	7/23/1997	8.00	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	NA	NA
	GW0054	10/14/1997	8.20	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.2)	ND (10)	ND (3)
	GW0290	10/21/1998	7.30	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	GW0514	11/16/1999	7.90	ND (0.20)	ND (0.50)	ND (0.20)	ND (0.20)	ND (0.20)	ND (1.0)	NA	NA
	10114	10/25/2000	7.3	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.30)	NA	NA
	12106	11/5/2001	7.17	ND (0.2)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.2)	ND (0.2)	NA	NA
	14902	11/18/2002	8.51	ND (0.20)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.20)	ND (0.20)	NA	NA
	17101	11/10/2003	7.88	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	19903	11/1/2004	8.32	ND (0.081)	ND (0.11)	ND (0.066)	ND (0.067)	ND (0.16)	ND (0.12)	NA	NA
	GM-05-044	10/31/2005	7.31	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA
	GM-06-445	11/13/2005	7.50	ND (0.21)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.24)	ND (0.13)	NA	NA

Notes:

Unless otherwise noted, results are reported in micrograms per liter (ug/L).
Effluent limitations are shown on this Table for comparison to groundwater quality criteria.
Startup and operation samples analyzed by EPA Method 601. 1993 samples analyzed using EPA Method 524.2.
Duplicate samples are grouped with the correct well number but have a blind sample name.
J = Estimated value. Detected, but below quantitation limit.

ND ( ) = indicates parameter not detected; method detection limit in parenthesis.

NR = No reading.

NA = Not analyzed for indicated parameter.

Sample ID Definition:
6S14-SU-2-95 -- Monitoring well number, startup February 1995.
6S13-OP-12-95 -- Monitoring well number in operation December 1995.
6S13-1-97 -- Monitoring well number in operation January 1997.
Tetra Tech EC sample numbers are sequential for the purposes of submitting blind samples to the laboratory.
[a]= Action level increased to 7.0 µg/L as agreed by EPA in 6/6/06 meeting.

Bold indicates exceedance of compliance levels.

Table A-4 (continued)
Cumulative Summary of Area 6 Monitoring Well Results

U.S. Navy 2007a

Well No.	Sample ID	Date	Results (µg/L)
PW-1	16123	6/26/2003	14
	17122	11/13/2003	13
	17627	1/23/2004	13
	19730	4/9/2004	11
	19122	7/20/2004	12
	19949	11/9/2004	11
	20429	1/26/2005	13
	21034	4/29/2005	11
	21227	8/1/2005	12
	GM-05-001	10/28/2005	15
	GM-06-002	2/7/2006	12
	GM-06-073	5/11/2006	14
	GM-06-166	8/17/2006	17
	GM-06-401	11/6/2006	22
	GM-07-102	2/27/2007	11
	GM-07-202	5/14/2007	15
PW-3	16122	6/26/2003	6.2
	17121	11/13/2003	6.1
	17626	1/23/2004	7.3
	17929	4/9/2004	6.1
	19121	7/20/2004	5.9
	19948	11/9/2004	7.6
	20427	1/26/2005	8
	21033	4/29/2005	8.1
	21226	8/1/2005	7.9
	GM-05-002	10/28/2005	8.8
	GM-06-003	2/7/2006	7.4
	GM-06-074	5/11/2006	7.1
	GM-06-167	8/17/2006	7.9
	GM-06-402	11/6/2006	7.6
	GM-07-103	2/27/2007	6.7
	GM-07-203	5/16/2007	6
PW-4	16120	6/26/2003	6.4
	17120	11/13/2003	6.6
	17622	1/23/2004	8.3
	17926	4/9/2004	6.2
	19117	7/20/2004	6.5
	19945	11/9/2004	7.9
	20426	1/26/2005	9.4
	21030	4/29/2005	8.1
	21221	8/1/2005	12
	GM-05-003	10/28/2005	13
	GM-06-403	11/9/2006	19
	GM-07-104	2/27/2007	14
	GM-07-204	5/16/2007	13
PW-5	16115	6/26/2003	4.5 J
	17118	11/13/2003	5.1
	17625	1/23/2004	6.1
	17928	4/9/2004	4.9
	19120	7/20/2004	4.6
	19947	11/9/2004	6.0
	20425	1/26/2005	6.3
	21031	4/29/2005	4.9
	21225	8/1/2005	7.3
	GM-05-004	11/1/2005	7.4
	GM-06-005	2/7/2006	5.3
	GM-06-076	5/11/2006	5.4
	GM-06-169	8/17/2006	9.1
	GM-06-404	11/6/2006	11
	GM-07-105	2/27/2007	5.3
	GM-07-205	5/16/2007	4.7
PW-6	16116	6/26/2003	8.3
	17114	11/13/2003	11
	17620	1/23/2004	12
	17924	4/9/2004	8.2

Table A-5

U.S. Navy 2007a

Cumulative Summary of Area 6 Production Well 1,4-Dioxane Results

Well No.	Sample ID	Date	Results (µg/L)
	19116	7/20/2004	9.6
	19943	11/9/2004	6.7
	20424	1/26/2005	10
	21028	4/29/2005	5.3
	21224	8/1/2005	7.9
	GM-05-005	10/28/2005	7.6
	GM-06-006	2/6/2006	6.5
	GM-06-077	5/11/2006	6.4
	GM-06-170	8/17/2006	9.8
	GM-06-405	11/6/2006	11
	GM-07-106	2/27/2007	6.7
	GM-07-206	5/16/2007	6.5
PW-7	16117	6/26/2003	13
	17117	11/13/2003	13
	17624	1/23/2004	16
	17925	4/9/2004	12
	19119	7/20/2004	9.1
	19944	11/9/2004	8.1
	20423	1/26/2005	7.6
	21029	4/29/2005	6.5
	21222	8/1/2005	5.9
	GM-05-006	10/28/2005	5.6
	GM-06-007	2/7/2006	4.4
	GM-06-078	5/11/2006	5.4
	GM-06-171	8/17/2006	5.4
	GM-06-406	11/6/2006	5.3
	GM-97-107	2/27/2007	3.9
	GM-97-207	5/14/2007	4.1
PW-8	16118	6/26/2003	7.2
	17115	11/13/2003	8.4
	17621	1/23/2004	8.9
	17923	4/9/2004	7.4
	19115	7/20/2004	8.4
	19942	11/9/2004	8.0
	20422	1/26/2005	9.2
	21027	4/29/2005	7.9
	21220	8/1/2005	7.6
	GM-05-007	10/28/2005	7.1
	GM-06-008	2/7/2006	5.9
	GM-06-079	5/11/2006	5.3
	GM-06-172	8/17/2006	4.2
	GM-06-407	11/6/2006	4.7
	GM-07-108	2/27/2007	4.1
	GM-07-208	5/14/2007	3.5
PW-9	16119	6/26/2003	6.5
	17116	11/13/2003	7.7
	17922	4/9/2004	7.1
	19114	7/20/2004	7.1
	19941	11/9/2004	7.5
	20421	1/26/2005	7.8
	21026	4/29/2005	6.9
	21219	8/1/2005	7.6
	GM-05-008	11/1/2005	6.3
	GM-06-009	2/7/2006	6.1
	GM-06-080	5/11/2006	6.0
	GM-06-173	8/17/2006	6.8
	GM-06-408	11/6/2006	6.3
	GM-07-109	2/27/2007	4.6
	GM-07-209	5/14/2007	5.0

Notes:

J = Estimated Value

Table A-5 (continued)

U.S. Navy 2007a Cumulative Summary of Area 6 Production Well 1,4-Dioxane Results

Well No.	Sample ID	Date	Results (ug/L)
6-S-01	GM-05-060	11/10/2005	1.6
	GM-06-036	4/10/2006	4.7
	GM-06-112	5/22/2006	4.2
	GM-06-202	8/18/2006	1.6
	GM-06-446	11/14/2006	0.60 J
	GM-07-145	2/26/2007	3
	GM-07-248	5/9/2007	1.9
6-S-02	17105	11/11/2003	ND (0.15)
	17602	1/19/2004	ND (0.20)
	17901	4/5/2004	ND (0.20)
	20409	1/18/2005	ND (0.47)
	21003	4/25/2005	ND (0.47)
	GM-05-009	10/24/2005	ND (0.47)
	GM-06-081	5/9/2006	ND (0.47)
	GM-07-210	11/14/2007	ND (0.27)
	GM-06-409	5/8/2007	ND (0.27)
6-S-03	17104	11/11/2003	9.3
	19917	11/3/2004	15
	20401	1/17/2005	17
	21004	4/25/2005	15
	21204	7/26/2005	18 J
	GM-05-010	10/26/2005	19
	GM-06-010	2/8/2006	18
	GM-06-082	5/8/2006	22
	GM-06-174	8/15/2006	20
	GM-06-410	11/7/2006	19
	GM-07-110	2/21/2007	17
	GM-07-211	5/8/2007	14
6-S-6	16113	6/25/2003	0.39 J
	17146	11/21/2003	ND (0.15)
	17617	1/23/2004	ND (0.20)
	17920	4/7/2004	ND (0.20)
	19113	7/20/2004	ND (0.47)
	19939	11/8/2004	ND (0.47)
	20420	1/25/2005	ND (0.47)
	21024	4/27/2005	ND (0.47)
	21216	7/27/2005	ND (0.47)
	GM-05-011	11/10/2005	ND (0.47)
	GM-06-011	2/21/2006	ND (0.47)
	GM-06-083	5/11/2006	ND (0.47)
	GM-06-175	8/17/2006	ND (0.27)
	GM-06-411	11/16/2006	ND (0.27)
	GM-07-111	2/23/2007	ND (0.27)
	GM-07-212	5/11/2007	0.51 J
6-S-07	17107	11/11/2003	8.4
	19902	11/1/2004	7.1
	GM-05-012	10/26/2005	8.1
	GM-06-412	11/14/2006	6.1

Table A-6

U.S. Navy 2007a

Cumulative Summary of Area 6 Monitor Well 1,4-Dioxane Results

Well No.	Sample ID	Date	Results (ug/L)
6-S-10	17133	11/18/2003	7.7
	17902	4/5/2004	6.5
	19921	11/4/2004	5.7
	21015	4/27/2005	6.7
	GM-05-013	11/1/2005	7.3
	GM-06-085	5/10/2006	6.2
	GM-06-413	11/13/2006	6.2
	GM-07-213	5/9/2007	4.8
6-S-11	17106	11/11/2003	ND (0.15)
	17601	1/19/2003	ND (0.20)
	17904	4/5/2004	ND (0.20)
	19905	11/2/2004	ND (0.47)
	21001	4/25/2005	0.59 J
	GM-05-014	11/1/2005	1.4
	GM-06-086	5/12/2006	3.7
	GM-06-414	11/17/2006	3.0
	GM-07-214	5/11/2007	3.2
6-S-12	17112	11/12/2003	ND (0.15)
	19906	11/2/2004	ND (0.47)
	GM-05-015	11/3/2005	ND (0.47)
	GM-06-415	11/14/2006	ND (0.27)
6-S-13	17141	11/20/2003	ND (0.15)
	17614	1/21/2004	ND (0.20)
	17916	4/6/2004	ND (0.20)
	19931	11/5/2004	ND (0.47)
	20417	1/24/2005	ND (0.47)
	21020	4/27/2005	ND (0.47)
	GM-05-016	11/3/2005	ND (0.47)
	GM-06-012	2/7/2006	ND (0.47)
	GM-06-087	5/8/2006	ND (0.47)
	GM-06-177	8/15/2006	ND (0.27)
	GM-06-416	11/9/2006	ND (0.27)
	GM-07-113	2/21/2007	ND (0.27)
	GM-07-215	5/9/2007	ND (0.27)
6-S-14	17124	11/13/2003	13
	19924	11/4/2004	12
	GM-05-017	10/27/2005	18
	GM-05-417	11/16/2006	16
6-S-16	GM-05-58	11/3/2005	5.6
	GM-06-037	4/10/2006	3.9
	GM-06-113	5/22/2006	4.1
	GM-06-203	8/18/2006	5.5
	GM-06-447	11/9/2006	12
	GM-07-146	2/26/2007	4.9
	GM-07-249	5/9/2007	3.5

Table A-6 (continued)

U.S. Navy 2007a

Cumulative Summary of Area 6 Monitor Well 1,4-Dioxane Results

Well No.	Sample ID	Date	Results (ug/L)
6-S-17	GM-05-059	11/3/2005	15
	GM-06-038	4/10/2006	7.5
	GM-06-115	5/22/2006	17
	GM-06-204	8/18/2006	14
	GM-06-448	11/9/2006	17
	GM-07-147	2/26/2007	14
	GM-07-250	5/9/2007	11
6-S-19	16104	6/24/2003	6.5 J
	17128	11/17/2003	6.5
	17604	1/19/2004	6.3
	17906	4/5/2004	4.6
	19102	7/19/2004	4.5
	19911	11/2/2004	4.5
	20402	1/17/2005	4.8
	21014	4/26/2005	3.8
	21203	7/26/2005	8.8 J
	GM-05-018	10/27/2005	7.8
	GM-06-014	2/8/2006	7.4
	GM-06-088	5/8/2006	6.9
	GM-06-178	8/15/2006	6.3
	GM-06-418	11/7/2006	4.7
	GM-07-114	2/21/2007	5.6
	GM-07-216	5/7/2007	10
6-S-21	16102	6/24/2003	7.1 J
	17130	11/18/2003	8
	17606	1/21/2004	7.5
	17907	4/5/2004	6.2
	19103	7/19/2004	6.2
	19904	11/1/2004	6.8 J
	20404	1/17/2005	8.2
	21005	4/25/2005	5.9 J
	21201	7/26/2005	8.6 J
	GM-05-019	10/31/2005	8.1
	GM-06-015	2/6/2006	6.6
	GM-06-089	5/9/2006	6.9
	GM-06-179	8/15/2006	7.3
	GM-06-419	11/9/2006	6.8
	GM-07-115	2/20/2007	5.5
	GM-07-217	5/7/2007	6.3
6-S-22	17103	11/11/2003	8.7
	19908	11/2/2004	7.3
	GM-05-020	10/31/2005	8.7
	GM-06-420	11/13/2006	8.3
6-S-23	17139	11/20/2003	6.9
	19923	11/4/2004	1.5
	GM-05-021	10/27/2005	4.8
	GM-06-421	11/9/2006	8.3

Table A-6 (continued)

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Cumulative Summary of Area 6 Monitor Well 1,4-Dioxane Results

Well No.	Sample ID	Date	Results (ug/L)
6-S-24	16105	6/24/2003	ND (0.15)
	17113	11/12/2003	ND (0.15)
	17610	1/21/2004	ND (0.20)
	17908	4/6/2004	ND (0.20)
	19109	7/20/2004	ND (0.47)
	19907	11/2/2004	ND (0.47)
	20412	1/24/2005	ND (0.47)
	21012	4/26/2005	ND (0.47)
	21214	7/27/2005	ND (0.47)
	GM-05-022	11/7/2005	ND (0.47)
	GM-06-017	2/10/2006	ND (0.47)
	GM-06-091	5/12/2006	ND (0.47)
	GM-06-181	8/18/2006	ND (0.27)
	GM-06-423	11/14/2006	ND (0.27)
	GM-07-116	2/26/2007	ND (0.27)
	GM-07-218	5/11/2007	ND (0.27)
6-S-25	16112	6/25/2003	ND (0.15)
	17142	11/20/2003	ND (0.15)
	17615	1/21/2004	ND (0.20)
	17917	4/6/2004	ND (0.20)
	19112	7/20/2004	ND (0.47)
	19937	11/8/2004	ND (0.47)
	20418	1/24/2005	ND (0.47)
	21021	4/27/2005	ND (0.47)
	21215	7/27/2005	ND (0.47)
	GM-05-023	11/7/2005	ND (0.47)
	GM-06-018	2/9/2006	ND (0.47)
	GM-06-092	5/11/2006	ND (0.47)
	GM-06-182	8/17/2006	ND (0.27)
	GM-06-424	11/17/2006	ND (0.27)
	GM-07-117	2/23/2007	ND (0.27)
	GM-07-220	5/10/2007	ND (0.27)
6-S-26	16101	6/24/2003	6.0 J
	17108	11/11/2003	7.0
	19901	11/1/2004	6.1
	GM-05-024	11/3/2005	5.7
	GM-05-425	11/16/2006	5.8
6-S-27*	16106	6/25/2003	ND (0.15)
	17111	11/21/2003	ND (0.15)
	17605	1/20/2004	ND (0.20)
	17909	4/6/2004	ND (0.20)
	19107	7/20/2004	ND (0.47)
	19915	11/3/2004	ND (0.47)
	20407	1/18/2005	ND (0.47)
	21008	4/26/2005	ND (0.47)
	21211	7/27/2005	ND (0.47)
	GM-05-025	11/2/2005	ND (0.47)
	GM-06-019	2/9/2006	ND (0.47)
	GM-06-093	5/9/2006	ND (0.47)
	GM-06-184	8/16/2006	ND (0.27)
	GM-06-426	11/9/2006	ND (0.27)
	GM-07-118	2/22/2007	ND (0.27)
	GM-07-221	5/8/2007	ND (0.27)

Table A-6 (continued)

U.S. Navy 2007a

Cumulative Summary of Area 6 Monitor Well 1,4-Dioxane Results

Well No.	Sample ID	Date	Results (ug/L)
6-S-28*	17110	11/12/2003	ND (0.15)
	19916	11/3/2004	ND (0.47)
	GM-05-026	11/2/2005	ND (0.47)
	GM-06-427	11/9/2006	ND (0.27)
6-S-29	16103	6/24/2003	8.4 J
	17127	11/17/2003	9.7
	17603	1/19/2004	9.7
	17905	4/5/2004	9.8
	19101	7/19/2004	10
	19910	11/2/2004	8.0
	20403	1/17/2005	8.2
	21013	4/26/2005	9.9
	21202	7/26/2005	9.5 J
	GM-05-027	10/27/2005	14
	GM-06-020	2/8/2006	12
	GM-06-094	5/8/2006	13
	GM-06-185	8/15/2006	16
	GM-06-428	11/7/2006	16
	GM-07-119	2/20/2007	14
	GM-07-222	5/7/2007	17
6-S-30	17131	11/18/2003	8.2
	17607	1/21/2004	7.7
	17911	4/6/2004	5.7
	19104	7/19/2004	5.8
	19930	11/5/2004	6.2
	20413	1/24/2005	6.8
	21017	4/27/2005	6.7
	21209	7/26/2005	8.1 J
	GM-05-028	11/4/2005	7.8
	GM-06-021	2/8/2006	6.3
	GM-06-095	5/10/2006	6.9
	GM-06-186	8/16/2006	5.2
	GM-06-429	11/13/2006	6.9
	GM-07-120	2/22/2007	6.4
	GM-07-223	5/8/2007	6.1
6-S-31	17132	11/18/2003	12
	17608	1/21/2004	9.5
	17912	4/6/2004	9.1
	19106	7/19/2004	8.7
	19926	11/4/2004	8.5
	20414	1/24/2005	8.9
	21018	4/27/2005	8
	21208	7/26/2005	7.8 J
	GM-05-029	11/4/2005	6.5
	GM-06-022	2/9/2006	6.7
	GM-06-096	5/10/2006	6.8
	GM-06-187	8/16/2006	7.1
	GM-06-431	11/13/2006	7.7
	GM-07-121	2/22/2007	6.8
	GM-07-224	5/10/2007	6.7

