

**DRAFT**

EXPLANATION OF SIGNIFICANT DIFFERENCES  
TO THE  
RECORD OF DECISION

OPERABLE UNIT 25  
AREA OF CONCERN HANGAR 1  
MAIN HANGAR FLOOR DRAINS

FORMER NAVAL AIR STATION SOUTH WEYMOUTH  
WEYMOUTH, MASSACHUSETTS

December 2011

**STATEMENT OF PURPOSE AND AUTHORIZING SIGNATURES**

This decision document explains the basis for the determination to issue the attached Explanation of Significant Differences (ESD) for Area of Concern Hangar 1 Main Hangar Floor Drains (AOC Hangar 1) at the former Naval Air Station (NAS) South Weymouth, Massachusetts.

For the reasons documented herein, by my signature below, I approve the issuance of this ESD for Operable Unit 25, AOC Hangar 1 at the NAS South Weymouth Superfund Site and the changes stated therein. Concur and recommended for immediate implementation:

U.S. Department of the Navy

By: \_\_\_\_\_  
David A. Barney  
NAVFAC BRAC Environmental Coordinator  
Former Naval Air Station South Weymouth  
U.S. Navy

Date: \_\_\_\_\_

Concur and recommended for immediate implementation:

By: \_\_\_\_\_  
James T. Owens III  
Director, Office of Site Remediation and Restoration  
U.S. Environmental Protection Agency, Region I

Date: \_\_\_\_\_

**EXPLANATION OF SIGNIFICANT DIFFERENCES  
OPERABLE UNIT 25 – AOC HANGAR 1  
FORMER NAVAL AIR STATION SOUTH WEYMOUTH, MASSACHUSETTS**

**1.0 INTRODUCTION TO THE SITE AND STATEMENT OF PURPOSE**

**1.1 Site Name and Location**

Naval Air Station South Weymouth  
1134 Main Street  
Weymouth, Massachusetts 02190  
MA2170022022  
Operable Unit 25 – AOC Hangar 1

**1.2 Identification of Lead and Support Agencies**

The U.S. Navy is the lead agency for all environmental investigations and cleanup programs at former NAS South Weymouth. The lead regulatory agency is the U.S. Environmental Protection Agency Region 1 (EPA). The Massachusetts Department of Environmental Protection (MassDEP) provides additional regulatory agency support.

**1.3 Legal Authority**

Under Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), if EPA determines that the remedial action at a site differs significantly from the Record of Decision (ROD) for that site, then an explanation of the significant differences between the remedial action being taken and the remedial action set forth in the ROD shall be published which includes the reasons such changes are being made. Section 300.435(c) of the National Contingency Plan (NCP) and EPA guidance (OSWER Directive 9355.3-02) indicate that an ESD rather than a ROD Amendment is appropriate where the changes do not fundamentally alter the overall remedy with respect to scope, performance, or cost. Because the adjustments to the remedial action for AOC Hangar 1 do not fundamentally alter the overall remedy for the ROD, this ESD is being properly issued.

In accordance with Section 300.825(a)(2) of the NCP, this ESD will become part of the Administrative Record for AOC Hangar 1, and is also available for public review at the former NAS South Weymouth Caretaker Site Office (Building 11, Shea Memorial Drive) and the local Information Repositories identified below. In addition, a notice that briefly summarizes this ESD will be published in the three major local newspapers.

**1.4 Overview of the ESD**

The July 2010 ROD for AOC Hangar 1 (the Site) specified No Further CERCLA remedial action for soils and groundwater (U.S. Navy, 2010). The No Further Action decision for soils and groundwater at AOC Hangar 1 was based on the Navy's successful completion of a series of investigations and removal actions at the Site. The streamlined human health risk assessment (HHRA) performed at the completion of the removal actions concluded that exposure to the soils and groundwater at the Site do not pose an unacceptable risk to human health or the environment. There is no complete exposure pathway at the Site for ecological receptors.

Since completion of the ROD, the Navy has performed a perfluorinated compound (PFC) investigation in the vicinity of Hangar 1. The Navy has prepared this ESD to address the results of the investigation, specifically the PFCs detected in groundwater. Prior to this PFC investigation, no environmental samples collected at the former NAS South Weymouth had been analyzed for PFCs. This ESD will address the potential threat if groundwater is used in the future for drinking water purposes, due to exceedances of the EPA Provisional Health Advisory (PHA) values for two PFCs, perfluorooctanoic acid (PFOA) and

perfluorooctane sulfonate (PFOS). The action will take the form of a land use control, specifically a permanent institutional control to restrict the use of groundwater for drinking water purposes.

The adjustments presented in this ESD to the ROD do not fundamentally alter the overall remedial action for AOC Hangar 1 with respect to scope, performance, or cost.