Table A-6 (continued)

U.S. Navy 2007a

Cumulative Summary of Area 6 Monitor Well 1,4-Dioxane Results

Well No.	Sample ID	Date	Results (ug/L)
6-I-01	17102	11/11/2003	ND (0.15)
	19909	11/2/2004	ND (0.47)
	GM-05-041	10/31/2005	ND (0.47)
	GM-06-442	11/13/2006	ND (0.27)
6-I-03	17129	11/18/2003	ND (0.15)
	19919	11/3/2004	ND (0.47)
	GM-05-042	10/31/2005	ND (0.47)
	GM-06-443	11/16/2006	ND (0.27)
6-I-08	17101	11/21/2003	ND (0.15)
	19903	11/1/2004	ND (0.47)
	GM-05-044	10/31/2005	ND (0.47)
	GM-06-445	11/13/2006	ND (0.27)
MW-01*	19912	11/3/2004	ND (0.47)
	20405	1/18/2005	ND (0.47)
	21006	4/26/2005	ND (0.47)
	21213	7/27/2005	ND (0.47)
	GM-05-030	11/2/2005	ND (0.47)
	GM-06-023	2/7/2006	ND (0.47)
	GM-06-097	5/9/2006	ND (0.47)
	GM-06-188	8/16/2006	1.1
	GM-06-449	11/8/2006	ND (0.27)
	GM-07-122	2/22/2007	ND (0.27)
	GM-07-225	5/8/2007	ND (0.27)
MW-03B*	19913	11/3/2004	0.51 J
	20406	1/18/2005	0.55 J
	21007	4/26/2005	ND (0.47)
	21212	7/27/2005	0.70 J
	GM-05-031	11/2/2005	1.0
	GM-06-024	2/9/2006	0.92 J
	GM-06-098	5/9/2006	1.2
	GM-06-189	8/16/2006	0.98 J
	GM-06-450	11/9/2006	0.95 J
	GM-07-123	2/22/2007	0.86 J
	GM-07-226	5/8/2007	0.84 J
MW-05*	16107	6/25/2003	ND (0.15)
	17126	11/17/2003	0.24 J
	17618	1/23/2004	ND (0.20)
	17910	4/6/2004	ND (0.20)
	19108	7/20/2004	ND (0.47)
	19920	11/4/2004	ND (0.47)
	20408	1/18/2005	ND (0.47)
	21011	4/26/2005	ND (0.47)
	21210	7/27/2005	0.54 J
	GM-05-032	11/2/2005	ND (0.47)
	GM-06-026	2/9/2006	ND (0.47)
	GM-06-100	5/9/2006	ND (0.47)
	GM-06-191	8/16/2006	ND (0.27)
	GM-06-433	11/9/2006	0.35 J
	GM-07-124	2/27/2007	ND (0.27)
	GM-07-227	5/8/2007	ND (0.27)

Table A-6 (continued)
Cumulative Summary of Area 6 Monitor Well 1,4-Dioxane Results

U.S. Navy 2007a

Well No.	Sample ID	Date	Results (ug/L)
MW-06*	16124	6/26/2003	ND (0.15)
	17109	11/12/2003	ND (0.15)
	19914	11/3/2004	ND (0.47)
	GM-05-033	11/2/2005	ND (0.47)
	GM-06-434	11/8/2006	ND (0.27)
MW-7	17145	11/21/2003	13
	17616	1/21/2004	17
	17919	4/7/2004	12
	19938	11/8/2004	13
	20419	1/24/2005	13
	21022	4/27/2005	11
	GM-05-034	11/7/2005	9.9
	GM-06-027	2/9/2006	6.7
	GM-06-101	5/10/2006	8.5
	GM-06-192	8/17/2006	8.9
	GM-06-435	11/16/2006	8.0
	GM-07-125	2/23/2007	6.9
	GM-07-228	5/10/2007	6.6
MW-8	17138	11/20/2003	13
	19925	11/4/2004	5.7
	GM-05-035	11/1/2005	9.4
	GM-06-436	11/16/2006	10.0
MW-9	17134	11/18/2003	8.2
	19927	11/5/2004	8.8
	GM-05-036	10/27/2005	5.9
	GM-06-437	11/16/2006	6.5
MW-10	17135	11/18/2003	3.5
	17903	4/5/2004	1.8
	19928	11/5/2004	3.5
	21002	4/25/2005	0.87 J
	GM-05-037	11/1/2005	1.7
	GM-06-438	11/14/2006	1.4
MW-11	17137	11/20/2003	ND (0.15)
	19922	11/4/2004	ND (0.47)
	GM-05-038	10/27/2005	ND (0.47)
	GM-06-439	11/13/2006	ND (0.27)
N6-37	16109	6/25/2003	6.7 J
	17140	11/20/2003	7.4
	17609	1/21/2004	6.8
	17913	4/6/2004	4.9
	19105	7/19/2004	5
	19929	11/5/2004	4.8
	20415	1/24/2005	6.2
	21016	4/27/2005	7.7
	21205	7/26/2005	7.6 J
	GM-05-039	11/4/2005	6.7
	GM-06-029	2/8/2006	6.1
	GM-06-103	5/10/2006	5.5
	GM-06-193	8/17/2006	5.3
	GM-06-440	11/13/2006	5.8
	GM-07-126	2/21/2007	6
	GM-07-229	5/10/2007	5.1

Table A-6 (continued)

U.S. Navy 2007a

Cumulative Summary of Area 6 Monitor Well 1,4-Dioxane Results

Well No.	Sample ID	Date	Results (ug/L)
N6-38	16110	6/25/2003	7.2 J
	17143	11/20/2003	7.8
	17612	1/21/2004	7.8
	17914	4/6/2004	6
	19110	7/20/2004	6.2
	19933	11/8/2004	6.3
	20410	1/18/2005	8.2
	21019	4/27/2005	3.8
	21207	7/26/2005	8.0 J
	GM-05-040	11/4/2005	6.8
	GM-06-030	2/8/2006	6.2
	GM-06-104	5/10/2006	6.6
	GM-06-194	8/15/2006	7.4
	GM-06-441	11/13/2006	7.0
	GM-07-127	2/21/2007	6.5
	GM-07-230	5/10/2007	5.4
P-1*	19935	11/8/2004	ND (0.47)
	21010	4/26/2005	ND (0.47)
	GM-05-045	11/10/2005	ND (0.47)
	GM-06-451	11/7/2006	ND (0.27)
P-2*	19936	11/8/2004	ND (0.47)
	21009	4/26/2005	ND (0.47)
	GM-05-046	11/8/2005	ND (0.47)
	GM-06-452	11/7/2006	ND (0.27)

Notes:

J = Estimated Value

ND ( ) = indicates parameter not detected; method detection limit in parenthesis.

Note: 6-S-02 was not sampled in November 2004 due to reconstruction of Highway 20.

* = well is located outside of the Area 6 Landfill boundary (see Figure 4-7).

Table A-6 (continued)

U.S. Navy 2007a

Cumulative Summary of Area 6 Monitor Well 1,4-Dioxane Results

Location ID	Sample ID	Date	Results (µg/L)
SW 1	21036	5/2/2005	6.9
	GM-06-054	4/10/2006	3.2
	GM-06-129	5/23/2006	6.4
SW 2	21037	5/2/2005	8.2
	GM-06-055	4/10/2006	3.1
	GM-06-130	5/23/2006	7.1
	GM-06-221	8/21/2006	8.2
	GM-06-472	11/6/2006	6.1
6-DW-38	21038	5/2/2005	2.1
	21228	8/1/2005	2.7
	GM-05-067	11/14/2005	2.3
	GM-06-114	4/10/2006	2.3 J
	GM-06-148	5/23/2006	2.9
	GM-06-206	8/21/2006	2.8
	GM-06-458	11/15/2006	2.7
	GM-06-460	11/15/2006	1.0
6-DW-39	21039	5/2/2005	ND (0.47)
	21229	8/1/2005	0.63 J
	GM-05-068	11/14/2005	ND (0.47)
	GM-06-116	4/10/2006	ND (0.47)
	GM-06-151	5/23/2006	ND (0.47)
	GM-06-208	8/21/2006	ND (0.27)
6-DW-40	21040	5/2/2005	ND (0.47)
	21235	8/2/2005	1.2
	GM-05-069	11/14/2005	ND (0.47)
	GM-06-117	4/10/2006	ND (0.47)
	GM-06-152	5/23/2006	ND (0.47)
	GM-06-209	8/21/2006	ND (0.27)
	GM-06-461	11/15/2006	ND (0.27)
6-DW-42	21042	5/2/2005	ND (0.47)
	21234	8/2/2005	0.94 J
	GM-05-070	11/14/2005	ND (0.47)
	GM-06-118	4/10/2006	ND (0.47)
	GM-06-153	5/23/2006	ND (0.47)
	GM-06-210	8/21/2006	ND (0.27)
	GM-06-462	11/15/2006	ND (0.27)
6-DW-43	21043	5/2/2005	ND (0.47)
	21237	8/2/2005	0.89 J
	GM-05-071	11/14/2005	ND (0.47)
	GM-06-120	4/10/2006	ND (0.47)
	GM-06-154	5/23/2006	ND (0.47)
	GM-06-211	8/21/2006	ND (0.27)
	GM-06-463	11/16/2006	ND (0.27)
6-DW-44	21044	5/2/2005	ND (0.47)
	NA	NA	NA
	NA	NA	NA
6-DW-45	21045	5/2/2005	ND (0.47)
	NA	NA	NA
	GM-05-073	11/14/2005	ND (0.47)
	GM-06-121	4/10/2006	ND (0.47)
	GM-06-155	5/23/2006	ND (0.47)
	GM-06-212	8/21/2006	ND (0.27)
	GM-06-464	11/16/2006	ND (0.27)
6-DW-46	21046	5/2/2005	ND (0.47)
	NA	NA	NA
	GM-05-074	11/14/2005	ND (0.47)
	GM-06-122	4/10/2006	ND (0.47)
	GM-06-156	5/23/2006	ND (0.47)
	GM-06-213	8/21/2006	ND (0.27)
	GM-06-465	11/15/2006	ND (0.27)
6-DW-47	21047	5/3/2005	ND (0.47)
	21232	8/2/2005	0.56 J
	GM-05-075	11/14/2005	ND (0.47)
	GM-06-123	4/10/2006	ND (0.47)
	GM-06-157	5/23/2006	ND (0.47)
	GM-06-214	8/21/2006	ND (0.27)
	GM-06-466	11/15/2006	ND (0.27)
6-DW-48	21048	5/3/2005	ND (0.47)
	21233	8/2/2005	1.1
	GM-05-076	11/14/2005	ND (0.47)
	GM-06-124	4/10/2006	ND (0.47)
	GM-06-158	5/23/2006	ND (0.47)
	GM-06-216	8/21/2006	ND (0.27)
	GM-06-467	11/15/2006	ND (0.27)
6-DW-49	21049	5/3/2005	ND (0.47)
	NA	NA	NA
	GM-05-077	11/14/2005	ND (0.47)
	GM-06-125	4/10/2006	ND (0.47)
	GM-06-159	5/23/2006	ND (0.47)
	GM-06-217	8/21/2006	ND (0.27)
	GM-06-468	11/15/2006	ND (0.27)
6-DW-60	21060	5/3/2005	ND (0.47)
	21230	8/1/2005	ND (0.47)
	GM-05-078	11/14/2005	ND (0.47)
	GM-06-126	4/10/2006	ND (0.47)
	GM-06-160	5/23/2006	ND (0.47)
	GM-06-218	8/21/2006	ND (0.27)
	GM-06-469	11/15/2006	ND (0.27)
6-DW-61	21061	5/3/2005	ND (0.47)
	21231	8/1/2005	0.81 J
	GM-05-079	11/14/2005	ND (0.47)
	GM-06-127	4/10/2006	ND (0.47)
	GM-06-128	5/23/2006	ND (0.47)
	GM-06-219	8/21/2006	ND (0.27)
	GM-06-470	11/15/2006	ND (0.27)

Notes:

ND ( ) = indicates parameter not detected; method detection limit in parentheses

J = Estimated Value

NA= Not sampled

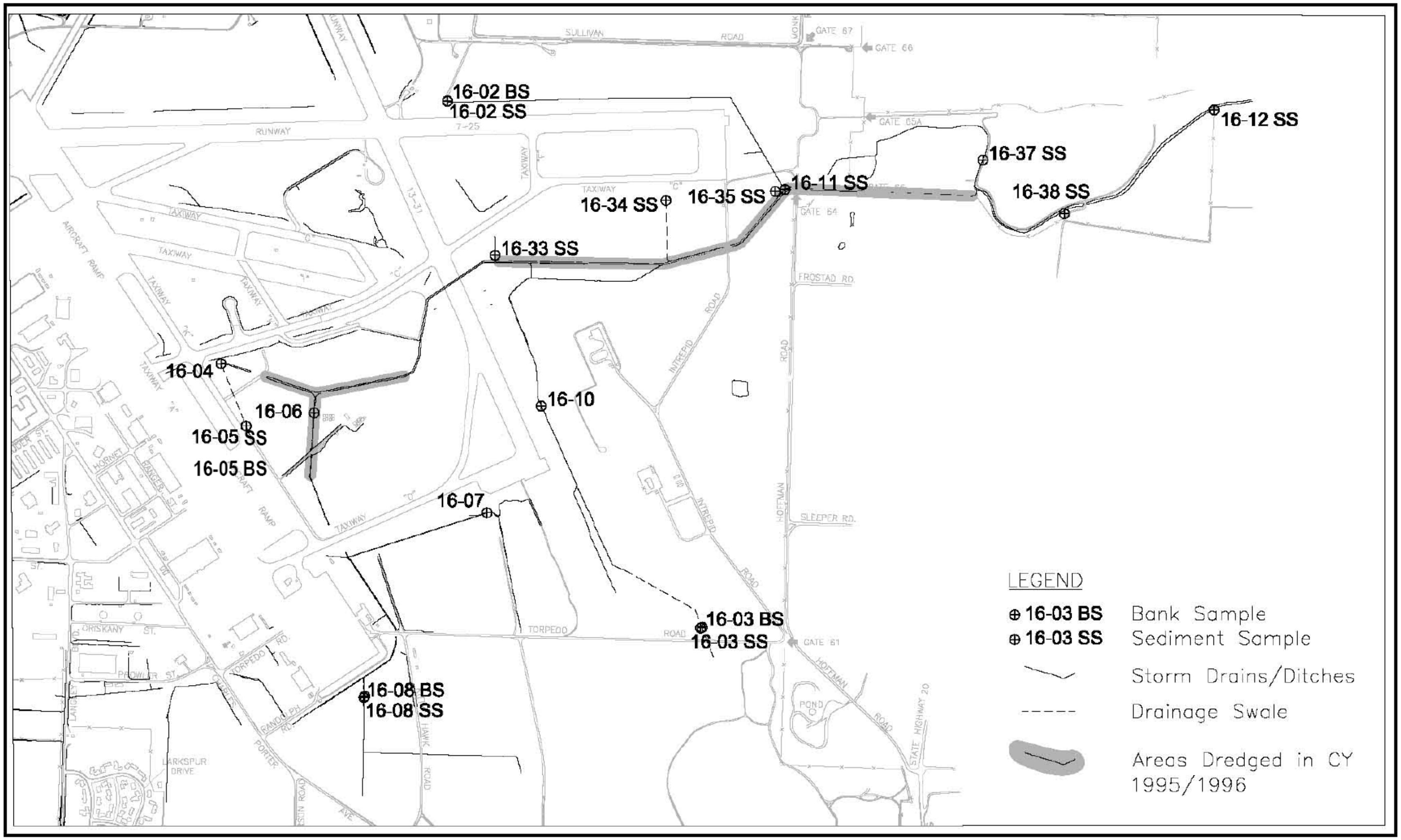
See Figure 3-2 for private (domestic) and surface water locations.

Table A-7
Cumulative Summary of Area 6 Private Well and Surface Water
1,4-Dioxane Results

U.S. Navy 2007a

Appendix B

Area 16 Monitoring



0 750 1500 SCALE IN FEET	SES-TECH	**Figure 2-2** **Area 16 Ditch Sediment Sampling Locations**	Task Order 26 NAS Whidbey Runway Ditch Sampling

Figure B-1

U.S. Navy 2006a

Location/ Sediment	Sample ID	Date Collected	NWTPH-Gx (mg/kg)	NWTPH-Dx Diesel/RRO (mg/kg)	EPA Method 8260B (mg/kg)			
					Benzene	Toluene	Ethylbenzene	Xylenes
16-2	SS-009	9/9/06	69 Z	**3,000 DY/3,900 DO**	ND	ND	ND	ND
16-3	SS-005	9/8/06	1.4 J	8.4 J/66 J	ND	ND	ND	ND
16-4	SS-015	9/11/06	1.6 J	7.5 J/130 Z	ND	ND	ND	ND
16-5	SS-017	9/11/06	1.2 J	9.5 J/110 J	ND	ND	ND	ND
16-6	SS-016	9/11/06	2.0 J	12 J/150 J	ND	ND	ND	ND
16-7	SS-014	9/11/06	0.98 J	3.8 J/56 J	ND	ND	ND	ND
16-8	SS-004	9/8/06	2.3 J	12 J/61 J	ND	ND	ND	ND
16-10	SS-013	9/11/06	2.8 J	8.4 J/73 J	ND	ND	ND	ND
16-11	SS-001	9/7/06	5.6 Z	26 J/70 J	ND	ND	ND	ND
16-12	SS-006	9/8/06	4.4 J	190 H/**550 O**	ND	ND	ND	ND
16-32	SS-012	9/11/06	1.1 J	ND/19 J	ND	ND	ND	ND
16-33	SS-011	9/9/06	3.7 J	3.8 J/13 J	ND	ND	ND	ND
16-34	SS-010	9/9/06	7.3 J	14 J/43 J	ND	ND	ND	ND
16-35	SS-002	9/7/06	2.6 J	ND/10 J	ND	ND	ND	ND
16-35 (dup)	SS-003	9/7/06	2.1 J	ND/7.5 J	ND	ND	ND	ND
16-37	SS-008	9/9/06	2.0 J	17 J/77 J	ND	ND	ND	ND
16-38	SS-007	9/8/06	2.8 J	120 H/**690 O**	ND	0.029 J	ND	ND
	ROD Cleanup Levels		N/A	200/200	N/A	N/A	N/A	N/A
	On-site Soil Disposal Criteria		100	2,000/2,000	0.03	7	6	9
	QC Samples		(µg/l)	(µg/l)/(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)
Trip Blanks	Soil Trips	9/08/06	1.3 J	N/A	ND	ND	ND	ND
	TB-001	9/11/06	ND	N/A	N/A	N/A	N/A	N/A
Rinsate	RB-090706	9/9/06	22 J	94 J/180 J	ND	ND	ND	ND
Rinsate	RB-090806	9/8/06	14 J	62 J/68 J	ND	ND	ND	ND
Rinsate	RB-090906	9/9/06	ND	23 J/19 J	ND	ND	ND	ND

NWTPH-Gx = Northwest total petroleum hydrocarbons – gasoline
NWTPH-Dx = Northwest total petroleum hydrocarbons – diesel
ND = Not detected at or above the laboratory's detection limit
N/A = not applicable (not analyzed)
RRO = residual range organics
Note: Bold indicates an exceedance of the ROD criteria. On-site soil disposal criteria exceedances are shaded.
Laboratory qualifier definitions:
D = The reported result is from a dilution
H = The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
J = The result is an estimated concentration that is less than the reporting limit, but greater than or equal to the method detection limit.
O = The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y = The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
Z = The chromatographic fingerprint does not resemble a petroleum product.