## **1.5 Availability of Documents**

In accordance with Section 300.825(a)(2) of the NCP, this ESD will become part of the Administrative Record for AOC Hangar 1. This ESD is also available for public review at the following locations:

Department of the Navy  
Caretaker Site Office  
c/o David Barney  
1134 Main Street, Bldg. 11  
South Weymouth, MA 02190

Tufts Library  
46 Broad Street  
Weymouth MA 02188  
(781) 337-1402

Abington Public Library  
600 Gliniewicz Way  
Abington, MA 02351  
(781) 982-2139

Hingham Public Library  
66 Leavitt Street  
Hingham, MA 02043  
(781) 741-1405

Rockland Memorial Library  
20 Belmont Street  
Rockland, MA 02370  
(781) 878-1236

## **2.0 SITE HISTORY, CONTAMINATION, AND SELECTED REMEDY**

### **2.1 Site Description and History**

NAS South Weymouth is located approximately 15 miles southeast of Boston, Massachusetts in Norfolk and Plymouth counties. Portions of NAS South Weymouth are located in the Towns of Weymouth, Abington, and Rockland. NAS South Weymouth was operationally closed on September 30, 1996 and administratively closed on September 30, 1997 under the Base Realignment and Closure Act of 1990.

Hangar 1 is a large concrete frame building located in the central portion of the Base with one- and two-story structures attached on the north and south sides (see Figure 1). The two-story structures, referred to as lean-tos, extend beyond the hangar to the east and enclose a concrete paved area. The hangar was built in 1966 on the site of a previous hangar built for dirigibles in 1942. The area around Hangar 1 is covered by concrete pavement (e.g. the aircraft parking apron shown on Figure 1). Metal tracks that formed the opening of the original blimp hangar doors are visible in the concrete. The primary use of Hangar 1 was for storage and maintenance of aircraft, including activities such as metal working, engine work, painting, arming, washing, hydraulic system repair, welding, parachute packing, photo development, training, and plating and anodizing.

Subsurface soil was impacted by chemicals released from the Hangar 1 floor drain system. The floor drain system was removed and more than 100 tons of contaminated soil was subsequently excavated and shipped off site for disposal.

Three groundwater monitoring wells (MW05-302, -303, -304) were installed downgradient of Hangar 1 in the fall of 2002 to determine if contamination from the floor drains had impacted groundwater. No Target Analyte List and Target Compound List (TAL/TCL) chemicals were detected in groundwater at concentrations above the Maximum Contaminant Levels (MCL) for drinking water. The groundwater sample results did not reveal any evidence of impact to groundwater from the Hangar 1 operations.

The Navy conducted a streamlined HHRA for Hangar 1 in 2009 to determine whether exposure to detected concentrations of chemicals in the post-excavation confirmatory subsurface soil samples and the groundwater samples pose a significant threat to human receptors. Based on these results, and as documented in the AOC Hangar 1 streamlined HHRA, the Navy and EPA concluded that exposures at the Site do not pose an unacceptable risk to human health (Tetra Tech, Inc., 2009). A No Further Action decision for soils and groundwater was documented in the July 2010 ROD.

## **2.2 Enforcement History**

In May 1994, NAS South Weymouth was listed on EPA's National Priorities List (NPL). Environmental studies and activities at NAS South Weymouth have been conducted by the Navy in accordance with CERCLA and the NCP.

Based on the designation of the former NAS South Weymouth property as an NPL site, a Federal Facility Agreement (FFA) was executed by the Navy and EPA. The FFA became effective in April 2000 and established the Navy as the lead agency for the investigation and cleanup of the former NAS South Weymouth property, with EPA providing oversight. The MassDEP is not a party to the FFA but, in accordance with CERCLA and the NCP, MassDEP has participated in ongoing discussions and strategy sessions, as well as provided oversight and guidance through their review of the Navy's Installation Restoration Program documents.

In accordance with the FFA, a Site Management Plan (SMP) with task schedules and deliverables is updated annually each summer and is published each fall. The SMP serves as a management tool for planning, reviewing, and setting priorities for environmental investigative and remedial response activities to be conducted at NAS South Weymouth. The SMP is available for public review at the NAS South Weymouth information repositories listed in Section 1.5 of this ESD.

## **2.3 Site Contamination**

The 2009 streamlined HHRA for Hangar 1 was performed to determine whether exposure to detected concentrations of chemicals in the confirmatory subsurface soil samples and the groundwater samples pose a significant threat to human receptors. The HHRA determined that the cumulative cancer and non-cancer risks for all potential users exposed to subsurface soil were below the EPA target levels. The cumulative cancer risks for adult, child and lifelong residents and the non-cancer risks for adult residents exposed to groundwater were below the EPA target level. The non-cancer hazard for child residents exposed to groundwater exceeds 1, primarily due to the concentration of manganese in groundwater. The HHRA concluded that adverse human health effects are not anticipated due to site-related contaminants at AOC Hangar 1, and no contaminants of concern (COCs) were identified at this Site.

## **2.4 Remedy Selected in the 2010 ROD**

The July 2010 ROD for AOC Hangar 1 concluded that No Further Action is appropriate for the following reasons:

- The floor drains under Hangar 1 were identified as potential sources of releases to soil and groundwater. The floor drain systems were removed, and post excavation sampling and analysis was performed to identify any releases.
- Areas where concentrations of contaminants were found to exceed human health benchmarks were excavated and disposed off-site.
- Investigation of groundwater in the area of Hangar 1 did not reveal any evidence of impact to groundwater from the Hangar 1 operations.

- Comparison of post-excavation soil sample results to human health benchmarks, along with a human health risk assessment of the soil and groundwater results, concluded that no unacceptable risks to human health remain at the AOC Hangar 1 Site.

### **3.0 BASIS FOR THE DOCUMENT**

New environmental data were collected in 2010 at the request of EPA and MassDEP to investigate the presence of PFCs in groundwater. The data were collected to assess the presence and extent of certain PFC's from historic use and spills/releases of aqueous film forming foams (AFFF) to groundwater in the vicinity of Hangar 1. Based on the 2010 groundwater results, additional samples were collected in 2011 to determine the extent of PFCs in groundwater. The field program included re-development of existing monitoring wells, installation of new monitoring wells, and sampling of selected new and existing monitoring wells. See Figure 2 for the locations of monitoring wells in the Hangar 1 vicinity that were sampled during the PFC investigations in 2010 and 2011.

Prior to the April 2010 PFC field investigation, no environmental samples collected at NAS South Weymouth had been analyzed for PFCs. PFCs had not been included as parameters for laboratory analysis since they are considered emerging contaminants, are not deemed to be hazardous substances under CERCLA, and are not on the Target Compound List commonly used for environmental investigations. PFCs are components of AFFF which was used, released, and/or spilled in and around Hangar 1. Laboratory analysis for two PFCs, PFOA and PFOS, was used to indicate the presence of other PFCs. There are currently no enforceable standards for PFOA and PFOS in groundwater. In January 2009, however, EPA published provisional health advisory (PHA) values for PFOA and PFOS in groundwater used for drinking water: 0.4 µg/L for PFOA and 0.2 µg/L for PFOS (EPA, 2009).

Groundwater at AOC Hangar 1 is not within a state-mapped potentially productive aquifer zone, interim wellhead protection area, or Zone II area. Therefore, groundwater at AOC Hangar 1 is not considered to be part of a Potential Drinking Water Source Area. However, there is a medium yield aquifer beneath a portion of the Hangar 1 area as shown on Figure 2. This aquifer is designated as an aquifer protection district in the South Shore Tri-Town Development Corporation (SSTTDC) Zoning and Land Use By-Laws for NAS South Weymouth (SSTTDC, 2005). SSTTDC and its Master Developer, LNR, South Shore, LLC, (LNR), have stated that the groundwater in the vicinity of Hangar 1 is not expected to be utilized for drinking water.

By this ESD, the Navy is addressing concerns about the presence of PFCs in groundwater at concentrations exceeding the EPA PHA values and their impact on the approximately 22-acre parcel encompassing the aircraft parking apron west and south of Hangar 1 (see Figures 1 and 3). These concerns were discussed by the Navy, EPA, MassDEP, and other stakeholders at BRAC Cleanup Team (BCT) meetings on September 1, 2011; September 19, 2011; October 19, 2011; and October 26, 2011; and numerous conference calls. During a November 21, 2011 conference call, all parties concurred that completion of this ESD is an appropriate administrative change, consistent with CERCLA, to document implementation of institutional controls to restrict the use of groundwater for drinking water purposes. This administrative change is needed to support the Navy's determination that all remedial actions have been taken and therefore the parcel is suitable to transfer.

### **4.0 DESCRIPTION OF SIGNIFICANT DIFFERENCES OR NEW ALTERNATIVES**

#### **4.1 Background**

Based on the historic use and spills/releases of AFFF in the vicinity of Hangar 1, groundwater samples for PFOA and PFOS analysis were collected in April 2010 in accordance with the *Final Sampling and Analysis Plan, Perfluorinated Compounds in Groundwater, Former Naval Air Station South Weymouth, Weymouth, Massachusetts* (Tetra Tech, Inc., 2010a). The groundwater results indicated exceedances of the PHA values at some of the monitoring wells (Tetra Tech, Inc., 2010b). In 2011, a second investigation was conducted in accordance with *Final Sampling and Analysis Plan Addendum, Perfluorinated Compounds, Former Naval Air Station South Weymouth, Weymouth, Massachusetts*

(Tetra Tech, Inc., 2011). The April 2011 field program included additional groundwater sample collection from existing and new monitoring wells to delineate the extent of the PFC contamination in groundwater.

As discussed in Section 3.0, groundwater at the site is not within a state-mapped drinking water aquifer and there are no plans to use groundwater as a drinking water source. As such, there are no current complete exposure scenarios for exposure to groundwater. It is possible in the future that there could be construction projects that would result in receptors being exposed to shallow groundwater. Additionally, future use of groundwater for irrigation is possible.

As a conservative measure, exposure by future construction workers to shallow groundwater was quantitatively evaluated to ensure that potential future receptors would not experience unacceptable risks from exposure to PFCs in groundwater. It was assumed that potential future construction workers could come into direct incidental contact with groundwater for 65 days per year over the course of a 1-year construction project. These construction workers were assumed to be exposed to the groundwater via incidental ingestion (0.01 liters/hour for 2 hours/day). Due to insufficient chemical-specific information, exposure via direct dermal contact cannot be quantified at this time. Given these exposure parameters, risk-based screening values of 3931 µg/L and 1572 µg/L were calculated for PFOA and PFOS, respectively.