Table B-1
Sediment Analytical Results for Fuel and Related Volatile Organic Compounds

U.S. Navy 2006a

Location	Sample ID	Date Collected	PAHs 8270 SIM (µg/kg)	Lead (mg/kg)	Arsenic (mg/kg)
Sediment					
16-2	SS-009	9/9/06	2-Methylnaphthalene = 56 Phenanthrene = 89 Benzo(k)fluoranthene = 5.6 J Dibenz(a,h)anthracene = 1.7 J	**48.5**	6.40
16-3	SS-005	9/8/06	2-Methylnaphthalene = 0.74 J Phenanthrene = 0.65 J Benzo(k)fluoranthene <3.7 J Dibenz(a,h)anthracene <3.7	3.46	11.3
16-4	SS-015	9/11/06	2-Methylnaphthalene = 1.5 J Phenanthrene = 4.7 J Benzo(k)fluoranthene = 1.6 J Dibenz(a,h)anthracene = 0.46 J	17.3	9.67
16-5	SS-017	9/11/06	2-Methylnaphthalene = 1.8 J Phenanthrene = 7.5 Benzo(k)fluoranthene = 2.9 J Dibenz(a,h)anthracene = 0.44 J	16.2	7.60
16-6	SS-016	9/11/06	2-Methylnaphthalene = 1.3 J Phenanthrene = 3.1 J Benzo(k)fluoranthene = 1.9 J Dibenz(a,h)anthracene <5.6	10.2	8.17
16-7	SS-014	9/11/06	2-Methylnaphthalene = 0.68 J Phenanthrene <5.1 Benzo(k)fluoranthene <5.1 Dibenz(a,h)anthracene <5.1	3.71	3.24
16-8	SS-004	9/8/06	2-Methylnaphthalene = 4.9 Phenanthrene = 15 Benzo(k)fluoranthene =2.1 J Dibenz(a,h)anthracene = 0.60 J	5.96	6.60
16-10	SS-013	9/11/06	2-Methylnaphthalene = 1.4 J Phenanthrene = 2.9 J Benzo(k)fluoranthene <6.3 Dibenz(a,h)anthracene <6.3	5.18	4.63
16-11	SS-001	9/7/06	2-Methylnaphthalene = 2.9 J Phenanthrene = 3.7 Benzo(k)fluoranthene = 1.2 J Dibenz(a,h)anthracene = 0.36 J	5.21	3.30
16-12	SS-006	9/8/06	2-Methylnaphthalene = 6.7 J Phenanthrene = 7.8 J Benzo(k)fluoranthene =13 Dibenz(a,h)anthracene = 3.1 J	**51.9**	**27.1**
16-32	SS-012	9/11/06	2-Methylnaphthalene = 0.54 J Phenanthrene <5.1 Benzo(k)fluoranthene <5.1 Dibenz(a,h)anthracene <5.1	1.89	3.88

Table B-2

Sediment Analytical Results for Semivolatile Organics and Inorganics

U.S. Navy 2006a

Location	Sample ID	Date Collected	PAHs 8270 SIM (µg/kg)	Lead (mg/kg)	Arsenic (mg/kg)
Sediment					
16-33	SS-011	9/9/06	2-Methylnaphthalene = 2.3 J Phenanthrene = 2.5 J Benzo(k)fluoranthene <3.2 Dibenz(a,h)anthracene <3.2	3.26	9.53
16-34	SS-010	9/9/06	2-Methylnaphthalene = 1.9 J Phenanthrene = 1.2 J Benzo(k)fluoranthene <8.8 Dibenz(a,h)anthracene <8.8	0.53	2.80
16-35	SS-002	9/7/06	2-Methylnaphthalene = 2.2 J Phenanthrene = 2.5 J Benzo(k)fluoranthene <3.2 Dibenz(a,h)anthracene <3.2	2.88	5.75
16-35 (dup)	SS-003	9/7/06	2-Methylnaphthalene = 3.9 Phenanthrene = 3.7 Benzo(k)fluoranthene <4.6 Dibenz(a,h)anthracene <4.6	5.43	3.53
16-37	SS-008	9/9/06	2-Methylnaphthalene = 4.0 J Phenanthrene = 5.6 Benzo(k)fluoranthene <4.6 Dibenz(a,h)anthracene <4.6	6.02	6.38
16-38	SS-007	9/8/06	2-Methylnaphthalene = 2.5 J Phenanthrene = 3.9 J Benzo(k)fluoranthene =1.8 J Dibenz(a,h)anthracene <5.6	17.8	7.14
On-Site Soil Disposal Criteria			Dibenz(a,h)anthracene = 18,000	1,000	87.5
ROD Cleanup Levels			2-Methylnaphthalene = 800 Phenanthrene = 18,000 Benzo(k)fluoranthene = 1,100 Dibenz(a,h)anthracene = 13,000	18	16
QC Samples			(µg/l)	(µg/l)	(µg/l)
Trip Blank	TB-001	9/11/06	N/A	N/A	N/A
Rinsate	RB-090706	9/9/06	2-Methylnaphthalene=0.0061 J, Phenanthrene=0.0056 J	4.220	0.49 B
Rinsate	RB-090806	9/8/06	2-Methylnaphthalene=0.0064 J, Phenanthrene=0.0037 J	0.547	0.24 B
Rinsate	RB-090906	9/9/06	2-Methylnaphthalene=0.0043 J Phenanthrene=0.0035 J	0.147	0.12 B

Notes:
ROD cleanup level exceedances are identified in bold. On-site soil disposal criteria exceedances are shaded.
Only ROD-listed compounds are included above. Total detections of PAHs, metals, etc. are included in Appendix C.

Table B-2 (continued)
Sediment Analytical Results for Semivolatile Organics and Inorganics

U.S. Navy 2006a

Location	Sample ID	BTEX 8260 B[1/] (mg/kg)				PAHs 8270 SIM (µg/kg)	TCLP 8[1/] RCRA Metals (mg/L)			
		Benzene	Ethylbenzene	Toluene	Xylenes		As/Ba	Cd/Cr	Pb/Hg	Se/Ag
16-S-2	BS-004	ND	ND	ND	ND	2-Methylnaphthalene = 1.3 J Phenanthrene = 0.79 J Benzo(k)fluoranthene = 0.42 J Dibenz(a,h)anthracene <4.7	ND/0.4 B	0.003B/ND	ND/ND	ND/ND
16-S-3	BS-003	ND	ND	ND	0.015	2-Methylnaphthalene = 1.7 J Phenanthrene = 6.1 Benzo(k)fluoranthene = 3.5 J Dibenz(a,h)anthracene = 0.47 J	ND/ND	0.018/0.009 B	0.17/ND	ND/ND
16-S-5	BS-005	ND	ND	ND	ND	2-Methylnaphthalene = 3.4 J Phenanthrene = 93 Benzo(k)fluoranthene = 20 Dibenz(a,h)anthracene = 2.4 J	ND/0.3 B	ND/ND	ND/ND	ND/ND
16-S-8	BS-001	ND	ND	ND	ND	2-Methylnaphthalene = 2.3 J Phenanthrene = 9.3 Benzo(k)fluoranthene = 4.3 J Dibenz(a,h)anthracene = 1.1 J	ND/0.4 B	ND/0.007 B	ND/0.001	ND/ND
16-S-8 (dup)	BS-002	ND	ND	ND	ND	2-Methylnaphthalene = 1.6 J Phenanthrene = 5.6 Benzo(k)fluoranthene = 3.8 J Dibenz(a,h)anthracene = 1.1 J	ND/ND	ND/0.014 B	ND/ND	ND/ND
QC Samples										
Trip Blank	N/A	ND	ND	ND	ND	NA	NA	NA	NA	NA

[1/] Eight RCRA metals include arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver.

Note: BTEX = benzene, toluene, ethylbenzene, and xylenes
PAHs = polynuclear aromatic hydrocarbons
TCLP = Toxicity Characteristic Leaching Procedure
ND = Not detected at or above the laboratory's detection limit
RCRA = Resource Conservation and Recovery Act

Laboratory qualifier definition:
B = The result is an estimated concentration that is less than the reporting limit, but greater than or equal to the method detection limit.

Table B-3
Sediment Analytical Results for Semivolatile Organics and Inorganics

U.S. Navy 2006a

Appendix C

Area 31 Monitoring

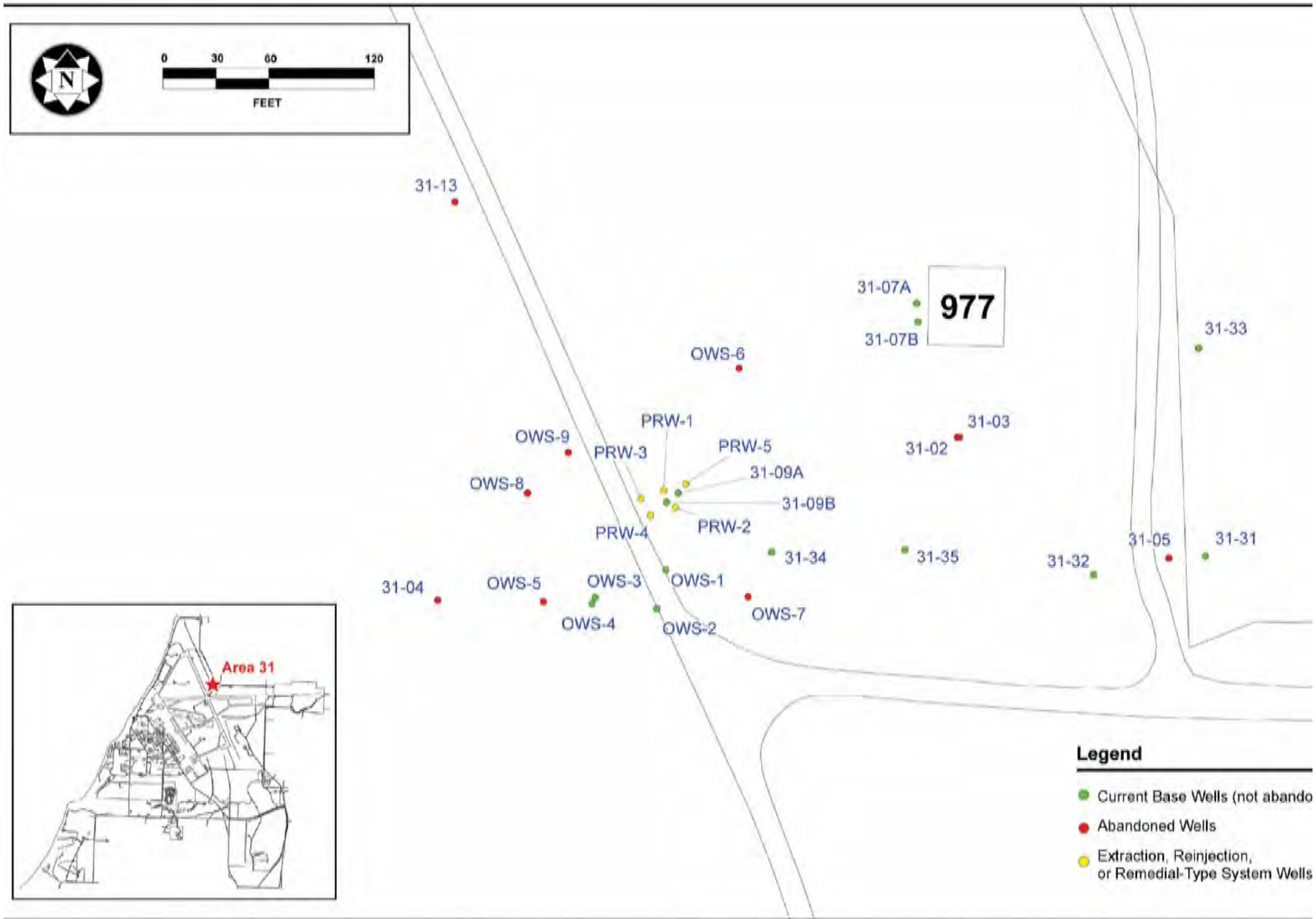


Figure 1-1
Area 31 Current and Abandoned Well Locations

Figure C-1

U.S. Navy 2007b

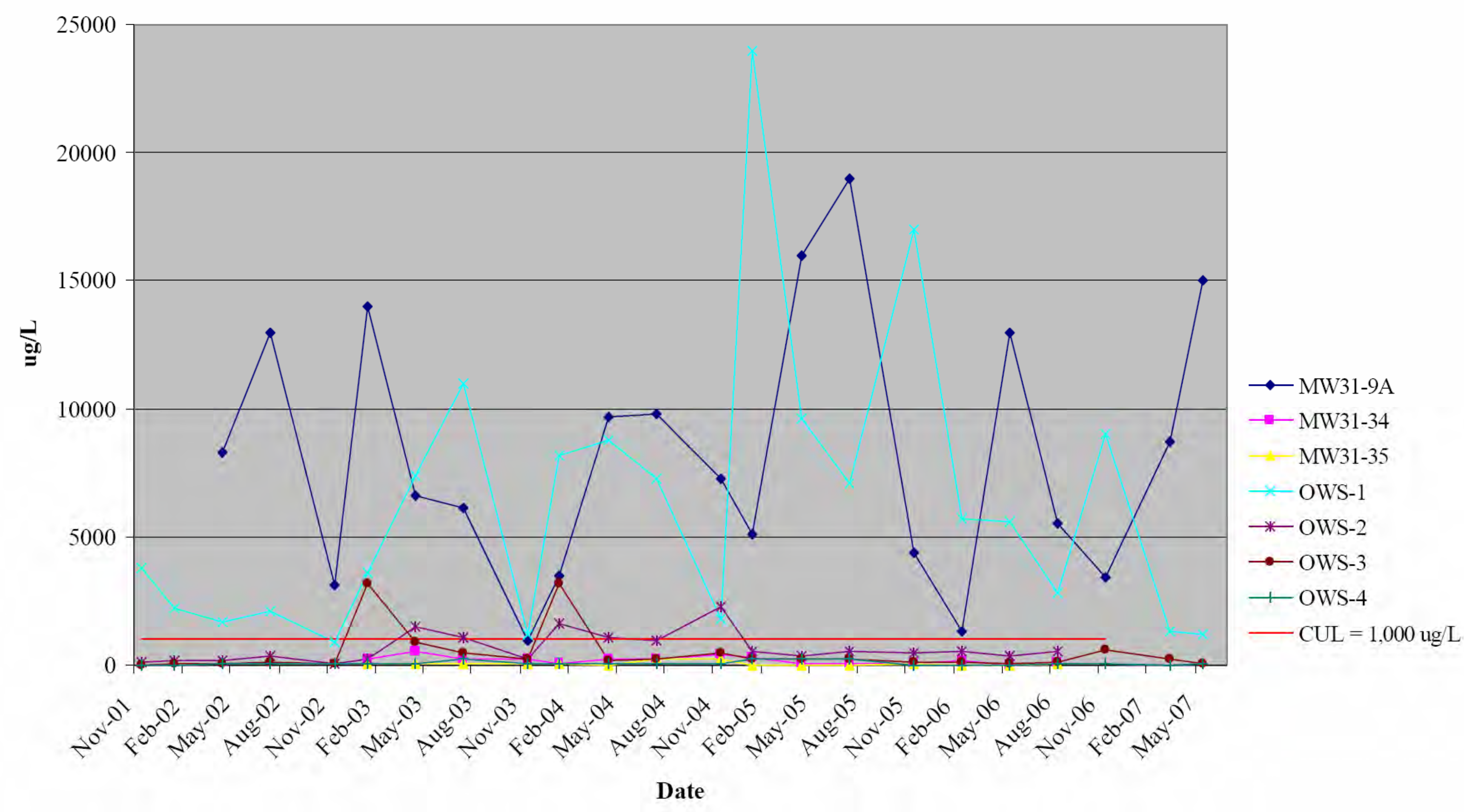


Figure C-2

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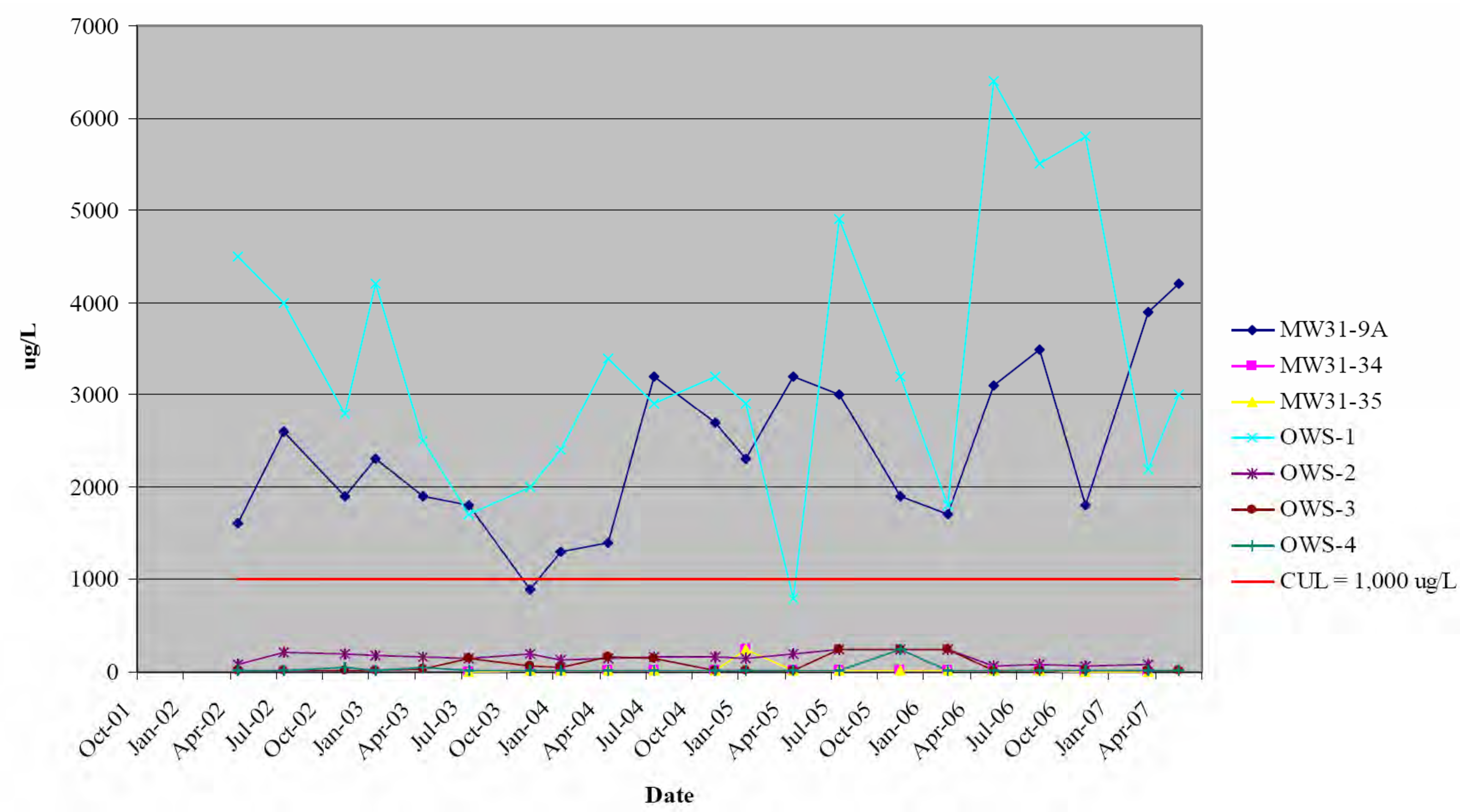