If site groundwater is used in the future for irrigation, it is anticipated that any receptors exposed to the irrigation water would have a lower contact rate and contact frequency than the construction worker. Typically, receptors do not spend regular periods of time per day in contact with water used for irrigation. Since PFCs are not volatile, the inhalation pathway for irrigation is not complete. The risk-based screening values based on a construction worker exposure scenario are assumed to be sufficiently protective of other potential future uses of groundwater (i.e., irrigation). It can be reasonably assumed that exposure (i.e., incidental ingestion and dermal contact) to groundwater used for irrigation would be less frequent and less intense than construction worker exposure. Therefore, the risk-based screening values calculated for construction workers would also be protective of irrigation or other intermittent, low frequency/low contact exposure scenarios.

The groundwater data collected from the Hangar 1 area have been compared to the EPA PHA drinking water values and the Navy calculated risk-based values for a potential future construction worker exposed to groundwater via ingestion. Table 1 presents the 2010 and 2011 groundwater data compared to the EPA PHA values. Table 2 presents the 2010 and 2011 groundwater data compared to the construction worker risk-based screening values. The groundwater data presented in Table 1 indicate that the PHA values for PFOA were exceeded in 4 of the 12 monitoring wells; PHA values for PFOS were exceeded in 8 of the 12 monitoring wells. However, the results in Table 2 indicate that all of the groundwater concentrations are orders of magnitude lower than the construction worker risk-based screening values for PFOA and PFOS.

#### **4.2 Description of Changes**

This ESD addresses the potential threat if groundwater is used in the future for drinking water purposes due to exceedances of the EPA PHA for PFOA and PFOS (Table 1). The action will take the form of a land use control, specifically a permanent institutional control (IC) to restrict the use of groundwater for drinking water purposes. Once the ESD has been reviewed and signed by the Navy and EPA, placement of this deed restriction will be the final action for this property. With the deed restriction in place, all remedial actions will have been taken and the Navy can support a determination that the property is suitable for transfer. The groundwater restriction will be incorporated in the deed at the time of transfer of the property from Navy to SSTTDC, anticipated to be December 15, 2011.

This ESD documents the decision by the Navy to place a land use control and deed restriction on use of groundwater for drinking water purposes. The restriction will be placed on the approximately 22 acres of a parcel identified as SP-4 where groundwater data indicate there are exceedances of the EPA PHA values for PFOA and PFOS. The boundary of this area is shown on Figure 3. A real estate survey plan of the restricted area within SP-4 will be prepared and incorporated in the transfer deed. The

administrative change documented in this ESD will include the following Covenant and Restriction Concerning the Use of Groundwater:

GRANTEE covenants, on behalf of itself, its successors and assigns, that no groundwater production, supply or irrigation wells shall be installed or permitted in that certain portion of the CONVEYED PROPERTY known as Subparcel SP-4, as such restricted area of Subparcel SP-4 is more fully described in and shown on the attached Exhibit C-1 ("Restricted Portion of SP-4"), without the written approval of the EPA and the MassDEP, or their respective successors, as applicable. This restriction shall automatically terminate upon the recording in the appropriate registry of deeds of a notice that there has been: (1) a determination in writing by the EPA and MassDEP that the groundwater at the Restricted Portion of SP-4 poses no unacceptable risk to human health or the environment; (2) written concurrence by the EPA and MassDEP in a determination made by the party then responsible for response actions at the Restricted Portion of SP-4 that the groundwater at the Restricted Portion of SP-4 poses no unacceptable risk to human health or the environment; or (3) issuance of the Navy covenant required by 42 U.S.C. § 9620(h)(3)(A)(ii) for the Restricted Portion of SP-4 where the remedial action, as described in the Record of Decision found in the EPA administrative record for the South Weymouth Naval Air Station Site, does not require continuation of this restriction, whichever of items (1), (2), or (3) is the first to occur.

This action will be the final remedy for the 22-acre portion of parcel SP-4.

Once the ESD is completed, all remedial actions will have been taken consistent with the placement of the restriction on use of groundwater and the 22-acre portion of Hangar 1 area shown on Figure 3 will be considered suitable for transfer.

#### **4.3 Changes in Expected Outcomes**

As described in Section 4.2, the administrative changes to implement a land use control and deed restriction will not adversely impact the performance or cost of the selected remedy. These changes will allow the Navy and EPA to implement and enforce the ICs necessary to protect human health and the environment in the long-term and allow for the beneficial reuse of the 22-acre parcel. The groundwater restriction boundary shown in Figure 3 will be incorporated into property transfer documents.

#### **5.0 SUPPORT AGENCY COMMENTS**

*[WHEN AVAILABLE, INCLUDE A SUMMARY OF EPA/DEP COMMENTS ON THE ESD.]*

#### **6.0 STATUTORY DETERMINATIONS**

Considering the above-described administrative adjustments to the selected remedy set forth in the 2010 ROD, the Navy believes that the remedy remains protective of human health and the environment. The ICs will provide short- and long-term effectiveness, be cost effective, implementable and be protective of human health and the environment. These changes satisfy CERCLA Section 121(b).

#### **7.0 PUBLIC PARTICIPATION**

Throughout the site's history, the Navy has kept the community and other interested parties apprised of the Hangar 1 and PFC investigation activities through informational meetings, fact sheets, press releases, public meetings, and contact with local officials. Also, the Navy regularly meets to discuss the status and progress of the Installation Restoration Program with the Restoration Advisory Board (RAB), which includes representatives from the local community. Representatives from the Navy, EPA, and MassDEP attend these public meetings.

A 10-day public comment period, from December 1, 2011 to December 10, 2011, will be provided for review of this ESD. The changes in the approach to the Site remedy will be presented to the public in the

Restoration Advisory Board (RAB) December 2011 update and will be discussed at the RAB meeting to be held on January 12, 2012.

## TABLES

**TABLE 1  
GROUNDWATER RESULTS COMPARED TO PROVISIONAL HEALTH ADVISORY VALUES  
AOC HANGAR 1 EXPLANATION OF SIGNIFICANT DIFFERENCES  
FORMER NAS SOUTH WEYMOUTH  
WEYMOUTH, MASSACHUSETTS**

SAMPLE ID		AFFF-GW- MW05- 031-0410	AFFF-GW- MW05- 033-0410	AFFF-GW- MW05- 302-0410	AFFF-GW- MW05- 303-0410	AFFF-GW- MW05-303- 0410-D	AFFF-GW- MW05-303- 0410-AVG	AFFF-GW- MW05- 304-0410	AFFF-GW- H1MW02- 0511	AFFF-GW- H1MW2D- 0511	AFFF-GW- MW05034- 0511	AFFF-GW- MW05306- 0511	AFFF-GW- MW05307- 0511	AFFF-GW- MW05307- 0511-D	AFFF-GW- MW05307- 0511-AVG	AFFF-GW- MW05308- 0511	AFFF-GW- MW09006- 0511
LOCATION ID		MW05- 031	MW05- 033	MW05- 302	MW05- 303	MW05-303	MW05-303	MW05- 304	H1-MW-2	H1-MW-2D	MW05-034	MW05-306	MW05-307	MW05-307	MW05-307	MW05-308	MW09-006
SAMPLE DATE		04/21/10	04/20/10	04/20/10	04/21/10	04/21/10	04/21/10	04/20/10	05/05/11	05/06/11	05/04/11	05/04/11	05/03/11	05/03/11	05/03/11	05/04/11	05/04/11
SACODE						DUPLICATE	AVERAGE							DUPLICATE	AVERAGE		
CRITERIA	PHA *																
PARAMETERS (ug/L)																	
PFOA	0.4	0.013	0.017	15.0 J	1.7	1.5	1.6	1.6	0.0068 J	0.027	0.079	0.047	0.029	0.031	0.03	0.52	0.36
PFOS	0.2	0.21	0.032	0.37	0.25	0.25	0.25	0.21	0.01 J	0.12	0.24	0.63	0.019 J	0.025 J	0.022 J	21	2.3

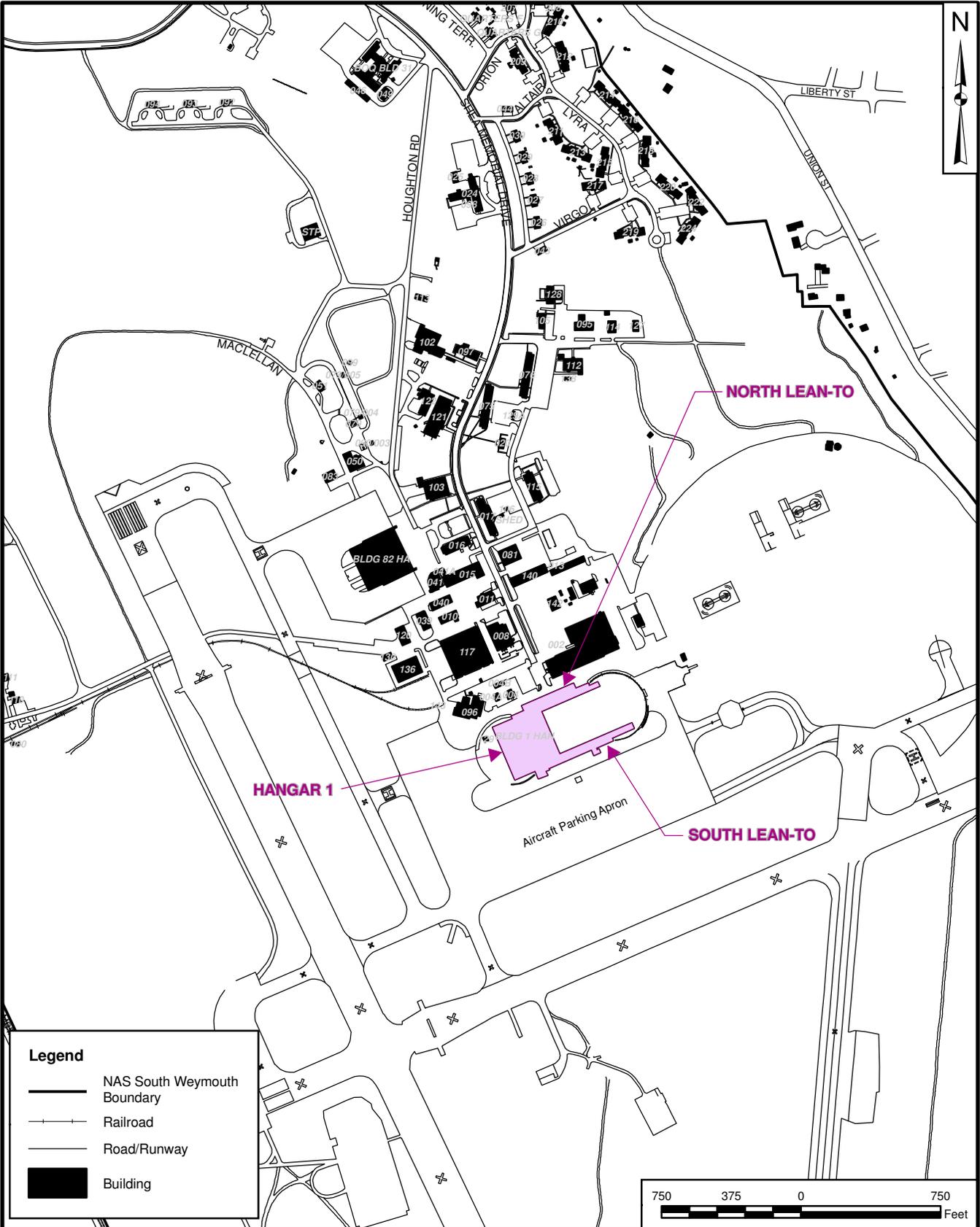
\* PHA - Provisional Health Advisory for groundwater used for drinking water; EPA, January 2009.