Figure C-3

U.S. Navy 2007b

Well	Sample	Date	pH	Diesel-Range Organics (DRO) µg/L	Gasoline-Range Organics (GRO) µg/L	Oil and Grease Non-polar (SGT-HEM) mg/L	Oil and Grease Total (HEM) mg/L	Residual-Range Organics (RRO) µg/L	Benzene µg/L	Manganese (Dissolved) µg/L	Naphthalene µg/L	Styrene µg/L	Toluene µg/L	Vinyl Chloride (VC) µg/L
	Compliance Levels			**1,000**	**1,000**	**NDT**	**NDT**	**1,000**	**5**	**142**	**320**	**1.46**	**1,000**	**0.1**
MW31-7A	12251	11/14/2001	6.48	21 U	21 U	1.4 U	1.2	31 U	NA	NA	NA	NA	NA	NA
	12761	1/17/2002	6.26	21 U	21 U	1.4 U	1.3 J	31 U	NA	NA	NA	NA	NA	NA
MW31-9A	13151	4/18/2002	6.11	**8,300**	**1,600**	2.9 J	8 J	270 J	**62**	**5,600**	37	0.095 U	1.8	**1.4**
	13901	7/8/2002	6.26	**13,000**	**2,600**	0.86 U	18	490 J	NA	NA	NA	NA	NA	NA
	14961	11/26/2002	7.23	**3,100**	**1,900**	5.4	NA	230 J	NA	NA	NA	NA	NA	NA
	15366	1/16/2003	7.2	**14,000 J**	**2,300 Y**	27	54 J	510 U	NA	NA	NA	NA	NA	NA
	15756	4/23/2003	7.14	**6,600**	**1,900**	0.86 U	4.7 UJ	420 J	**74**	**7,950**	140	0.095 U	5	**0.84**
	16136	7/16/2003	6.89	**6,100**	**1,800**	0.86 U	5.0 J	220 J	NA	NA	NA	NA	NA	NA
	17168	11/19/2003	8.14	990	900	1.2 U	4 J	500 U	NA	NA	NA	NA	NA	NA
	17658	1/22/2004	6.53	**3,500**	**1,300**	0.86 U	4 J	150 J	NA	NA	NA	NA	NA	NA
	17958	4/8/2004	6.43	**9,700**	**1,400**	5	9.8	250 J	**51**	**7,970**	72	0.11 J	1.9	**0.9**
	19138	7/22/2004	6.56	**9,800**	**3,200**	2.3 J	6.2 J	200 J	NA	NA	NA	NA	NA	NA
	19968	11/4/2004	6.26	**7,300**	**2,700**	3 J	8.7	300 J	NA	NA	NA	NA	NA	NA
	20438	1/25/2005	6.82	**5,100**	**2,300**	0.61U	8.7	500 U	NA	NA	NA	NA	NA	NA
	21058	4/28/2005	6.67	**16,000**	**3,200**	5.5	23	580 U	**99 J**	**7,960 J**	42 J	0.095 U	4.2	**0.92**
	21258	7/28/2005	6.9	**19,000**	**3,000**	6.7	14	**1,400**	NA	NA	NA	NA	NA	NA
	GM-05-104	11/9/2005	6.61	**4,400 Y**	**1,900 Y**	1.2 J	4.6 J	220 J	NA	NA	NA	NA	NA	NA
	GM-06-060	2/13/2006	6.9	**1,300 Y**	**1,700 Y**	1.1	1.9	72 J	**21**	NA	35	0.095 U	0.66	0.080 J
	GM-06-136	5/17/2006	6.48	**13,000 DY**	**3,100 Y**	3.7 J	20	240 J	NA	**8490**	NA	NA	NA	NA
	GM-06-226	8/23/2006	6.72	**5,500 DY**	**3,500 Y**	1.1 J	9.1	280 J	NA	NA	NA	NA	NA	NA
	GM-06-478	11/17/2006	6.8	**3,400 DY**	**1,800 Y**	3.8 J	5.7	180 J	NA	NA	NA	NA	NA	NA
	GM-07-154	3/1/2007	6.41	**8,700 Y**	**3,900 Y**	2.3 J	13	560 L	NA	NA	NA	NA	NA	NA
	GM-07-257	5/15/2007	6.37	**15,000 Y**	**4,200 Y**	7.5	17	450 J	**190 D**	**9670**	74 D	0.095 U	4.6	**0.61**
MW31-34	17164	11/19/2003	6.82	250 U	12 U	1.2 U	1.7 J	500 U	NA	NA	NA	NA	NA	NA
	17651	1/22/2004	6.1	540	12 U	0.86 U	1.2 U	55 U	NA	NA	NA	NA	NA	NA
	17952	4/8/2004	6.97	220 J	12 U	1.2 J	1.4 J	54 U	0.11 U	**186**	0.29 U	0.095 U	0.50 U	0.22 U
	19131	7/22/2004	6.51	250 U	12 U	0.61 U	0.64 U	54 U	NA	NA	NA	NA	NA	NA
	19961	11/4/2004	5.25	80 J	12 U	0.61 U	0.68 U	54 U	NA	NA	NA	NA	NA	NA
	20432	1/25/2005	6.77	250 U	13 U	0.61 U	0.64 U	500 U	NA	NA	NA	NA	NA	NA
	21051	4/28/2005	7.11	250 U	250 U	0.61 U	0.64 U	500 U	0.14 U	36.2 J	0.29 U	0.095 U	0.65 U	0.22 U
	21251	7/28/2005	7.06	450	13 U	0.61 U	1.8	530 U	NA	NA	NA	NA	NA	NA
	GM-05-105	11/9/2005	6.64	300 Z	13 U	0.61 U	0.76 J	91 J	NA	NA	NA	NA	NA	NA
	GM-06-062	2/13/2066	6.9	59 J	13 U	0.61 U	0.64 U	21 J	0.14 U	NA	0.29 U	0.095 U	0.11 U	0.042 U
	GM-06-137	5/16/2006	6.57	37 JX	13 U	0.41 U	1.2 J	36 JX	NA	**154**	NA	NA	NA	NA
	GM-06-228	8/23/2006	6.91	58 J	13 U	0.41 U	1.1 U	45 J	NA	NA	NA	NA	NA	NA
	GM-06-479	11/17/2006	6.78	160 J	14 J	0.41 U	1.1 U	35 J	NA	NA	NA	NA	NA	NA
	GM-07-155	3/1/2007	6.61	25 J	13 U	0.41 U	1.1 U	28 J	NA	NA	NA	NA	NA	NA
	GM-07-259	5/15/2007	6.55	100 J	13 U	0.41 U	1.1 U	20 U	0.14 U	**245**	0.29 U	0.095 U	0.11 U	0.042 U

Table C-1

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Well	Sample	Date	pH	Diesel-Range Organics (DRO) µg/L	Gasoline-Range Organics (GRO) µg/L	Oil and Grease Non-polar (SGT-HEM) mg/L	Oil and Grease Total (HEM) mg/L	Residual-Range Organics (RRO) µg/L	Benzene µg/L	Manganese (Dissolved) µg/L	Naphthalene µg/L	Styrene µg/L	Toluene µg/L	Vinyl Chloride (VC) µg/L
	Compliance Levels			**1,000**	**1,000**	**NDT**	**NDT**	**1,000**	**5**	**142**	**320**	**1.46**	**1,000**	**0.1**
MW31-35	17163	11/19/2003	6.83	36 U	12 U	1.2 U	1.7 J	54 U	NA	NA	NA	NA	NA	NA
	17652	1/22/2004	6.22	36 U	12 U	0.86 U	1.2 U	54 U	NA	NA	NA	NA	NA	NA
	17951	4/8/2004	6.67	36 U	12 U	1.2 U	0.83 U	54 U	0.11 U	0.6 U	0.29 U	0.095 U	0.50 U	0.22 U
	19132	7/22/2004	6.49	36 U	16 J	0.61 U	0.64 U	54 U	NA	NA	NA	NA	NA	NA
	19962	11/4/2004	5.29	36 U	12 U	0.61 U	0.64 U	54 U	NA	NA	NA	NA	NA	NA
	20431	1/25/2005	6.72	19 U	13 U	0.61 U	0.64 U	500 U	NA	NA	NA	NA	NA	NA
	21052	4/28/2005	7.1	270 U	250 U	0.61 U	0.64 U	530 U	0.14 U	0.69 UJ	0.29 U	0.095 U	0.68 U	0.22 U
	21252	7/28/2005	7.18	260 U	13 U	0.61 U	0.64 U	520 U	NA	NA	NA	NA	NA	NA
	GM-05-106	11/9/2005	7.26	19 U	13 U	0.61 U	0.64 U	28 U	NA	NA	NA	NA	NA	NA
	GM-06-063	2/13/2006	7.01	9.9 J	13 U	0.61 U	0.64 U	21 U	0.14 U	NA	0.29 U	0.095 U	0.11 U	0.042 U
	GM-06-138	5/16/2006	6.78	28 J	13 U	0.41 U	1.1 U	43 J	NA	0.4 U	NA	NA	NA	NA
	GM-06-229	8/22/2006	6.92	51 J	13 U	0.41 U	1.1 U	64 J	NA	NA	NA	NA	NA	NA
	GM-06-480	11/15/2006	7.01	20 J	15 J	0.41 U	1.1 U	21 U	NA	NA	NA	NA	NA	NA
	GM-07-157	2/28/2007	6.79	21 J	13 U	0.41 U	1.1 U	47 J	NA	NA	NA	NA	NA	NA
	GM-07-260	5/14/2007	6.72	39 J	13 U	0.41 U	1.1 U	46 J	0.14 U	0.6 U	0.29 U	0.095 U	0.11 U	0.042 U
OWS-1	12256	11/14/2001	6.3	**3,800**	**4,500**	1.4 U	3	160 J	NA	NA	NA	NA	NA	NA
	12765	1/17/2002	6.02	**2,200**	**4,000**	1.4 U	1.9 J	56 J	NA	NA	NA	NA	NA	NA
	13156	4/18/2002	6.15	**1,700**	**2,800**	0.86 U	2.4 J	220 J	**20 D**	**3,040**	**420 D**	**3.2 JD**	10 D	4.3 U
	13905	7/8/2002	6.5	**2,100**	**4,200**	0.86 U	4 J	130 J	NA	NA	NA	NA	NA	NA
	14965	11/26/2002	7.26	880	**2,500**	5 U	NA	560 U	NA	NA	NA	NA	NA	NA
	15364	1/16/2003	7.18	**3,600 Y**	**1,700 Y**	1.2 U	4.5 UJ	500 U	NA	NA	NA	NA	NA	NA
	15754	4/23/2003	7.08	**7,400**	**2,000**	1.2 U	6 UJ	470 J	**92**	**5,670**	160	1	4.7	**3.6**
	16134	7/16/2003	6.83	**11,000**	**2,400**	0.86 U	12	550	NA	NA	NA	NA	NA	NA
	17166	11/19/2003	8.28	**1,200**	**3,400**	1.2 U	17 J	500U	NA	NA	NA	NA	NA	NA
	17656	1/22/2004	6.47	**8,200**	**2,900**	0.86 U	11	230 J	NA	NA	NA	NA	NA	NA
	17956	4/8/2004	6.45	**8,800**	**3,200**	8	14	200 J	**150**	**7,070**	**320**	1	7.3	**4.4**
	19136	7/22/2004	6.75	**7,300**	**2,900**	2.2 J	6.6 J	190 J	NA	NA	NA	NA	NA	NA
	19966	11/4/2004	6.24	**1,800**	800	0.61 U	2.1 U	140 J	NA	NA	NA	NA	NA	NA
	20436	1/25/2005	6.68	**24,000**	**4,900**	14	26	**1,200 J**	NA	NA	NA	NA	NA	NA
	21056	4/28/2005	6.71	**9,600**	**3,200**	2.2 J	14	610	**59**	**7,750 J**	210	0.095 U	11	**1.5**
	21256	7/28/2005	6.95	**7,100**	**1,800**	1.2 J	9.5	900 U	NA	NA	NA	NA	NA	NA
	GM-05-100	11/9/2005	6.44	**17,000 Y**	**6,400 Y**	2.8 J	10	**1,200 L**	NA	NA	NA	NA	NA	NA
	GM-06-056	2/13/2006	6.71	**5,700 Y**	**5,500 Y**	1.1	8.7	350 J	**33**	NA	**340 D**	0.65	10	**0.68**
	GM-06-131	5/17/2006	6.48	**5,600 DY**	**5,800 Y**	1.5 J	9.9	260 J	NA	**7,620**	NA	NA	NA	NA
	GM-06-222	8/23/2006	6.75	**2,800 Y**	**2,200 Y**	0.59 J	5.9	160 J	NA	NA	NA	NA	NA	NA
	GM-06-473	11/17/2006	6.63	**9,000 DY**	**3,000 Y**	0.88 J	18	420 J	NA	NA	NA	NA	NA	NA
	GM-07-150	3/1/2007	6.52	**1,300 Y**	820 Y	1.3 J	1.9 J	110 J	NA	NA	NA	NA	NA	NA
	GM-07-253	5/15/2007	6.39	**1,200 Y**	640 Y	0.77	1.8	68 J	**11**	**3,400**	4.5	0.095 U	0.42 J	0.34 J

Table C-1 (continued)

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Well	Sample	Date	pH	Diesel-Range Organics (DRO) µg/L	Gasoline-Range Organics (GRO) µg/L	Oil and Grease Non-polar (SGT-HEM) mg/L	Oil and Grease Total (HEM) mg/L	Residual-Range Organics (RRO) µg/L	Benzene µg/L	Manganese (Dissolved) µg/L	Naphthalene µg/L	Styrene µg/L	Toluene µg/L	Vinyl Chloride (VC) µg/L
	Compliance Levels			**1,000**	**1,000**	**NDT**	**NDT**	**1,000**	**5**	**142**	**320**	**1.46**	**1,000**	**0.1**
OWS-2	12254	11/14/2001	6.06	120 J	79	1.4 U	1.1 U	45 J	NA	NA	NA	NA	NA	NA
	12764	1/17/2002	5.78	190 J	210	1.4 U	1.1 U	32 J	NA	NA	NA	NA	NA	NA
	13154	4/18/2002	5.6	200 J	190	0.86 U	1.2 U	160 J	0.11 U	**3,130**	0.29 U	0.095 U	0.11 J	0.22 U
	13904	7/8/2002	6.27	340	180	0.86 U	2.8 J	120 J	NA	NA	NA	NA	NA	NA
	14964	11/26/2002	7.1	50 J	170	5 U	NA	550 U	NA	NA	NA	NA	NA	NA
	15363	1/16/2003	7.08	230 J	140 Z	0.96 U	2.8 UJ	510 U	NA	NA	NA	NA	NA	NA
	15753	4/23/2003	6.5	**1,500**	190	0.86 U	1.9 UJ	530 U	0.11 U	**3,310**	2 U	0.095 U	0.098 U	0.22 U
	16133	7/16/2003	6.67	**1,100**	130	0.86 U	1.8 J	120 J	NA	NA	NA	NA	NA	NA
	17165	11/19/2003	8.29	250 U	140	1.2 U	1.7 J	500 U	NA	NA	NA	NA	NA	NA
	17655	1/22/2004	6.21	**1,600**	160	0.86 U	3 J	100 J	NA	NA	NA	NA	NA	NA
	17955	4/8/2004	6.45	**1,100**	160	1.2 U	2.8 J	92 J	0.11 U	**2,870**	0.29 U	0.095 U	0.50 U	0.22 U
	19135	7/22/2004	6.68	990	150 J	0.76 J	1 J	77 J	NA	NA	NA	NA	NA	NA
	19965	11/4/2004	5.77	**2,300**	190 J	0.67 J	2.7 U	300 J	NA	NA	NA	NA	NA	NA
	20435	1/25/2005	6.45	560	250 U	0.61 U	0.64 U	500 U	NA	NA	NA	NA	NA	NA
	21055	4/28/2005	6.5	390	250 U	0.61 U	1.4 J	520 U	0.14 U	**2,940 J**	0.29 U	0.095 U	0.52 U	0.22 U
	21255	7/28/2005	6.72	560	250 U	0.61 U	1.4 J	520 U	NA	NA	NA	NA	NA	NA
	GM-05-101	11/9/2005	6.35	510 Z	71 J	0.61 U	0.95 J	130 J	NA	NA	NA	NA	NA	NA
	GM-06-057	2/13/2006	6.62	570 Z	87 J	0.8	0.9	110 J	0.14 U	NA	0.29 U	0.095 U	0.11 U	0.042 U
	GM-06-133	5/17/2006	6.31	360 Z	65 J	0.41 U	1.3 J	78 J	NA	**3,030**	NA	NA	NA	NA
	GM-06-223	8/23/2006	6.58	560 Y	83 J	0.41 U	1.1 U	100 J	NA	NA	NA	NA	NA	NA
OWS-3	12252	11/14/2001	5.81	30 J	21 U	1.4 U	1.1 U	41 J	NA	NA	NA	NA	NA	NA
	12763	1/17/2002	5.48	35 J	21 U	1.4 U	1.1 U	32 U	NA	NA	NA	NA	NA	NA
	13153	4/18/2002	5.36	52 J	16 U	0.86 U	2.1 J	110 J	0.11 U	21.1	0.29 U	0.095 U	0.16 J	0.22 U
	13903	7/8/2002	6	110 J	21 U	0.86 U	2.8 J	95 J	NA	NA	NA	NA	NA	NA
	14963	11/26/2002	6.42	49 U	31 J	5 U	NA	540 U	NA	NA	NA	NA	NA	NA
	15362	1/16/2003	6.69	**3,200 Y**	150 Z	1.1 U	4.9 UJ	520 U	NA	NA	NA	NA	NA	NA
	15752	4/23/2003	7.04	880	63	0.86 U	5.4 UJ	520 U	0.85	**457**	0.29 U	0.095 U	0.098 U	0.22 U
	16132	7/16/2003	6.17	490	50 U	0.86 U	1.2 U	80 J	NA	NA	NA	NA	NA	NA
	17162	11/19/2003	6.35	250 U	170	1.2 U	7.8 J	500 U	NA	NA	NA	NA	NA	NA
	17654	1/22/2004	5.82	**3,200**	150	0.86 U	5.9	120 J	NA	NA	NA	NA	NA	NA
	17954	4/8/2004	6.06	160 J	12 U	1.2 U	1.2 J	54 U	0.25 J	**562**	0.29 U	0.095 U	0.50 U	0.22 U
	19134	7/22/2004	6.05	250 U	12 U	0.61 U	0.64 U	54 U	NA	NA	NA	NA	NA	NA
	19964	11/4/2004	5.03	470	12 U	0.61 U	1.3 U	120 J	NA	NA	NA	NA	NA	NA
	20434	1/25/2005	5.84	250 U	250 U	0.61 U	0.64 U	500 U	NA	NA	NA	NA	NA	NA
	21054	4/28/2005	5.94	260 U	250 U	0.61 U	0.64 U	520 U	0.14 U	**297 J**	0.29 U	0.095 U	0.50 U	0.22 U
	21254	7/28/2005	6.33	250 U	250 U	0.61 U	0.95 J	500 U	NA	NA	NA	NA	NA	NA
	GM-05-102	11/9/2005	6.08	98 J	13 U	0.61 U	0.76 J	70 J	NA	NA	NA	NA	NA	NA
	GM-06-058	2/13/2006	6.23	110 J	13 U	0.61 U	0.64 U	40 J	0.14 U	NA	0.29 U	0.095 U	0.11 U	0.042 U
	GM-06-134	5/16/2006	5.64	61 J	13 U	0.41 U	1.1 U	65 J	NA	**291**	NA	NA	NA	NA
	GM-06-224	8/23/2006	6.23	110 J	13 U	0.41 U	1.1 U	84 J	NA	NA	NA	NA	NA	NA
	GM-06-475	11/15/2006	6.21	630 Z	24 J	0.41 U	1.1 U	190 J	NA	NA	NA	NA	NA	NA