**TABLE 2  
GROUNDWATER RESULTS COMPARED TO CONSTRUCTION WORKER EXPOSURE VALUES  
AOC HANGAR 1 EXPLANATION OF SIGNIFICANT DIFFERENCES  
FORMER NAS SOUTH WEYMOUTH  
WEYMOUTH, MASSACHUSETTS**

SAMPLE ID		AFFF-GW- MW05- 031-0410	AFFF-GW- MW05- 033-0410	AFFF-GW- MW05- 302-0410	AFFF-GW- MW05- 303-0410	AFFF-GW- MW05-303- 0410-D	AFFF-GW- MW05-303- 0410-AVG	AFFF-GW- MW05- 304-0410	AFFF-GW- H1MW02- 0511	AFFF-GW- H1MW2D- 0511	AFFF-GW- MW05034- 0511	AFFF-GW- MW05306- 0511	AFFF-GW- MW05307- 0511	AFFF-GW- MW05307- 0511-D	AFFF-GW- MW05307- 0511-AVG	AFFF-GW- MW05308- 0511	AFFF-GW- MW09006- 0511
LOCATION ID		MW05- 031	MW05- 033	MW05- 302	MW05- 303	MW05-303	MW05-303	MW05- 304	H1-MW-2	H1-MW-2D	MW05-034	MW05-306	MW05-307	MW05-307	MW05-307	MW05-308	MW09-006
SAMPLE DATE		04/21/10	04/20/10	04/20/10	04/21/10	04/21/10	04/21/10	04/20/10	05/05/11	05/06/11	05/04/11	05/04/11	05/03/11	05/03/11	05/03/11	05/04/11	05/04/11
SACODE						DUPLICATE	AVERAGE							DUPLICATE	AVERAGE		
CRITERIA	CW *																
PARAMETERS (ug/L)																	
PFOA	3931	0.013	0.017	15.0 J	1.7	1.5	1.6	1.6	0.0068 J	0.027	0.079	0.047	0.029	0.031	0.03	0.52	0.36
PFOS	1572	0.21	0.032	0.37	0.25	0.25	0.25	0.21	0.01 J	0.12	0.24	0.63	0.019 J	0.025 J	0.022 J	21	2.3

\* CW = construction worker value assumes exposure via incidental ingestion. Insufficient information is available to estimate dermal exposure. Values calculated by Navy Marine Corps Public Health Center.

## FIGURES



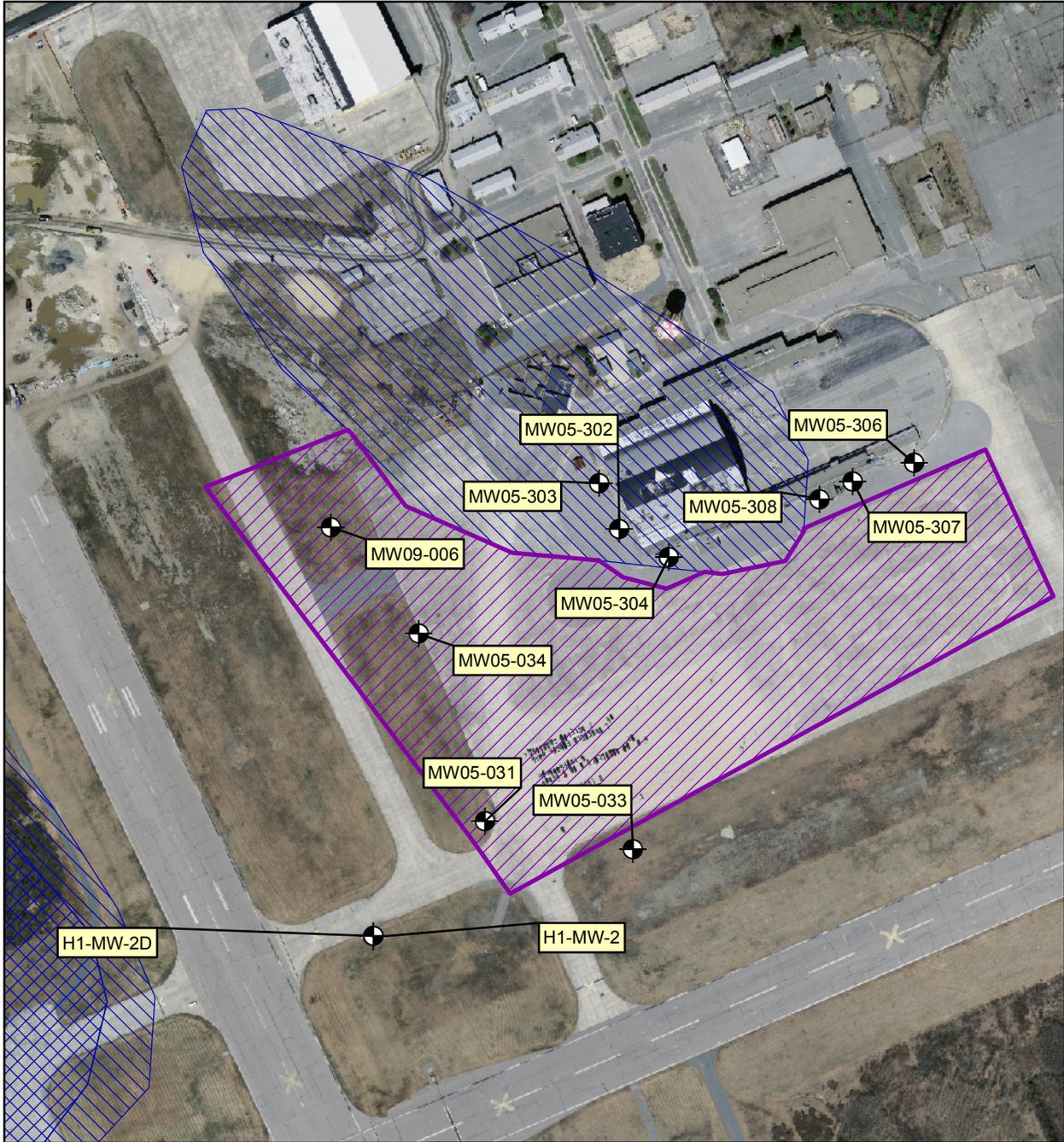
**Legend**

- NAS South Weymouth Boundary
- Railroad
- Road/Runway
- Building

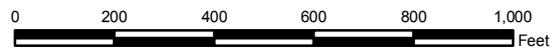


**SITE LOCUS MAP**  
**AOC HANGAR 1**  
**EXPLANATION OF SIGNIFICANT DIFFERENCES**  
**FORMER NAS SOUTH WEYMOUTH**  
**WEYMOUTH, MASSACHUSETTS**

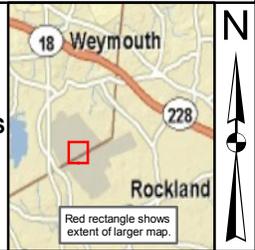
SCALE AS NOTED	
FILE I:\HANGAR1_SITE_LOCUS_MAP.MXD	
REV	DATE
0	11/21/11
FIGURE NUMBER	
FIGURE NO. 1	



-  Groundwater Monitoring Well
-  Medium Yield Aquifer
-  High Yield Aquifer
-  Groundwater Restriction Boundary