Table C-1 (continued)

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Well	Sample	Date	pH	Diesel-Range Organics (DRO) µg/L	Gasoline-Range Organics (GRO) µg/L	Oil and Grease Non-polar (SGT-HEM) mg/L	Oil and Grease Total (HEM) mg/L	Residual-Range Organics (RRO) µg/L	Benzene µg/L	Manganese (Dissolved) µg/L	Naphthalene µg/L	Styrene µg/L	Toluene µg/L	Vinyl Chloride (VC) µg/L
	Compliance Levels			**1,000**	**1,000**	**NDT**	**NDT**	**1,000**	**5**	**142**	**320**	**1.46**	**1,000**	**0.1**
	GM-07-152	3/1/2007	6.01	240 J	ND U	1.7 J	2.1 J	110 J	NA	NA	NA	NA	NA	NA
	GM-07-255	5/15/2007	6.04	55 J	15 J	0.41 U	2.1 J	23 J	0.14 U	**201**	0.29 U	0.095 U	0.11 U	0.042 U
OWS-4	12253	11/14/2001	6.27	22 U	21 U	1.4 U	1.1 U	50 J	NA	NA	NA	NA	NA	NA
	12762	1/17/2002	6	22 U	21 U	1.4 U	1.1 U	32 U	NA	NA	NA	NA	NA	NA
	13152	4/18/2002	5.81	47 U	41 J	0.86 U	1.9 J	65 J	0.11 U	1 B	0.29 U	0.095 U	0.098 U	0.22 U
	13902	7/8/2002	6.28	45 U	21 U	0.86 U	2.8 J	82 J	NA	NA	NA	NA	NA	NA
	14962	11/26/2002	7.07	49 U	48 J	5 U	NA	550 U	NA	NA	NA	NA	NA	NA
	15361	1/16/2003	7.23	47 U	21 U	1.3 U	3.1 UJ	520 U	NA	NA	NA	NA	NA	NA
	15751	4/23/2003	7.22	38 U	21 U	0.86 U	1.2 UJ	56 U	0.11 U	8.2	0.29 U	0.095 U	0.098 U	0.22 U
	16131	7/16/2003	6.97	250 U	12 U	0.86 U	1.2 U	63 J	NA	NA	NA	NA	NA	NA
	17161	11/19/2003	6.7	36 U	12 U	1.2 U	0.83 UJ	54 U	NA	NA	NA	NA	NA	NA
	17653	1/22/2004	6.04	36 U	12 U	0.86 U	1.2 U	61 J	NA	NA	NA	NA	NA	NA
	17953	4/8/2004	6.59	36 U	12 U	1.2 U	0.83 U	54 U	0.11 U	0.6 U	0.29 U	0.095 U	0.50 U	0.22 U
	19133	7/22/2004	6.31	36 U	12 U	0.61 U	0.67 J	54 U	NA	NA	NA	NA	NA	NA
	19963	11/4/2004	5.05	36 U	12 U	0.61 U	0.64 U	54 U	NA	NA	NA	NA	NA	NA
	20433	1/25/2005	6.36	250 U	13 U	0.61 U	0.64 U	500 U	NA	NA	NA	NA	NA	NA
	21053	4/28/2005	6.82	270 U	250 U	0.61 U	0.64 U	530 U	0.14 U	0.24 UJ	0.29 U	0.095 U	0.56 U	0.22 U
	21253	7/28/2005	6.75	260 U	13 U	0.61 U	0.64 U	520 U	NA	NA	NA	NA	NA	NA
	GM-05-103	11/9/2005	6.41	29 J	13 U	0.61 U	0.64 U	32 J	NA	NA	NA	NA	NA	NA
	GM-06-059	2/13/2006	6.6	21 J	13 U	0.61 U	0.64 U	21 J	0.14 U	NA	0.29 U	0.095 U	0.11 U	0.042 U
	GM-06-135	5/16/2006	5.81	24 J	13 U	0.41 U	1.1 U	38 J	NA	0.4 U	NA	NA	NA	NA
	GM-06-225	8/22/2006	6.3	44 J	13 U	0.41 U	1.1 U	48 J	NA	NA	NA	NA	NA	NA
	GM-06-476	11/15/2006	6.53	32 J	13 U	0.41 U	1.1 U	21 J	NA	NA	NA	NA	NA	NA
	GM-07-153	2/28/2007	6.34	22 J	ND U	ND U	ND U	48 J	NA	NA	NA	NA	NA	N A
	GM-07-256	5/15/2007	6.33	32 J	13 U	0.41 U	1.1 U	51 J	0.14 U	0.6 U	0.29 U	0.095 U	0.11 U	0.042 U

NDT - Cleanup Levels not determined for these compounds; NR - No reading; NA - Not analyzed for indicated parameter; B - Analyte found in associated method blank at a level that is significant relative to the sample result; C - Estimated value; detected above linear range; D - The reported result is from a dilution; J - The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL; L - The Chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard; U - The compound was analyzed for but was not detected (non-detect) at or above the MRL/MDL; Y- The Chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution does not match the calibration standard; Z- The Chromatographic fingerprint does not resemble a petroleum product.
Bold indicates exceedence of compliance levels.

Table C-1 (continued)

U.S. Navy 2007b

Appendix D

Site Inspection Results Checklist

Site Inspection Checklist
OU 1, Area 5
NAS Whidbey Island

I. SITE INFORMATION	
Site name: OU 1, Area 5, Highway 20, Hoffman landfill	**Date of inspection:** 9/10/07
Location and Region: Oak Harbor, WA, R10	**EPA ID:** WA5170090059
Agency, office, or company leading the five-year review: U.S. Navy	**Weather/temperature:** Sunny, 70 °F
Remedy Includes: (Check all that apply) ☐ Landfill cover/containment **X** Access controls **X** Institutional controls ☐ Groundwater pump and treatment ☐ Surface water collection and treatment **X** Other Limited Groundwater Monitoring	☐ Monitored natural attenuation ☐ Groundwater containment ☐ Vertical barrier walls
Attachments: ☐ Inspection team roster attached	☐ Site map attached

II. INTERVIEWS (Check all that apply)
Please see Appendix E of the Third Five-Year Review

III. ON-SITE DOCUMENTS & RECORDS VERIFIED
Not Applicable

IV. O&M COSTS
Not Applicable

V. ACCESS AND INSTITUTIONAL CONTROLS **X** Applicable ☐ N/A
A. Fencing
1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured ☐ N/A Remarks Fencing around perimeter of station is in good shape.
B. Other Access Restrictions
1. **Signs and other security measures** ☐ Location shown on site map **X** N/A Remarks .
C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	☐ Yes **X** No ☐ N/A
Site conditions imply ICs not being fully enforced	☐ Yes **X** No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) Self reporting, on-site contractor
Frequency Every 5 years
Responsible party/agency U.S. Navy
Contact John Gordon (Name) RPM (Title) (360) 396-0031 (Phone no.)

Reporting is up-to-date	☐ Yes ☐ No **X** N/A
Reports are verified by the lead agency	☐ Yes ☐ No **X** N/A
Specific requirements in deed or decision documents have been met	☐ Yes ☐ No **X** N/A
Violations have been reported	☐ Yes ☐ No **X** N/A

Other problems or suggestions: ☐ Report attached
ESD being prepared to formalize IC implementation,, management, and reporting

2. **Adequacy** **X** ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **X** No vandalism evident
Remarks

2. **Land use changes on site** ☐ N/A
Remarks None

3. **Land use changes off site** ☐ N/A
Remarks None

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable **X** N/A

VII. LANDFILL COVERS ☐ Applicable **X** N/A

VIII. MONITORING ☐ Applicable **X** N/A

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

	Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). Monitoring was the final remedy and monitoring was conducted and terminated prior to the current five-year review period.
B.	**Adequacy of O&M**
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. Monitoring was the final remedy and monitoring was conducted and terminated prior to the current five-year review period. As a result, no operation and maintenance was necessary.
C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. None.
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None

I. SITE INFORMATION	
Site name: OU 1, Area 6 Landfill	**Date of inspection: 9/10/07**
Location and Region: Oak Harbor, WA, R10	**EPA ID: WA5170090059**
Agency, office, or company leading the five-year review: U.S. Navy	**Weather/temperature:** **Sunny, 70 ^{o}F**
Remedy Includes: (Check all that apply) **X** Landfill cover/containment **X** Access controls **X** Institutional controls **X** Groundwater pump and treatment ☐ Surface water collection and treatment ☐ Other________	☐ Monitored natural attenuation ☐ Groundwater containment ☐ Vertical barrier walls
Attachments: ☐ Inspection team roster attached	☐ Site map attached
II. INTERVIEWS (Check all that apply)	
Please see Appendix E of the Third Five-Year Review	

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	X O&M manual	**X** Readily available	**X** Up to date	☐ N/A
	X As-built drawings	**X** Readily available	**X** Up to date	☐ N/A
	X Maintenance logs	**X** Readily available	**X** Up to date	☐ N/A
	Remarks________			
2.	**Site-Specific Health and Safety Plan**	**X** Readily available	**X** Up to date	☐ N/A
	X Contingency plan/emergency response plan	**X** Readily available	**X** ☐ Up to date	☐ N/A
	Remarks________			
3.	**O&M and OSHA Training Records**	☐ Readily available	**X** Up to date	☐ N/A
	Remarks________			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	**X** N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	**X** N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	**X** N/A
	☐ Other permits________	☐ Readily available	☐ Up to date	**X** N/A
	Remarks No permits required.			

6.	**Groundwater Monitoring Records**	**X** Readily available	**X** Up to date	☐ N/A
	Remarks New computer hardware and software system installed to monitor and record system performance.			
7.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	**X** N/A
	Remarks________________________________			
8.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	**X** N/A
	☐ Water (effluent)	☐ Readily available	☐ Up to date	**X** N/A
	Remarks________________________________			
9.	**Daily Access/Security Logs**	**X** Readily available	**X** Up to date	☐ N/A
	Remarks Site is located within the perimeter of the station. Access to the station is controlled and documented by NASWI Security personnel.			

IV. O&M COSTS

1. **O&M Organization**
   ☐ State in-house ☐ Contractor for State
   ☐ PRP in-house ☐ Contractor for PRP
   ☐ Federal Facility in-house **X** Contractor for Federal Facility
   ☐ Other________________________________

2. **O&M Cost Records**
   ☐ Readily available **X** Up to date
   X Funding mechanism/agreement in place
   Original O&M cost estimate $799,000 ☐ Breakdown attached

   Average annual O&M (including monitoring) is approximately $750,000

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: None

V. ACCESS AND INSTITUTIONAL CONTROLS **X** Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured ☐ N/A
   Remarks Perimeter fence along southwest boundary is damaged and needs repair.

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks Signs are in good shape.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

	Yes	No	N/A
Site conditions imply ICs not properly implemented	☐	X	☐
Site conditions imply ICs not being fully enforced	☐	X	☐

Type of monitoring (*e.g.*, self-reporting, drive by) Self reporting, on-site contractor
Frequency Every 5 years
Responsible party/agency U.S. Navy

Contact	John Gordon	RPM	(360) 396-0031
	Name	Title	Phone no.

	Yes	No	N/A
Reporting is up-to-date	☐	☐	X
Reports are verified by the lead agency	☐	☐	X
Specific requirements in deed or decision documents have been met	☐	☐	X
Violations have been reported	☐	☐	X

Other problems or suggestions: ☐ Report attached
ESD being prepared to formalize IC implementation,, management, and reporting

2. **Adequacy** X ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map X No vandalism evident
Remarks In 2006, a retired Navy person rode his bicycle around the landfill perimeter road. When stopped by on-site personnel and asked to leave, he indicated that since he was retired Navy he was authorized to be on the site. The Navy has discussed this with the individual and is planning to clarify signage. No other incidents of trespassing are known.

2. **Land use changes on site** ☐ N/A
Remarks None

3. **Land use changes off site** ☐ N/A
Remarks Operations at a gravel quarry started in 2004 adjacent to the northern portion of the western boundary.

VI. GENERAL SITE CONDITIONS

A. Roads X Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map X Roads adequate ☐ N/A
Remarks

B. Other Site Conditions

Remarks None

VII. LANDFILL COVERS **X** Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
Areal extent______________ Depth 1.5 to 2 feet
Remarks Settlement was noted during the previous five-year review period which has not worsened during this review period. The settlement was observed on the southeastern portion of the landfilled area (see photos at end of this form).

2. **Cracks** ☐ Location shown on site map **X** Cracking not evident
Lengths____________ Widths___________ Depths__________
Remarks____

3. **Erosion** ☐ Location shown on site map **X** Erosion not evident
Areal extent______________ Depth____________
Remarks____

4. **Holes** ☐ Location shown on site map **X** Holes not evident
Areal extent______________ Depth____________
Remarks____

5. **Vegetative Cover** **X** Grass **X** Cover properly established **X** No signs of stress
☐ Trees/Shrubs (indicate size and locations on a diagram)
Remarks Grass is mowed and pesticides are sprayed as needed for deep-rooted weeds (Lupine and Scotts Broom).

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
Remarks Armoring is limited and in good shape.

7. **Bulges** ☐ Location shown on site map **X** Bulges not evident
Areal extent______________ Height____________
Remarks____

8. **Wet Areas/Water Damage** **X** Wet areas/water damage not evident
☐ Wet areas ☐ Location shown on site map Areal extent______________
☐ Ponding ☐ Location shown on site map Areal extent______________
☐ Seeps ☐ Location shown on site map Areal extent______________
☐ Soft subgrade ☐ Location shown on site map Areal extent______________
Remarks____

9.	**Slope Instability** ☐ Slides ☐ Location shown on site map **X** No evidence of slope instability Areal extent_______________ Remarks____ ____
B. Benches	☐ Applicable **X** N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)
C. Letdown Channels	☐ Applicable **X** N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)
D. Cover Penetrations	**X** Applicable ☐ N/A
1.	**Gas Vents** ☐ Active **X** Passive **X** Properly secured/locked **X** Functioning ☐ Routinely sampled **X** Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A Remarks____ ____
2.	**Gas Monitoring Probes** ☐ Properly secured/locked G Functioning ☐ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance **X** N/A Remarks____ ____
3.	**Monitoring Wells** (within surface area of landfill) **X** Properly secured/locked **X** Functioning **X** Routinely sampled **X** Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A Remarks____ ____
4.	**Leachate Extraction Wells** ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance **X** N/A Remarks____ ____
5.	**Settlement Monuments** ☐ Located ☐ Routinely surveyed **X** N/A Remarks____ ____
E. Gas Collection and Treatment	☐ Applicable **X** N/A
F. Cover Drainage Layer	**X** Applicable ☐ N/A

1. **Outlet Pipes Inspected** X Functioning ☐ N/A
Remarks____
____

2. **Outlet Rock Inspected** X Functioning ☐ N/A
Remarks____
____

G. Detention/Sedimentation Ponds X Applicable ☐ N/A

1. **Siltation** Areal extent______________ Depth____________
☐ N/A X Siltation not evident
Remarks____
____

2. **Erosion** Areal extent______________ Depth____________
X Erosion not evident
Remarks____
____

3. **Outlet Works** X Functioning ☐ N/A
Remarks____
____

4. **Dam** ☐ Functioning X N/A
Remarks____
____

H. Retaining Walls ☐ Applicable X N/A

I. Perimeter Ditches/Off-Site Discharge X Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map X Siltation not evident
Areal extent______________ Depth____________
Remarks____
____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
X Vegetation does not impede flow
Areal extent______________ Type____________
Remarks____
____

3. **Erosion** ☐ Location shown on site map X Erosion not evident
Areal extent______________ Depth____________
Remarks____
____

4. **Discharge Structure** X Functioning ☐ N/A
Remarks____
____

VIII. VERTICAL BARRIER WALLS ☐ Applicable **X** N/A	
1.	**Settlement** ☐ Location shown on site map ☐ Settlement not evident Areal extent______________ Depth____________ Remarks____ ____
2.	**Performance Monitoring** Type of monitoring__________________________ ☐ Performance not monitored Frequency________________________________ ☐ Evidence of breaching Head differential__________________________ Remarks____ ____
C. Treatment System **X** Applicable ☐ N/A	
1.	**Treatment Train** (Check components that apply) ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation **X** Air stripping ☐ Carbon adsorbers **X** Filters Pre-treatment filters **X** Additive (*e.g.*, chelation agent, flocculent) Periodic wash of air-stripper tower with muriatic acid ☐ Others____ **X** Good condition ☐ Needs Maintenance **X** Sampling ports properly marked and functional **X** Sampling/maintenance log displayed and up to date **X** Equipment properly identified **X** Quantity of groundwater treated annually Approximately 72 million gallons **X** Quantity of surface water treated annually None Remarks Overall the system appears to be well maintained. A general housekeeping note is that numerous spent one-gallon plastic containers marked "corrosive" were laying within the secondary containment compound.
2.	**Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A **X** Good condition ☐ Needs Maintenance Remarks____ ____
3.	**Tanks, Vaults, Storage Vessels** ☐ N/A **X** Good condition ☐ Proper secondary containment ☐ Needs Maintenance Remarks____ ____
4.	**Discharge Structure and Appurtenances** ☐ N/A **X** Good condition ☐ Needs Maintenance Remarks____ ____

5.	**Treatment Building(s)** ☐ N/A **X** Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks____
6.	**Monitoring Wells** (pump and treatment remedy) **X** Properly secured/locked **X** Functioning **X** Routinely sampled **X** Good condition ☐ All required wells located ☐ Needs Maintenance ☐ N/A Remarks____
D. Monitoring Data	
1.	Monitoring Data **X** Is routinely submitted on time **X** Is of acceptable quality
2.	Monitoring data suggests: **X** Groundwater plume is effectively contained **X** Contaminant concentrations are declining
D. Monitored Natural Attenuation	
1.	**Monitoring Wells** (natural attenuation remedy) **X** Properly secured/locked **X** Functioning **X** Routinely sampled **X** Good condition ☐ All required wells located ☐ Needs Maintenance ☐ N/A Remarks____

X. OTHER REMEDIES	
	If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.
XI. OVERALL OBSERVATIONS	
A.	**Implementation of the Remedy**
	Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). The remedy appears to be functioning as designed with periodic maintenance required outside of routine O&M. Foe example, biofouling has long been an issue. The discharge pipeline and a section of transport line from the extraction wells to the treatment system were cleaned out due to fouling.
B.	**Adequacy of O&M**
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. O&M is adequate. Installation of the new computer hardware and software will enhance monitoring, data recording, and reporting requirements.
C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. COCs continue to extend off of the southwestern corner of the site in groundwater. Maintenance of the target flow and target draw down in well PW-5 is critical to ensuring that the extent of COCs in groundwater does not expand. No other issues documented.
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. Continue discussions with EPA to determine optimal groundwater monitoring program.