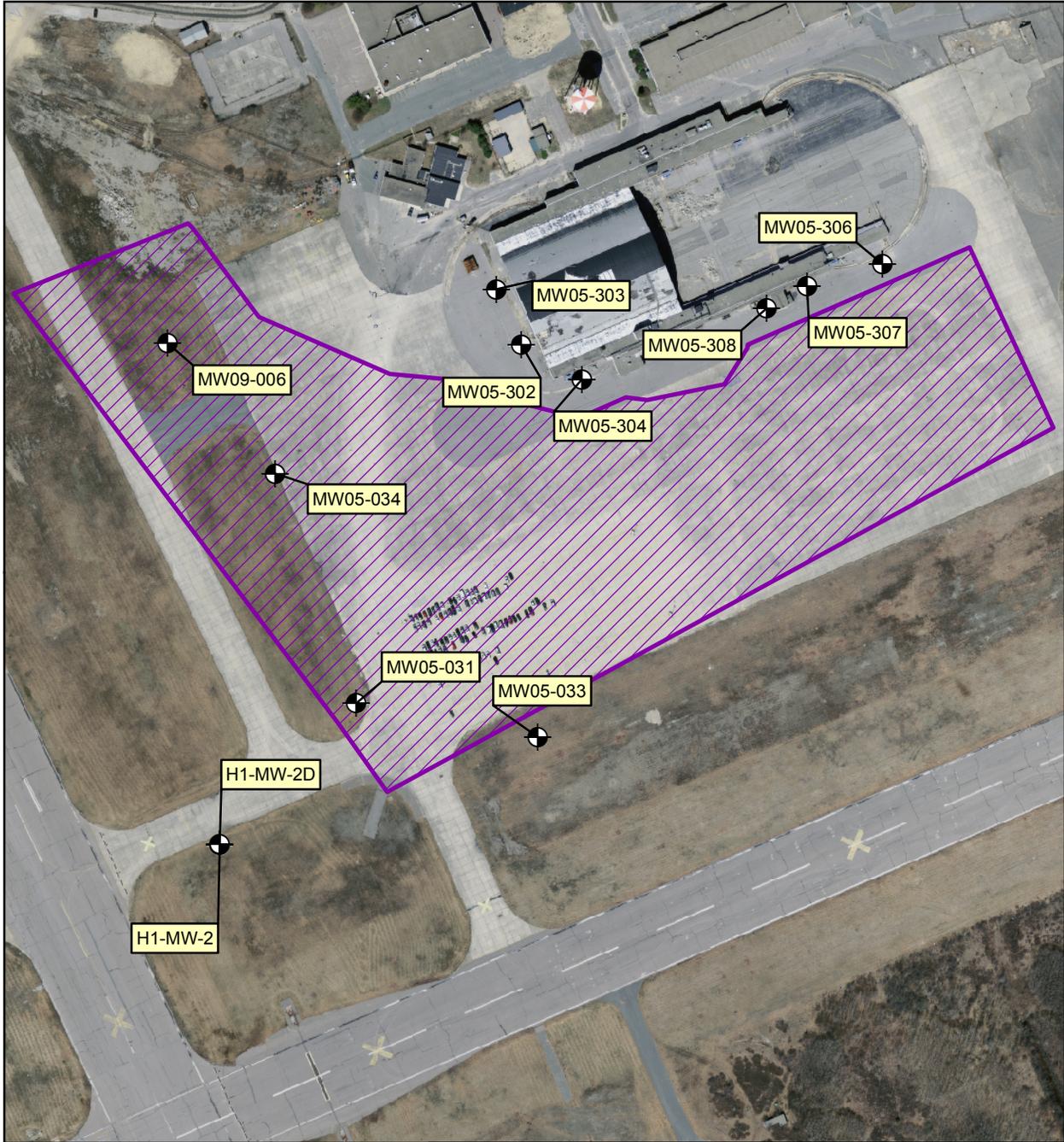


**FIGURE 2**  
**HANGAR 1 VICINITY MONITORING WELLS**  
**AOC HANGAR 1**  
**EXPLANATION OF SIGNIFICANT DIFFERENCES**  
**FORMER NAS SOUTH WEYMOUTH**  
**WEYMOUTH, MASSACHUSETTS**



Date: 11/22/2011 Author: GJG  
 File Name:  
 I:\02073\DD.DR.RIA\fig2Hangar1MwWithRestrictionArea.mxd

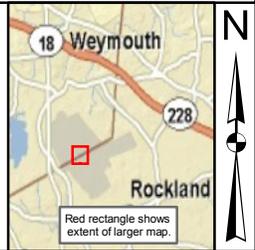




-  Groundwater Monitoring Well
-  Groundwater Restriction Boundary



**FIGURE 3**  
**GROUNDWATER RESTRICTION AREA**  
**AOC HANGAR 1**  
**EXPLANATION OF SIGNIFICANT DIFFERENCES**  
**FORMER NAS SOUTH WEYMOUTH**  
**WEYMOUTH, MASSACHUSETTS**



Date: 11/22/2011  
 Author: GJG  
 File Name: I:\02073\DD.DR.RIA\fig3GwRestrictionArea.mxd



## REFERENCES

## REFERENCES

EPA, 2009. *Provisional Health Advisories for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS)*. January 8.

South Shore Tri-Town development Corporation (SSTTDC), 2005. *Zoning and Land Use By-Laws for the Naval Air Station South Weymouth*. May.

Tetra Tech, Inc., 2009. *Area of Concern Hangar 1 Streamlined Human Health Risk Assessment*, Naval Air Station South Weymouth, Weymouth, Massachusetts. December.

Tetra Tech, Inc., 2010a. *Final Sampling and Analysis Plan, Perfluorinated Compounds in Groundwater*, former NAS South Weymouth, Weymouth, Massachusetts. April.

Tetra Tech, Inc., 2010b. *Perfluorinated Compounds in Groundwater Project Report, Naval Air Station South Weymouth, Weymouth, Massachusetts*. September.

Tetra Tech, Inc., 2011. *Final Sampling and Analysis Plan Addendum, Perfluorinated Compounds*, former NAS South Weymouth, Weymouth, Massachusetts. April.

U.S. Navy, 2010. *Record of Decision, Area of Concern Hangar 1 Main Hangar Floor Drains*, Naval Air Station South Weymouth, Weymouth, Massachusetts. July.