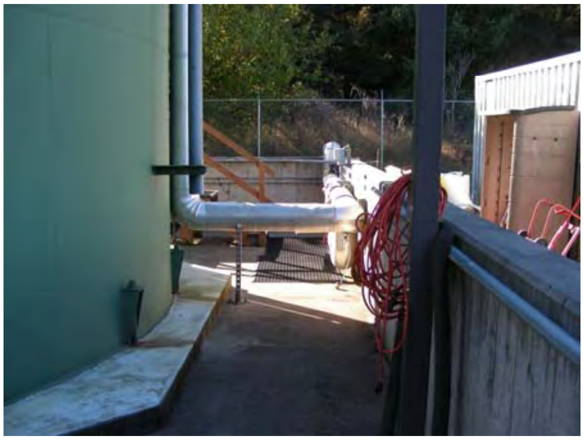
Area 6 Entrance Signage

Area 6 Treatment Pad

Area 6 Treatment Pad

Area 6 Air-stripping Tower
And Storage Tank

Area 6 Treatment Pad Piping



Area 6 Treatment Pad
Secondary Containment Wall

Area 6 Electrical Panels

Area 6 Electrical Panels

Area 6 Monitoring Well

Area 6 Extraction Well

Area 6 Landfill Cap showing Settlement

Area 6 Landfill Cap

Area 6 Landfill Cap
With Passive vent Pipe

Area 6
Recent Excavation to Cleanout
Biofouling in Extraction Line

Site Inspection Checklist
OU 2, Area 2
NAS Whidbey Island

I. SITE INFORMATION	
Site name: OU 2, Area 2 (Former Landfill)	**Date of inspection:** 9/10/07
Location and Region: Oak Harbor, WA, R10	**EPA ID: WA5170090059**
Agency, office, or company leading the five-year review: U.S. Navy	**Weather/temperature:** Sunny, 70 °F

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- **X** Access controls
- **X** Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- **X** Other Groundwater monitoring
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

Please see Appendix E of the Third Five-Year Review

III. ON-SITE DOCUMENTS & RECORDS VERIFIED

Not Applicable

IV. O&M COSTS

1. **O&M Organization**
   - ☐ State in-house
   - ☐ PRP in-house
   - ☐ Federal Facility in-house
   - ☐ Other____
   - ☐ Contractor for State
   - **X** Contractor for PRP
   - ☐ Contractor for Federal Facility

2. **O&M Cost Records**
   - ☐ Readily available ☐ Up to date
   - ☐ Funding mechanism/agreement in place
   - Original O&M cost estimate $0 ☐ Breakdown attached

Approximately $10,000 is spent on monitoring and reporting every 5 years.

3. **Unanticipated or Unusually High O&M Costs During Review Period**
Describe costs and reasons: None

V. ACCESS AND INSTITUTIONAL CONTROLS **X** Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured **X** N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks Signs identifying the site are in good condition (see photos at end of checklist)

C. Institutional Controls (ICs)

1. **Implementation and enforcement**
Site conditions imply ICs not properly implemented ☐ Yes **X** No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **X** No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) Self reporting
Frequency Every 5 years
Responsible party/agency U.S. Navy
Contact John Gordon (Name) RPM (Title) (360) 396-0031 (Phone no.)

Reporting is up-to-date ☐ Yes ☐ No **X** N/A
Reports are verified by the lead agency ☐ Yes ☐ No **X** N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No **X** N/A
Violations have been reported ☐ Yes ☐ No **X** N/A
Other problems or suggestions: ☐ Report attached
ESD being prepared to formalize IC implementation,, management, and reporting

2. **Adequacy** **X** ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **X** No vandalism evident
Remarks

2. **Land use changes on site** **X** N/A
Remarks

3. **Land use changes off site** **X** N/A
Remarks____
____

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable **X** N/A

B. Other Site Conditions

Remarks Native vegetation and trees have overgrown the site

VII. LANDFILL COVERS ☐ Applicable **X** N/A

VIII. MONITORING ☐ Applicable ☐ N/A

D. Monitoring Data

1. Monitoring Data
X Is routinely submitted on time **X** Is of acceptable quality

2. Monitoring data suggests:
X Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).
The selected remedy has been implemented. Monitoring is conducted on a five-year basis. The need for continued monitoring at subsequent five-year period is based on current monitoring results.

B.	**Adequacy of O&M**
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. Two drums observed in the southwest corner of the site near well N2-3. The contents of these drums should be investigated and the drums removed. Other than the presence of drums, O&M is adequate
C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. None
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. The VOCs 1,1-dichloroethene and 1,4-dichlorobenzene were not detected at concentrations greater than the MCL and RG, respectively, in the 2002 and 2007 samples from Areas 2/3 wells. Based on these results, it is recommended that monitoring for these compounds be discontinued. Groundwater monitoring should be conducted during the next 5-year-review period for total arsenic, total manganese, and vinyl chloride. Vinyl chloride analysis should be conducted using SIM or other analytical method capable of producing a reporting limit that is less than the RG of 1 µg/L.

Area 2 Signage

Area 2

Drums at Area 2

Site Inspection Checklist
OU 2, Area 3
NAS Whidbey Island

I. SITE INFORMATION

Site name: OU 2, Area 3	**Date of inspection:** 9/10/07
Location and Region: Oak Harbor, WA, R10	**EPA ID:** WA5170090059
Agency, office, or company leading the five-year review: U.S. Navy	**Weather/temperature:** Sunny, 70 °F

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment
X Access controls
X Institutional controls
☐ Groundwater pump and treatment
☐ Surface water collection and treatment
X Other Groundwater monitoring
☐ Monitored natural attenuation
☐ Groundwater containment
☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

Please see Appendix E of the Third Five-Year Review

III. ON-SITE DOCUMENTS & RECORDS VERIFIED

Not Applicable

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house
☐ PRP in-house
☐ Federal Facility in-house
☐ Contractor for State
X Contractor for PRP
☐ Contractor for Federal Facility
☐ Other____

2. **O&M Cost Records**

☐ Readily available ☐ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate $0 ☐ Breakdown attached

Approximately $10,000 is spent on monitoring and reporting every 5 years.

3. **Unanticipated or Unusually High O&M Costs During Review Period**
Describe costs and reasons: None

V. ACCESS AND INSTITUTIONAL CONTROLS **X** Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured **X** N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks Signage in good condition (see photos at end of checklist).

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	☐ Yes	**X** No	☐ N/A
Site conditions imply ICs not being fully enforced	☐ Yes	**X** No	☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) Self reporting
Frequency Every 5 years
Responsible party/agency U.S. Navy
Contact John Gordon (Name) RPM (Title) (XXX) XXX-XXXX (Phone no.)

Reporting is up-to-date	☐ Yes	☐ No	**X** N/A
Reports are verified by the lead agency	☐ Yes	☐ No	**X** N/A
Specific requirements in deed or decision documents have been met	☐ Yes	☐ No	**X** N/A
Violations have been reported	☐ Yes	☐ No	**X** N/A

Other problems or suggestions: ☐ Report attached
ESD being prepared to formalize IC implementation,, management, and reporting

2. **Adequacy** **X** ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **X** No vandalism evident
Remarks

2. **Land use changes on site** **X** N/A
Remarks

3. **Land use changes off site** **X** N/A
Remarks____
____

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable **X** N/A

B. Other Site Conditions

Remarks Native vegetation and trees have overgrown the site

VII. LANDFILL COVERS ☐ Applicable **X** N/A

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).
<u>The selected remedy has been implemented. Monitoring is conducted on a five-year basis. The need for continued monitoring at subsequent five-year periods is based on current monitoring results.</u>

B.	**Adequacy of O&M**
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. O&M is adequate.
C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. None.
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. The VOCs 1,1-dichloroethene and 1,4-dichlorobenzene were not detected at concentrations greater than the MCL and RG, respectively, in the 2002 and 2007 samples from Areas 2/3 wells. Based on these results, it is recommended that monitoring for these compounds be discontinued. Groundwater monitoring should be conducted during the next 5-year-review period for total arsenic, total manganese, and vinyl chloride. Vinyl chloride analysis should be conducted using SIM or other analytical method capable of producing a reporting limit that is less than the RG of 1 μg/L.

Area 3 Signage

Area 3 Signage

Site Inspection Checklist
OU 2, Area 4
NAS Whidbey Island

I. SITE INFORMATION

Site name: OU 2, Area 4	**Date of inspection:** 9/10/07
Location and Region: Oak Harbor, WA, R10	**EPA ID:** WA5170090059
Agency, office, or company leading the five-year review: U.S. Navy	**Weather/temperature:** Sunny, 70 °F

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- **X** Access controls
- **X** Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- **X** Other <u>Groundwater monitoring</u>
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

Please see Appendix E of the Third Five-Year Review

III. ON-SITE DOCUMENTS & RECORDS VERIFIED

Not Applicable

IV. O&M COSTS

1. **O&M Organization**
   - ☐ State in-house
   - ☐ PRP in-house
   - ☐ Federal Facility in-house
   - ☐ Other____
   - ☐ Contractor for State
   - **X** Contractor for PRP
   - ☐ Contractor for Federal Facility

2. **O&M Cost Records**
   - ☐ Readily available ☐ Up to date
   - ☐ Funding mechanism/agreement in place
   - Original O&M cost estimate <u>$0</u> ☐ Breakdown attached

Approximately $10,000 is spent on monitoring and reporting every 5 years.

3. **Unanticipated or Unusually High O&M Costs During Review Period**
Describe costs and reasons: None

V. ACCESS AND INSTITUTIONAL CONTROLS **X** Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured **X** N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks Signage in good condition (see photos at end of checklist).

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	☐ Yes	**X** No	☐ N/A
Site conditions imply ICs not being fully enforced	☐ Yes	**X** No	☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) Self reporting
Frequency Every 5 years
Responsible party/agency U.S. Navy
Contact John Gordon (Name) RPM (Title) (XXX) XXX-XXXX (Phone no.)

Reporting is up-to-date	☐ Yes	☐ No	**X** N/A
Reports are verified by the lead agency	☐ Yes	☐ No	**X** N/A
Specific requirements in deed or decision documents have been met	☐ Yes	☐ No	**X** N/A
Violations have been reported	☐ Yes	☐ No	**X** N/A

Other problems or suggestions: ☐ Report attached
ESD being prepared to formalize IC implementation,, management, and reporting

2. **Adequacy** **X** ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **X** No vandalism evident
Remarks

2. **Land use changes on site** **X** N/A
Remarks

3. **Land use changes off site** **X** N/A
Remarks____
____

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable **X** N/A

B. Other Site Conditions

Remarks Native vegetation and trees have overgrown the site

VII. LANDFILL COVERS ☐ Applicable **X** N/A

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).
<u>Soil excavation remedy has been implemented. Monitoring is conducted on a five-year basis. The need for continued monitoring at subsequent five-year periods is based on current monitoring results.</u>

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.
<u>Current O&M practices are adequate</u>

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. None
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None

Area 4 Signage

Area 4 Monitoring Well

Area 4

Site Inspection Checklist
OU 2, Area 29
NAS Whidbey Island

I. SITE INFORMATION	
Site name: OU 2, Area 29	**Date of inspection:** 9/10/07
Location and Region: Oak Harbor, WA, R10	**EPA ID:** WA5170090059
Agency, office, or company leading the five-year review: U.S. Navy	**Weather/temperature:** Sunny, 70 ^{o}F

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- **X** Access controls
- **X** Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- **X** Other Groundwater monitoring
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

Please see Appendix E of the Third Five-Year Review

III. ON-SITE DOCUMENTS & RECORDS VERIFIED

Not Applicable

IV. O&M COSTS

1. **O&M Organization**
   - ☐ State in-house
   - ☐ PRP in-house
   - ☐ Federal Facility in-house
   - ☐ Other__________
   - ☐ Contractor for State
   - **X** Contractor for PRP
   - ☐ Contractor for Federal Facility

2. **O&M Cost Records**
   - ☐ Readily available ☐ Up to date
   - ☐ Funding mechanism/agreement in place
   - Original O&M cost estimate $0 ☐ Breakdown attached

Approximately $10,000 is spent on monitoring and reporting every 5 years.

3. **Unanticipated or Unusually High O&M Costs During Review Period**
Describe costs and reasons: Continued presence of COCs in groundwater at concentrations above RGs requires monitoring every five years.

V. ACCESS AND INSTITUTIONAL CONTROLS **X** Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map **X** Gates secured ☐ N/A
Remarks Fencing beginning to show rust.

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks Signage in good condition (see photos at end of checklist).

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	☐ Yes	**X** No	☐ N/A
Site conditions imply ICs not being fully enforced	☐ Yes	**X** No	☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) Self reporting
Frequency Every 5 years
Responsible party/agency U.S. Navy
Contact John Gordon RPM (XXX) XXX-XXXX
Name Title Phone no.

Reporting is up-to-date	☐ Yes	☐ No	**X** N/A
Reports are verified by the lead agency	☐ Yes	☐ No	**X** N/A
Specific requirements in deed or decision documents have been met	☐ Yes	☐ No	**X** N/A
Violations have been reported	☐ Yes	☐ No	**X** N/A

Other problems or suggestions: ☐ Report attached
ESD being prepared to formalize IC implementation,, management, and reporting

2. **Adequacy** **X** ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks____________________

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **X** No vandalism evident
Remarks____________________

2. **Land use changes on site** **X** N/A
Remarks____________________

3. **Land use changes off site** **X** N/A
Remarks____
____

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable **X** N/A

B. Other Site Conditions

Remarks Native vegetation and trees have overgrown the site

VII. LANDFILL COVERS ☐ Applicable **X** N/A

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).
Soil excavation remedy has been implemented. Monitoring is conducted on a five-year basis. The need for continued monitoring at subsequent five-year periods is based on current monitoring results.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.
Current O&M practices are adequate

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.
None

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.
None

Area 29 Signage

Area 29

Area 29

Area 29

Site Inspection Checklist
OU 4, Area 39
NAS Whidbey Island

I. SITE INFORMATION	
Site name: OU 4, Area 39	**Date of inspection:** 9/10/07
Location and Region: Oak Harbor, WA, R10	**EPA ID:** WA6170090058
Agency, office, or company leading the five-year review: U.S. Navy	**Weather/temperature:** Sunny, 70 ^{o}F

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- **X** Access controls
- **X** Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- **X** Other Soil Excavation
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

Please see Appendix E of the Third Five-Year Review

III. ON-SITE DOCUMENTS & RECORDS VERIFIED

Not Applicable

IV. O&M COSTS

1. **O&M Organization**
   - ☐ State in-house
   - ☐ PRP in-house
   - ☐ Federal Facility in-house
   - ☐ Contractor for State
   - **X** Contractor for PRP
   - ☐ Contractor for Federal Facility
   - ☐ Other______________________________

2. **O&M Cost Records**
   - ☐ Readily available ☐ Up to date
   - ☐ Funding mechanism/agreement in place
   - Original O&M cost estimate $0 ☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: None

V. ACCESS AND INSTITUTIONAL CONTROLS **X** Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured **X** N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map **X** N/A
Remarks

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	☐ Yes	**X** No	☐ N/A
Site conditions imply ICs not being fully enforced	☐ Yes	**X** No	☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) Self reporting
Frequency Every 5 years
Responsible party/agency U.S. Navy
Contact John Gordon (Name) RPM (Title) (XXX) XXX-XXXX (Phone no.)

Reporting is up-to-date	☐ Yes	☐ No	**X** N/A
Reports are verified by the lead agency	☐ Yes	☐ No	**X** N/A
Specific requirements in deed or decision documents have been met	☐ Yes	☐ No	**X** N/A
Violations have been reported	☐ Yes	☐ No	**X** N/A

Other problems or suggestions: ☐ Report attached
ESD being prepared to formalize IC implementation,, management, and reporting

2. **Adequacy** **X** ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **X** No vandalism evident
Remarks____

2. **Land use changes on site** **X** N/A
Remarks____

3. **Land use changes off site** **X** N/A
Remarks____

VI. GENERAL SITE CONDITIONS
A. Roads ☐ Applicable **X** N/A
B. Other Site Conditions
Remarks Native vegetation has grown at the site

VII. LANDFILL COVERS ☐ Applicable **X** N/A	
X. OTHER REMEDIES	
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction. None	
XI. OVERALL OBSERVATIONS	
A.	**Implementation of the Remedy**
	Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). Soil excavation remedy has been implemented. No monitoring was required during this five-year review period.
B.	**Adequacy of O&M**
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. Not Applicable
C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. None
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None

Area 39

Site Inspection Checklist
OU 4, Area 41
NAS Whidbey Island

I. SITE INFORMATION	
Site name: OU 4, Area 41	**Date of inspection:** 9/10/07
Location and Region: Oak Harbor, WA, R10	**EPA ID:** WA6170090058
Agency, office, or company leading the five-year review: U.S. Navy	**Weather/temperature:** Sunny, 70 ^oF
Remedy Includes: (Check all that apply) ☐ Landfill cover/containment **X** Access controls **X** Institutional controls ☐ Groundwater pump and treatment ☐ Surface water collection and treatment **X** Other Soil Excavation	☐ Monitored natural attenuation ☐ Groundwater containment ☐ Vertical barrier walls
Attachments: ☐ Inspection team roster attached	☐ Site map attached
II. INTERVIEWS (Check all that apply)	
Please see Appendix E of the Third Five-Year Review	

III. ON-SITE DOCUMENTS & RECORDS VERIFIED
Not Applicable

IV. O&M COSTS	
1.	**O&M Organization** ☐ State in-house ☐ Contractor for State ☐ PRP in-house ☐ Contractor for PRP **X** Federal Facility in-house ☐ Contractor for Federal Facility ☐ Other________________________________
2.	**O&M Cost Records** ☐ Readily available ☐ Up to date ☐ Funding mechanism/agreement in place Original O&M cost estimate $0 ☐ Breakdown attached
3.	**Unanticipated or Unusually High O&M Costs During Review Period** Describe costs and reasons: None

V. ACCESS AND INSTITUTIONAL CONTROLS **X** Applicable ☐ N/A
A. Fencing
1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured **X** N/A Remarks
B. Other Access Restrictions
1. **Signs and other security measures** ☐ Location shown on site map **X** N/A Remarks
C. Institutional Controls (ICs)
1. **Implementation and enforcement** Site conditions imply ICs not properly implemented ☐ Yes **X** No ☐ N/A Site conditions imply ICs not being fully enforced ☐ Yes **X** No ☐ N/A Type of monitoring (*e.g.*, self-reporting, drive by) Self reporting Frequency Every 5 years Responsible party/agency U.S. Navy Contact John Gordon (Name) RPM (Title) (XXX) XXX-XXXX (Phone no.) Reporting is up-to-date ☐ Yes ☐ No **X** N/A Reports are verified by the lead agency ☐ Yes ☐ No **X** N/A Specific requirements in deed or decision documents have been met ☐ Yes ☐ No **X** N/A Violations have been reported ☐ Yes ☐ No **X** N/A Other problems or suggestions: ☐ Report attached ESD being prepared to formalize IC implementation,, management, and reporting
2. **Adequacy** **X** ICs are adequate ☐ ICs are inadequate ☐ N/A Remarks
D. General
1. **Vandalism/trespassing** ☐ Location shown on site map **X** No vandalism evident Remarks
2. **Land use changes on site** **X** N/A Remarks
3. **Land use changes off site** **X** N/A Remarks

VI. GENERAL SITE CONDITIONS
A. Roads ☐ Applicable **X** N/A
B. Other Site Conditions
Remarks Native vegetation has grown at the site

VII. LANDFILL COVERS ☐ Applicable **X** N/A
X. OTHER REMEDIES
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction. None
XI. OVERALL OBSERVATIONS
A. Implementation of the Remedy
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). Soil excavation remedy has been implemented. No monitoring was required during this five-year review period.
B. Adequacy of O&M
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. Not Applicable
C. Early Indicators of Potential Remedy Problems
Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. None
D. Opportunities for Optimization
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None

Area 41

Site Inspection Checklist
OU 4, Area 44
NAS Whidbey Island

I. SITE INFORMATION	
Site name: OU 4, Area 44	**Date of inspection:** 9/10/07
Location and Region: Oak Harbor, WA, R10	**EPA ID:** WA6170090058
Agency, office, or company leading the five-year review: U.S. Navy	**Weather/temperature:** Sunny, 70 ^{o}F

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- **X** Access controls
- **X** Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- **X** Other Soil Excavation
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

Please see Appendix E of the Third Five-Year Review

III. ON-SITE DOCUMENTS & RECORDS VERIFIED

Not Applicable

IV. O&M COSTS

1. **O&M Organization**
   - ☐ State in-house
   - ☐ PRP in-house
   - **X** Federal Facility in-house
   - ☐ Contractor for State
   - ☐ Contractor for PRP
   - ☐ Contractor for Federal Facility
   - ☐ Other______________________________

2. **O&M Cost Records**
   - ☐ Readily available ☐ Up to date
   - ☐ Funding mechanism/agreement in place
   - Original O&M cost estimate $0 ☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: None

V. ACCESS AND INSTITUTIONAL CONTROLS **X** Applicable ☐ N/A
A. Fencing
1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured **X** N/A Remarks
B. Other Access Restrictions
1. **Signs and other security measures** ☐ Location shown on site map **X** N/A Remarks
C. Institutional Controls (ICs)
1. **Implementation and enforcement** Site conditions imply ICs not properly implemented ☐ Yes **X** No ☐ N/A Site conditions imply ICs not being fully enforced ☐ Yes **X** No ☐ N/A Type of monitoring (*e.g.*, self-reporting, drive by) Self reporting Frequency Every 5 years Responsible party/agency U.S. Navy Contact John Gordon (Name) RPM__ (Title) (XXX) XXX-XXXX (Phone no.) Reporting is up-to-date ☐ Yes ☐ No **X** N/A Reports are verified by the lead agency ☐ Yes ☐ No **X** N/A Specific requirements in deed or decision documents have been met ☐ Yes ☐ No **X** N/A Violations have been reported ☐ Yes ☐ No **X** N/A Other problems or suggestions: ☐ Report attached ESD being prepared to formalize IC implementation,, management, and reporting
2. **Adequacy** **X** ICs are adequate ☐ ICs are inadequate ☐ N/A Remarks______
D. General
1. **Vandalism/trespassing** ☐ Location shown on site map **X** No vandalism evident Remarks______
2. **Land use changes on site** **X** N/A Remarks______
3. **Land use changes off site** **X** N/A Remarks______

VI. GENERAL SITE CONDITIONS
A. Roads ☐ Applicable **X** N/A
B. Other Site Conditions
Remarks Area is paved.

VII. LANDFILL COVERS ☐ Applicable **X** N/A	
X. OTHER REMEDIES	
	If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction. None
XI. OVERALL OBSERVATIONS	
A.	**Implementation of the Remedy**
	Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). Soil excavation remedy has been implemented. No monitoring was required during this five-year review period.
B.	**Adequacy of O&M**
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. Not Applicable
C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. None
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None

Area 44

Site Inspection Checklist
OU 4, Area 48
NAS Whidbey Island

I. SITE INFORMATION	
Site name: OU 4, Area 48	**Date of inspection:** 9/10/07
Location and Region: Oak Harbor, WA, R10	**EPA ID:** WA6170090058
Agency, office, or company leading the five-year review: U.S. Navy	**Weather/temperature:** Sunny, 70 ^{o}F

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- **X** Access controls
- **X** Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- **X** Other Soil Excavation
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

Please see Appendix E of the Third Five-Year Review

III. ON-SITE DOCUMENTS & RECORDS VERIFIED

Not Applicable

IV. O&M COSTS

1. **O&M Organization**
   - ☐ State in-house
   - ☐ PRP in-house
   - **X** Federal Facility in-house
   - ☐ Other______________________________
   - ☐ Contractor for State
   - ☐ Contractor for PRP
   - ☐ Contractor for Federal Facility

2. **O&M Cost Records**
   - ☐ Readily available ☐ Up to date
   - ☐ Funding mechanism/agreement in place
   - Original O&M cost estimate $0 ☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: None

V. ACCESS AND INSTITUTIONAL CONTROLS **X** Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured **X** N/A
Remarks

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map **X** N/A
Remarks

C. Institutional Controls (ICs)

1. **Implementation and enforcement**
Site conditions imply ICs not properly implemented ☐ Yes **X** No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **X** No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) Self reporting
Frequency Every 5 years
Responsible party/agency U.S. Navy
Contact John Gordon (Name) RPM (Title) (XXX) XXX-XXXX (Phone no.)

Reporting is up-to-date ☐ Yes ☐ No **X** N/A
Reports are verified by the lead agency ☐ Yes ☐ No **X** N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No **X** N/A
Violations have been reported ☐ Yes ☐ No **X** N/A
Other problems or suggestions: ☐ Report attached
ESD being prepared to formalize IC implementation,, management, and reporting

2. **Adequacy** **X** ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **X** No vandalism evident
Remarks

2. **Land use changes on site** **X** N/A
Remarks

3. **Land use changes off site** **X** N/A
Remarks

Site Inspection Checklist
OU 4, Area 48
NAS Whidbey Island

VI. GENERAL SITE CONDITIONS
A. Roads ☐ Applicable **X** N/A
B. Other Site Conditions
Remarks Native vegetation has grown at the site

VII. LANDFILL COVERS ☐ Applicable **X** N/A
X. OTHER REMEDIES
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction. None
XI. OVERALL OBSERVATIONS
A. Implementation of the Remedy
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). Soil excavation remedy has been implemented. No monitoring was required during this five-year review period.
B. Adequacy of O&M
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. Not Applicable
C. Early Indicators of Potential Remedy Problems
Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. None
D. Opportunities for Optimization
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None

Site Inspection Checklist
OU 4, Area 49
NAS Whidbey Island

I. SITE INFORMATION	
Site name: OU 4, Area 49	**Date of inspection:** 9/10/07
Location and Region: Oak Harbor, WA, R10	**EPA ID:** WA6170090058
Agency, office, or company leading the five-year review: U.S. Navy	**Weather/temperature:** Sunny, 70 ^{o}F

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- **X** Access controls
- **X** Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- **X** Other Soil Excavation
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

Please see Appendix E of the Third Five-Year Review

III. ON-SITE DOCUMENTS & RECORDS VERIFIED

Not Applicable

IV. O&M COSTS

1. **O&M Organization**
   - ☐ State in-house
   - ☐ PRP in-house
   - **X** Federal Facility in-house
   - ☐ Other________________________
   - ☐ Contractor for State
   - ☐ Contractor for PRP
   - ☐ Contractor for Federal Facility

2. **O&M Cost Records**
   - ☐ Readily available ☐ Up to date
   - ☐ Funding mechanism/agreement in place
   - Original O&M cost estimate $0 ☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: None

Site Inspection Checklist
OU 4, Area 49
NAS Whidbey Island

V. ACCESS AND INSTITUTIONAL CONTROLS **X** Applicable ☐ N/A
A. Fencing
1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured **X** N/A Remarks
B. Other Access Restrictions
1. **Signs and other security measures** ☐ Location shown on site map **X** N/A Remarks
C. Institutional Controls (ICs)
1. **Implementation and enforcement** Site conditions imply ICs not properly implemented ☐ Yes **X** No ☐ N/A Site conditions imply ICs not being fully enforced ☐ Yes **X** No ☐ N/A Type of monitoring (*e.g.*, self-reporting, drive by) Self reporting Frequency Every 5 years Responsible party/agency U.S. Navy Contact John Gordon RPM__ (XXX) XXX-XXXX Name Title Phone no. Reporting is up-to-date ☐ Yes ☐ No **X** N/A Reports are verified by the lead agency ☐ Yes ☐ No **X** N/A Specific requirements in deed or decision documents have been met ☐ Yes ☐ No **X** N/A Violations have been reported ☐ Yes ☐ No **X** N/A Other problems or suggestions: ☐ Report attached ESD being prepared to formalize IC implementation,, management, and reporting
2. **Adequacy** **X** ICs are adequate ☐ ICs are inadequate ☐ N/A Remarks
D. General
1. **Vandalism/trespassing** ☐ Location shown on site map **X** No vandalism evident Remarks
2. **Land use changes on site** **X** N/A Remarks
3. **Land use changes off site** **X** N/A Remarks

VI. GENERAL SITE CONDITIONS
A. Roads ☐ Applicable **X** N/A
B. Other Site Conditions
Remarks Native vegetation has grown at the site

VII. LANDFILL COVERS ☐ Applicable **X** N/A	
X. OTHER REMEDIES	
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction. None	
XI. OVERALL OBSERVATIONS	
A.	**Implementation of the Remedy**
	Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). Soil excavation remedy has been implemented. No monitoring was required during this five-year review period.
B.	**Adequacy of O&M**
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. Not Applicable
C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. None
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None

Area 49

I. SITE INFORMATION	
Site name: OU 5, Area 1	**Date of inspection:** 9/10/07
Location and Region: Oak Harbor, WA, R10	**EPA ID:** WA5170090059
Agency, office, or company leading the five-year review: U.S. Navy	**Weather/temperature:** Sunny, 70 ^{o}F
Remedy Includes: (Check all that apply) ☐ Landfill cover/containment **X** Access controls **X** Institutional controls ☐ Groundwater pump and treatment ☐ Surface water collection and treatment **X** Other Institutional controls and monitoring	☐ Monitored natural attenuation ☐ Groundwater containment ☐ Vertical barrier walls
Attachments: ☐ Inspection team roster attached	☐ Site map attached
II. INTERVIEWS (Check all that apply)	
Please see Appendix E of the Third Five-Year Review	

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)					
1.	**O&M Documents**				
	☐ O&M manual	☐ Readily available	☐ Up to date	**X** N/A	
	☐ As-built drawings	☐ Readily available	☐ Up to date	**X** N/A	
	☐ Maintenance logs	☐ Readily available	☐ Up to date	**X** N/A	
	Remarks______				
2.	**Site-Specific Health and Safety Plan**	☐ Readily available	☐ Up to date	**X** N/A	
	☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	**X** N/A	
	Remarks______				
3.	**O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	**X** N/A	
	Remarks______				

4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	**X** N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	**X** N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	**X** N/A
	☐ Other permits______________________	☐ Readily available	☐ Up to date	**X** N/A
	Remarks________________________________			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	**X** N/A
	Remarks________________________________			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	**X** N/A
	Remarks________________________________			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	**X** N/A
	Remarks________________________________			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	**X** N/A
	Remarks________________________________			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	**X** N/A
	☐ Water (effluent)	☐ Readily available	☐ Up to date	**X** N/A
	Remarks________________________________			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	☐ N/A
	Remarks________________________________			

IV. O&M COSTS

1.	**O&M Organization**	
	☐ State in-house	☐ Contractor for State
	☐ PRP in-house	**X** Contractor for PRP
	☐ Federal Facility in-house	☐ Contractor for Federal Facility
	☐ Other________________________________	

2. **O&M Cost Records**
☐ Readily available ☐ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate $0 ☐ Breakdown attached

Approximately $10,000 is spent on monitoring and reporting every 5 years.

3. **Unanticipated or Unusually High O&M Costs During Review Period**
Describe costs and reasons: None

V. ACCESS AND INSTITUTIONAL CONTROLS **X** Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured **X** N/A
Remarks____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks: Signage is in good condition. Please see photos at end of checklist.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented	☐ Yes	**X** No	☐ N/A
Site conditions imply ICs not being fully enforced	☐ Yes	**X** No	☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) Self reporting
Frequency Every 5 years
Responsible party/agency U.S. Navy
Contact John Gordon (Name) RPM (Title) (XXX) XXX-XXXX (Phone no.)

Reporting is up-to-date	☐ Yes	☐ No	**X** N/A
Reports are verified by the lead agency	☐ Yes	☐ No	**X** N/A
Specific requirements in deed or decision documents have been met	☐ Yes	☐ No	**X** N/A
Violations have been reported	☐ Yes	☐ No	**X** N/A

Other problems or suggestions: ☐ Report attached
ESD being prepared to formalize IC implementation,, management, and reporting

2. **Adequacy** ☐ ICs are adequate **X** ICs are inadequate ☐ N/A
Remarks Erosion along the shoreline has exposed construction debris on the western side of the landfilled area. It is recommended that a shoreline erosion monitoring program be established. If erosion rates increase significantly or material that could pose a threat to human health and the environment is exposed,.additional action may be warranted.

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **X** No vandalism evident
Remarks____

2. **Land use changes on site** **X** N/A
Remarks____

3. **Land use changes off site** **X** N/A
Remarks____

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable **X** N/A

B. Other Site Conditions

Remarks None

VII. LANDFILL COVERS ☐ Applicable **X** N/A

VIII. MONITORING ☐ Applicable **X** N/A

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

None

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).
The remedy, Institutional controls and monitoring, has been implemented. In general, the remedy is functioning as intended. However, erosion along the shoreline has exposed construction debris on the western side of the landfilled area. It is recommended that a shoreline erosion monitoring program be established. If erosion rates increase significantly or material that could pose a threat to human health and the environment is exposed. additional action may be warranted.

B.	**Adequacy of O&M**
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. The bluff demarking the western extent of the landfilled area should be monitored for erosion. Otherwise, O&M is adequate.
C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. Erosion along the western edge of the landfilled area could expose material that poses a threat to human health or the environment. Regular visual monitoring should be conducted to monitor this erosion and what materials are exposed.
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. It is recommended that an erosion monitoring program be implemented.

Area 1 Signage

Area 1

Area 1 Exposed Landfilled Material

Area 1 Slump

Area 1 Shoreline Debris

Site Inspection Checklist
OU 5, Area 52
NAS Whidbey Island

I. SITE INFORMATION	
Site name: OU 5, Area 52	**Date of inspection:** 9/10/07
Location and Region: Oak Harbor, WA, R10	**EPA ID:** WA5170090059
Agency, office, or company leading the five-year review: U.S. Navy	**Weather/temperature:** Sunny, 70 ^{o}F

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- **X** Access controls
- **X** Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- **X** Other Product Recovery
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

Please see Appendix E of the Third Five-Year Review

III. ON-SITE DOCUMENTS & RECORDS VERIFIED

Not Applicable

IV. O&M COSTS

1. **O&M Organization**
   - ☐ State in-house
   - ☐ PRP in-house
   - ☐ Federal Facility in-house
   - ☐ Other________________________________
   - ☐ Contractor for State
   - **X** Contractor for PRP
   - ☐ Contractor for Federal Facility

2. **O&M Cost Records**
   - ☐ Readily available ☐ Up to date
   - ☐ Funding mechanism/agreement in place
   - Original O&M cost estimate $32,000/year ☐ Breakdown attached

Annual O&M costs ranged from approximately $80,000 in 2002 to $95,000 in 2004. Costs dropped from 2004 to 2007.

3. **Unanticipated or Unusually High O&M Costs During Review Period**
Describe costs and reasons: The primary cost items for Area 52 are associated with product recovery system O&M, well gauging and environmental monitoring, and reporting. Labor costs are the most significant component of these three cost items, which are estimated to represent at least 90 percent of the total O&M costs at the site.

V. ACCESS AND INSTITUTIONAL CONTROLS **X** Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured **X** N/A
Remarks____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks Signage in good condition

C. Institutional Controls (ICs)

1. **Implementation and enforcement**
Site conditions imply ICs not properly implemented ☐ Yes **X** No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes **X** No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) Self reporting
Frequency Every 5 years
Responsible party/agency U.S. Navy
Contact John Gordon (Name) RPM (Title) (XXX) XXX-XXXX (Phone no.)

Reporting is up-to-date ☐ Yes ☐ No **X** N/A
Reports are verified by the lead agency ☐ Yes ☐ No **X** N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No **X** N/A
Violations have been reported ☐ Yes ☐ No **X** N/A
Other problems or suggestions: ☐ Report attached
ESD being prepared to formalize IC implementation,, management, and reporting

2. **Adequacy** **X** ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **X** No vandalism evident
Remarks____

2.	**Land use changes on site** **X** N/A Remarks____
3.	**Land use changes off site** **X** N/A Remarks____
VI. GENERAL SITE CONDITIONS	
A. Roads ☐ Applicable **X** N/A	
VII. LANDFILL COVERS ☐ Applicable **X** N/A	
X. OTHER REMEDIES	
	If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction. Product recovery by skimming was implemented at the site from 12/96 to 6/07. System operation terminated with EPA concurrence.
XI. OVERALL OBSERVATIONS	
A.	**Implementation of the Remedy**
	Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). Remedy implementation is complete and RAOs have been met.
B.	**Adequacy of O&M**
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. Remedy implementation is complete and RAOs have been met. Management and maintenance of ICs is adequate.
C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. None
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None

Area 52 Signage

Area 52 and Buildings on Beach Side of Road

Area 52 and Buildings on Runway Side of Road

Appendix E

Interview Responses

INTERVIEW RECORD FOR FIVE-YEAR REVIEW
Type 1 Interview – Navy Personnel
Naval Air Station Whidbey Island
Oak Harbor, Washington

Individual Contacted: John Gordon
Title: Remedial Project Manager
Organization: Naval Facilities Engineering Command Northwest Telephone: (XXX) XXX-XXX
E-mail: john.t.gordon@navy.mil
Address: Commanding Officer, NAVFAC NW
1101 Tautog Circle
Silverdale, WA
98315-1101

Contact made by: Greg XXXXXX
Response Type:
Date: 01/07/2008

Summary of Communication

You are not obligated to answer every question. If you are not familiar with the topic of a particular question, or have no information or opinion to offer, please indicate "none" after "response."

1. Please describe your degree of familiarity with the Naval Air Station Whidbey Island (NASWI), the Records of Decision (RODs) for OUs 1, 2, 3, 4, and 5, the implementation of the remedies at these operable units, the monitoring and maintenance that has taken place since implementation of the remedies, and recommendations made during the second five-year review finalized in 2004.

   Response: I have been the Navy's Remedial Project Manager on this project for more than eight years.

2. What is your overall impression of remedy operation at the five operable units at NASWI since the last five-year review?

   Response: Remedies are in-place and functioning as intended.

3. Have there been any significant changes in site conditions, remedy operations, or station operations since the last five-year review?

   Response: Fuel recovery and quarterly groundwater monitoring has been suspended with EPA's authorization at Area 52 and natural attenuation is being allowed continue remediation. Quarterly groundwater monitoring has been suspended at Area 31.

4. To the best of your knowledge, does the landfill cap and groundwater control action at OU 1, Area 6 effectively meet the goals stated in the ROD to:
   - Reduce concentrations of contaminants in shallow groundwater
   - Prevent further spread of contaminants in shallow groundwater
   - Reduce the potential risk to existing and future groundwater users
   - Minimize infiltration of rainwater into the landfill to prevent leachate generation and migration to groundwater
   - Prevent stormwater erosion
   - Prevent migration of contaminants in shallow groundwater to the lower aquifer
   - Prevent exposure of contaminants in subsurface soil and debris in the landfill operations area.

   Response: Yes

5. Do you feel that the OU 2 Areas 2/3, 4, and 29 groundwater monitoring that has generally been conducted at five year intervals remains sufficient and necessary for demonstrating that the implemented remedies remain protective at these sites

   Response: Yes

6. Do you feel that recommendations made during the second five-year review have been adequately implemented?

   Response: Yes

7. Do you feel that sediment monitoring every five years at OU 3 Area 16 remains adequate and necessary to demonstrate the on-going protectiveness of ecological receptors?

   Response: Yes

8. Are you aware of any on-going sources of contaminants to sediments at OU 3 Area 16?

   Response: None other than routine non-point sources such as paved surfaces, roof drains, lawn maintenance, etc.

9. Are you aware of any prior or pending land use or ownership changes since the signing of the RODs that may impact the effectiveness of any component of the selected remedies for these five OUs?

   Response: No

10. Please describe any notifications that you are aware of that have been given to Navy personnel following signing of the RODs stating that the use of groundwater from beneath NASWI is restricted. Are you aware of any use of groundwater from beneath the site?

    Response: The Navy continues to maintain several wells as backup wells in the event of a major fire or failure of imported water.

11. To the best of your knowledge, do institutional controls and operation and maintenance practices in use at NASWI meet the intent of the RODs regarding limiting the potential for contact with or movement of contaminants left in place?

    Response: Yes

12. To the best of your knowledge, has the on-going program of environmental monitoring at NASWI following implementation of the remedies been sufficiently thorough and frequent to meet the goals of the RODs and have the recommendations made during the second five-year review been adequately incorporated into the monitoring program? Please indicate the basis for your assessment.

    Response: Yes. EPA reviewed changes proposed during the last Five Year Review and has reviewed changes proposed for the Routine (Areas 6, 31, & 52) Monitoring Program.

13. Are you aware of any community concerns regarding implementation of the remedies at NASWI? If so, please give details.

    Response: No

14. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented to protect human health and the environment at the NASWI?

    Response: No

15. Please review the attached lists of interviewees for the five-year review. Are there other individuals you feel we should contact? If so, please provide their name, title, and contact information if you have it.

    Response: Response provided by separate correspondence.

INTERVIEW RECORD FOR FIVE-YEAR REVIEW
Type 2 Interview – Regulatory Agency
Naval Air Station Whidbey Island
Oak Harbor, WA

Individual Contacted: XXXX XXXXX
Title: Superfund Project Manager
Organization: EPA
Telephone: (XXX) XXX-XXXX
E-mail: XXXX.nancy@XXX.XXX
Address: 1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Contact made by:
Response type:
Date:

Summary of Communication

You are not obligated to answer every question. If you are not familiar with the topic of a particular question, or have no information or opinion to offer, please indicate "none" after "response."

1. Please describe your degree of familiarity with the Naval Air Station Whidbey Island (NASWI), the Records of Decision (RODs) for OUs 1, 2, 3, 4, and 5, the implementation of the remedies at these operable units, the monitoring and maintenance that has taken place since implementation of the remedies, and recommendations made during the second five-year review finalized in 2004.

   Response: I have been the EPA project manager for the NAS Whidbey Island, Ault Field Superfund site since 1990 and am therefore very familiar with all the cleanup related activities that has taken place over the years at all the operable units. I also was involved in developing and reviewing the previous 5 year review.

2. What is your overall impression of the remedy operation and maintenance since the second five-year review at the five NASWI operable units? Do you believe that remedy operation, maintenance, and monitoring have been revised in accordance with recommendations made in the second five-year review? Do you feel the remedies continue to be effective? Please indicate the basis for your assessment.

   Response: From what EPA has seen, things seem to be ok. However, EPA may not have the most recent data. In general, during the last 5 years since the last review, I am not aware of any major issues.

3. To your knowledge, since the RODs were signed have there been any new scientific findings that relate to projecting potential site risks which might call into question the protectiveness of the remedies?

   Response: Please see response to this question from XXXXXX XXXXXX regarding 1,4 dioxane;

4. To the best of your knowledge, are institutional controls and operation and maintenance procedures being utilized at the NASWI consistent with the terms of the RODs and recommendations made during the second five-year review?

   Response: Yes. Through discussions with the Navy, I have been kept informed when there were O&M problems related to the operation of the pump & treat system at Area 6. In accordance with the recommendation from the second 5 year review, EPA and the Navy recently completed work on an Explanation of Significant Differences that focused on institutional and land use controls. This ESD is expected to be finalized in October 2007.

5. Following signing of the RODs, have there been any complaints, violations, or other incidents related to NASWI installation restoration issues that required a response by your office? If so, please provide details of the events and results of the responses.

   Response: No.

6. To the best of your knowledge, has the on-going program of environmental monitoring at NASWI following implementation of the remedies been sufficiently thorough and frequent to meet the goals of the RODs? Please indicate the basis for your assessment.

   Response: In general, yes. The Navy has conducted monitoring in accordance with monitoring plans provided to EPA for review and approval. Please refer to response from XXXXXX XXXXXX.

7. To the best of your knowledge, have the recommendations made during the second five-year review been adequately implemented? Please indicate the basis for your assessment.

   Response: Most of the recommendations made in the second five year review have been implemented with the exception of the recommendation to conduct additional monitoring of VOC concentrations in vadose zone soils to evaluate the effect of the DNAPL source removal action and to evaluate the migration of VOC compounds. This was supposed to be

completed in June of 2005 and to the best of my knowledge, it has not been done. Please also refer to the response from XXXXXX XXXXXX.

8. Are you aware of any community concerns regarding implementation of the remedies at NASWI? If so, please give details.

   Response: EPA was contacted by a local resident who was concerned about the possibility of his drinking water well being contaminated from activities related to NASWI. I referred him to the Navy's environmental office and the Navy worked closely with him to provide information and determine if there could potentially be any connection. It is my understanding that there was no evidence to suggest that this property owner's well could be contaminated from NASWI. The only other response has been related to the 1,4 dioxane offsite well sampling at private wells close to NASWI, however, that was initiated by the Navy.

9. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented to protect human health and the environment at the Naval Air Station Whidbey Island?

   Response: Need to do more assessment of what is happening with 1,4 dioxane on-site at Area 6 and issues relating to the reinfiltration of contaminated groundwater that is probably above MTCA B levels. Please refer to more detailed response from XXXXXX XXXXXX.

10. Please review the attached lists of interviewees for the five-year review. Are there other individuals you feel we should contact? If so, please provide their name, title, and contact information if you have it.

    Response:

INTERVIEW RECORD FOR FIVE-YEAR REVIEW
Type 2 Interview – Regulatory Agency
Naval Air Station Whidbey Island
Oak Harbor, WA

Individual Contacted: XXXXXX XXXXXX
Title: Hydrogeologist
Organization: EPA Region 10, Office of Environmental
Assessment Telephone: XXX-XXX-XXXX
E-mail: XXXXXX.XXXXXX@XXX.XXX
Address: 1200 6th Ave., Suite 900, OEA-095, Seattle, WA 98101

Contact made by:
Response type:
Date: 24 October 2007

Summary of Communication

You are not obligated to answer every question. If you are not familiar with the topic of a particular question, or have no information or opinion to offer, please indicate "none" after "response."

1. Please describe your degree of familiarity with the Naval Air Station Whidbey Island (NASWI), the Records of Decision (RODs) for OUs 1, 2, 3, 4, and 5, the implementation of the remedies at these operable units, the monitoring and maintenance that has taken place since implementation of the remedies, and recommendations made during the second five-year review finalized in 2004.

   Response: I've provided EPA's hydrogeological technical support for this site since June of 1987. I was involved with characterization of all the OUs, and have been involved with developing the RODs and implementing the remedies at all the sites except OUs 3 and 4. My attention has mainly been focused on the remedy at OU 1 Area 6.

2. What is your overall impression of the remedy operation and maintenance since the second five-year review at the five NASWI operable units? Do you believe that remedy operation, maintenance, and monitoring have been revised in accordance with recommendations made in the second five-year review? Do you feel the remedies continue to be effective? Please indicate the basis for your assessment.

   Response: Yes, but the last monitoring report I've received was from 1st Quarter 2006 (OU 1), so I haven't received monitoring reports or data from the past year.

3. To your knowledge, since the RODs were signed have there been any new scientific findings that relate to projecting potential site risks which might call into question the protectiveness of the remedies?

   Response: At Area 6 (OU 1), there have been issues with 1, 4-dioxane through out the plumes and apparently migrating from the southeast end of the landfill, but so far concentrations in off-base domestic wells are well below acceptable risk levels and WA State's MTCA Method B value. However, groundwater is not monitored between the landfill and domestic wells, and concentrations appear to have been rising in on-base wells, so it's unclear what future trends may be. In addition, at least at times, the Area 6 western plume appears to cross the base property boundary to the west. So far no one has tried to develop that private property along the landfill for residential use or drill any wells. The plume footprint has very likely remained within the 1000' well drilling buffer around the landfill portion of OU 1 during the past 5 years, so as long as Island County enforces that WAC provision, it should be protective.

   Soil re-sampling at OU 3 has identified some re-contamination issues which have ecological protectiveness implications.

4. To the best of your knowledge, are institutional controls and operation and maintenance procedures being utilized at the NASWI consistent with the terms of the RODs and recommendations made during the second five-year review?

   Response: Yes.

5. Following signing of the RODs, have there been any complaints, violations, or other incidents related to NASWI installation restoration issues that required a response by your office? If so, please provide details of the events and results of the responses.

   Response: Not that I'm aware of.

6. To the best of your knowledge, has the on-going program of environmental monitoring at NASWI following implementation of the remedies been sufficiently thorough and frequent to meet the goals of the RODs? Please indicate the basis for your assessment.

   Response: Generally yes, with some periodic tweaking to add 1,4-dioxane sampling points. There may be a need for additional monitoring points between the southeast corner of the Area 6 landfill and off-base domestic wells if concentrations in on-base wells are still rising. That area is not captured by the OU 1 pump-and-treat (P&T) system.

7. To the best of your knowledge, have the recommendations made during the second five-year review been adequately implemented? Please indicate the basis for your assessment.

   Response: There were 2 recommendations for OU 1 that have not been implemented to my satisfaction. One was to conduct additional monitoring of VOC concentrations in vadose zone soils from existing multilevel vapor monitoring wells in the general vicinity of the "acid pit", which had a milestone date of 6/30/05. To my knowledge, this never happened. The second part of that recommendation was to consider additional source removal as part of the P&T optimization study that was already planned. The Navy hired a contractor to perform a Remedial Process Optimization, but it really was neither a robust optimization of the pump-and-treat system nor a robust re-evaluation of whether there was a significant VOC source remaining in the vadose zone in the vicinity of the "acid pit" to act as a long term source that would preclude shutting off the P&T system in the future. Mainly, it was an attempt to justify adopting an "alternative remedial strategy" involving turning off the P&T system (allowing contamination at levels above the clean up levels leave the site) and counting on some unknown amount of "enhanced" attenuation capacity remediate the plume as it migrated under the Oak Harbor Landfill. The re-evaluation of the vadose source zone mass was based on flawed calculations in the 2003 sampling event that significantly underestimated the mass. My comments on the RPO report were responded to with a promise to address my comments, but I never saw any revised report.

   There was a recommendation for OU 5 that called for post-shutdown seep sampling at Area 52. It may have happened last summer -- there was some indication that plans were being developed. However, I never saw the plans and don't know if it actually happened.

8. Are you aware of any community concerns regarding implementation of the remedies at NASWI? If so, please give details.

   Response: Not since 1993, when a few local residents were concerned that the P&T system would effectively dewater the shallow aquifer and impact their well supplies.

9. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented to protect human health and the environment at the Naval Air Station Whidbey Island?

   Response: The P&T system pulls in 1,4-dioxane levels at concentrations somewhat above Ecology's MTCA B value but apparently doesn't

effectively remove it (although I've never actually seen any results from treatment system effluent sampling), as indicated by the concentrations seen in a well upgradient from the plume sources but downgradient from the reinfiltration swale. As a result, 1,4-dioxane is simply being recycled through the groundwater system, and not remediated. We need to engage Ecology to determine whether infiltration of water containing a contaminant > MTCA B is acceptable. We also need to consider whether its continued presence in the plume might eventually delay system shutdown. In either event, it may be necessary to add a 1,4-dioxane treatment unit to the treatment system. In addition, we need to better characterize 1,4-dioxane concentrations that may be leaving the southeast corner of the site, especially if concentrations have continued to increase in that area.

10. Please review the attached lists of interviewees for the five-year review. Are there other individuals you feel we should contact? If so, please provide their name, title, and contact information if you have it.

    Response:

INTERVIEW RECORD FOR FIVE-YEAR REVIEW
Type 3 Interview - Natural Resources Trustee
Naval Air Station Whidbey Island
NASWI, WA

Individual Contacted: XXXXX XXXXX
Title: Environmental Health Specialist
Organization: Island County Public Health
Telephone: 3XXX-XXX-XXXX
E-mail: XXXXXX@co.island.wa.us
Address: 1 NE 6th St
PO Box 5000
Coupeville, WA 98239
Contact made by:
Response type:
Date: September 7, 2007

Summary of Communication

You are not obligated to answer every question. If you are not familiar with the topic of a particular question, or have no information or opinion to offer, please indicate "none" after "response."

1. Please describe your degree of familiarity with the Naval Air Station Whidbey Island (NASWI), the Records of Decision (RODs) for OUs 1, 2, 3, 4, and 5, the implementation of the remedies at these operable units, the monitoring and maintenance that has taken place since implementation of the remedies, and recommendations made during the second five-year review finalized in 2004.

Response: I have attended RAB meetings, conducted a review of the various listed documents in conducting a health investigation near OU2, and assisted with 1,4-dioxane monitoring and assessment near Area 6. Any significant familiarity is limited to those events and topics.

2. What is your overall impression of the remedy operation and maintenance since the second five-year review at the five NASWI operable units? Do you believe that remedy operation, maintenance, and monitoring have been revised in accordance with recommendations made in the second five-year review? Do you feel the remedies continue to be effective? Please indicate the basis for your assessment.

Response: None

3. What effects have post-ROD remedy implementation had on your agency and the surrounding community?

Response: We have enjoyed a good working relationship with the NASWI representatives. Whether this relationship is related to post-ROD remedy implementation or not I can't say however.

4. Are you aware of any concerns within your agency or the community regarding implementation of the remedies at the five operable units at NASWI? If so, please give details.

Response: I'm not aware of any.

5. To the best of your knowledge, are institutional controls and operation and maintenance procedures being utilized at the NASWI consistent with the terms of the RODs and the recommendations made in the second five-year review?

Response: None

6. To the best of your knowledge, has the on-going program of environmental monitoring at NASWI following implementation of the remedies been sufficiently thorough and frequent to meet the goals of the RODs? Have the monitoring programs included recommendations made in the second five-year review? Please indicate the basis for your assessment.

Response: None

7. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented to protect human health and the environment at the NASWI?

Response: None

8. Please review the attached lists of interviewees for the five-year review. Are there other individuals you feel we should contact? If so, please provide their name, title, and contact information if you have it.

Response: None

INTERVIEW RECORD FOR FIVE-YEAR REVIEW
Type 4 Interview – Community Member
Naval Air Station Whidbey Island
Oak Harbor, WA

Individual Contacted: XX XXXXXX
Title: Community Member Organization:
Telephone:
E-mail: XXXXXXXX@whidbey.net
Address:

Contact made by:
Response type:
Date:

Summary of Communication

You are not obligated to answer every question. If you are not familiar with the topic of a particular question, or have no information or opinion to offer, please indicate "none" after "response."

1. Please describe your degree of familiarity with the Naval Air Station Whidbey Island (NASWI), the Records of Decision (RODs) for OUs 1, 2, 3, 4, and 5, the implementation of the remedies at these operable units, the monitoring and maintenance that has taken place since implementation of the remedies, and recommendations made during the second five-year review finalized in 2004.

   Response: Yes, very familiar

2. What is your overall impression of the remedy operation and maintenance since the second five-year review at the five NASWI operable units? Do you believe that remedy operation, maintenance, and monitoring have been revised in accordance with recommendations made in the second five-year review? Do you feel the remedies continue to be effective? Please indicate the basis for your assessment.

   Response: yes - status reports presented to the RAB at meetings.

3. What effects have post-ROD remedy implementation had on the surrounding community?

   Response: difficult to assess - community members that initially presented concerns to the RAB have not presented follow-up information

that allows response to this question. The absence of ongoing dialog I take as a positive sign that problems presented have been addressed.

4. Are you aware of any community concerns regarding implementation of the remedies at the five operable units at NASWI? If so, please give details.

   Response: no specific concerns - see answer to (3) above.

5. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented to protect human health and the environment at the Naval Air Station Whidbey Island?

   Response: overall very good - the amount of tax dollars spent on many projects appears excessive. Future projects need to be examined closely for "the most cost effective approach".

6. Please review the attached lists of interviewees for the five-year review. Are there other individuals you feel we should contact? If so, please provide their name, title, and telephone number.

   Response: