EXPLANATION OF SIGNIFICANT DIFFERENCES TO THE RECORDS OF DECISION

OPERABLE UNIT 4 – FIRE FIGHTING TRAINING AREA

FORMER NAVAL AIR STATION
SOUTH WEYMOUTH
WEYMOUTH, MASSACHUSETTS

BRAC PMO EAST
U.S. NAVY

SEPTEMBER 2019
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### ACRONYMS

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<th>Description</th>
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<td>µg/L</td>
<td>Micrograms per Liter</td>
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<td>AFFF</td>
<td>Aqueous Film Forming Foam</td>
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<td>BRAC</td>
<td>Base Realignment and Closure</td>
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<tr>
<td>CERCLA</td>
<td>Comprehensive Environmental Response, Compensation, and Liability Act</td>
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<td>EBS</td>
<td>Environmental Baseline Survey</td>
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<td>ESD</td>
<td>Explanation of Significant Differences</td>
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<td>FFTA</td>
<td>Fire Fighting Training Area</td>
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<td>LHA</td>
<td>Lifetime Health Advisory</td>
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<td>LTM</td>
<td>Long-Term Monitoring</td>
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<td>LUC</td>
<td>Land Use Control</td>
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<tr>
<td>LUCIP</td>
<td>Land Use Control Implementation Plan</td>
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<td>MassDEP</td>
<td>Massachusetts Department of Environmental Protection</td>
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<tr>
<td>MCP</td>
<td>Massachusetts Contingency Plan</td>
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<td>NAS</td>
<td>Naval Air Station</td>
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<tr>
<td>NCP</td>
<td>National Oil and Hazardous Substances Pollution Contingency Plan</td>
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<tr>
<td>NFA</td>
<td>No Further Action</td>
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<tr>
<td>NMCPHC</td>
<td>Navy Marine Corps Public Health Center</td>
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<tr>
<td>OU</td>
<td>Operable Unit</td>
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<tr>
<td>PFAS</td>
<td>Per- and polyfluoroalkyl substances</td>
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<tr>
<td>PFOA</td>
<td>Perfluorooctanoic Acid</td>
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<td>PFOS</td>
<td>Perfluorooctane Sulfonate</td>
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<td>PHA</td>
<td>Provisional Health Advisory</td>
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<td>U.S. Navy</td>
<td>United States Department of Navy</td>
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1.0 STATEMENT OF PURPOSE AND AUTHORIZING SIGNATURES

This decision document explains the basis for the determination to issue the following Explanation of Significant Differences (ESD) for the Fire Fighting Training Area (FFTA) site at the former Naval Air Station (NAS) South Weymouth, Weymouth, Massachusetts.

For the reasons documented herein, by my signature below, I approve the issuance of this ESD for the FFTA Site, Operable Unit (OU) 4, at the former NAS South Weymouth Superfund Site and the changes stated therein.

By: __________________________ Date: 9/16/2019

David A. Barney
BRAC Environmental Coordinator
Naval Air Station South Weymouth
U.S. Department of Navy

Concur and recommended for immediate implementation:

By: __________________________ Date: 9/24/19

Bryan Olson
Director, Superfund and Emergency Response Division
Region 1 – New England
U.S. Environmental Protection Agency
2.0 INTRODUCTION TO THE SITE AND STATEMENT OF PURPOSE

2.1 SITE NAME AND LOCATION

The FFTA, also known OU 4, is located at the former NAS South Weymouth, 1134 Main Street, Weymouth, Massachusetts 02190 (Figure 1). The former NAS South Weymouth has been assigned United States Environmental Protection Agency (U.S. EPA) Identification Number - MA2170022022.

2.2 IDENTIFICATION OF LEAD AND SUPPORT AGENCIES

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

2.3 LEGAL AUTHORITY

Under Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), if new information becomes available that could affect the implementation of a selected remedy for a site, then the nature and significance of such finding(s) must be identified and evaluated in a post-Record of Decision (ROD) document for inclusion in the Administrative Record. In accordance with Section 300.435(c) of the National Contingency Plan (NCP) and U.S. EPA guidance (Office of Solid Waste and Emergency Response Directive 9355.3-02), an ESD is being issued for the FFTA site because the changes do not fundamentally alter the selected remedies set forth in the September 2004 ROD with respect to scope, performance, or cost.

In accordance with Section 300.825(a)(2) of the NCP, this ESD will become part of the Administrative Record for the FFTA site, and will be available for public review at the local Information Repositories identified below and the U.S. Navy website for South Weymouth (https://www.bracpmo.navy.mil/brac_bases/northeast/former_nas_south_weymouth/documents.html). In addition, a notice that briefly summarizes this ESD will be published in three major local newspapers.

2.4 OVERVIEW OF THE ESD

In February 2018, the U.S. Navy, in conjunction with the U.S. EPA and MassDEP, issued a Basewide Land Use Control Implementation Plan (LUCIP) for two per- and polyfluoroalkyl substances (PFAS) compounds, perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), at the former NAS South Weymouth (Resolution Consultants, 2018). The Basewide PFOS and PFOA Land Use Control (LUC) Area presented in the Basewide PFOS and PFOA LUCIP encompasses the FFTA site. PFOS and PFOA were previously identified at the FFTA in 2010-2011,
FIGURE 1

SITE LOCATION MAP

EXPLANATION OF SIGNIFICANT DIFFERENCES

FORMER NAVAL AIR STATION
SOUTH WEYMOUTH
and managed through a 2013 ESD, which included LUCs (U.S. Navy, 2013). Since the Basewide PFOS and PFOA LUCIP was finalized in 2018, there are now two overlapping LUCs related to PFOS and PFOA at the FFTA site. The purpose of this ESD is to remove the requirement for LUCs established in the 2013 ESD for the FFTA site and allow the LUCs defined in the Basewide PFOS and PFOA LUCIP, which are no less restrictive, to prevail. The presence of PFOS and PFOA in groundwater at the former NAS South Weymouth, including the FFTA, will be managed through a new ‘Basewide PFAS’ Operable Unit (OU 27), established by EPA in an EPA letter dated June 12, 2018. A copy of the Basewide PFOS and PFOA LUCIP is included as Appendix A.

The changes presented in this ESD do not fundamentally alter the overall selected remedy outlined in the original 2004 FFTA ROD with respect to scope, performance, or cost.

2.5 Availability of Documents

In accordance with Section 300.825(a)(2) of the NCP, this ESD will become part of the Administrative Record for the FFTA site. 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

Pratt Library
1400 Pleasant Street
East Weymouth, MA 02189
(781) 340-5002

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
3.0  SITE HISTORY, CONTAMINATION, AND SELECTED REMEDY

3.1  SITE DESCRIPTION AND HISTORY

The former NAS South Weymouth is located approximately 20 miles southeast of Boston and is comprised of approximately 1,444 acres. The former NAS South Weymouth is located primarily in the Town of Weymouth, Massachusetts; however, portions extend into the adjacent Towns of Abington and Rockland, Massachusetts (Figure 1).

The former NAS South Weymouth was developed during the 1940s for dirigible aircraft used to patrol the North Atlantic during World War II. The facility was closed at the end of the war and was reopened in 1953 as a Naval Air Station for aviation training. The former NAS South Weymouth remained in continuous use from that time until it was operationally closed on September 30, 1996, and was administratively closed on September 30, 1997. Following closure, the former NAS South Weymouth was placed in caretaker status under the supervision of Naval Facilities Engineering Command. Portions of the former NAS South Weymouth property have been transferred by the U.S. Navy to the local redevelopment authority and are undergoing redevelopment.

The FFTA is located in the southeastern portion of the former NAS South Weymouth, east of Taxiway C, and within the Town of Rockland (Figure 1). The primary surface feature at the FFTA is an approximately 3.9 acre semicircular area that is paved with asphalt. The linear side of the semicircle is adjacent to Taxiway C, while the curved portion of the semicircle extends east, and is adjacent to wetlands, cranberry bog, and woodland. The East Branch of French Stream, which flows from north to south, is located along the eastern edge of the paved area. An unpaved road provides access to the FFTA from the east via the woodland, while Taxiway C provides access to the FFTA from the west via the taxiway. Topographically, the 3.9-acre asphalt section of the FFTA is relatively flat (U.S. Navy, 2004).

The FFTA was used primarily for firefighting training exercises over an estimated 38 year period, between 1950 and 1986, and then again from 1988 through 1990. It is estimated that during training operations, the use of fuels as fire accelerants peaked at a maximum of 500 to 1,500 gallons per month. Fuel types utilized in firefighting training activities consisted primarily of waste oil or residual jet fuel, with other surplus fuels used on occasion. Prior to 1986, firefighting training activities included placing fuels in old vehicles, igniting the fuel, and then extinguishing the resulting fire using either high-pressure water or fire-suppressant foams, including aqueous film forming foam (AFFF). Firefighting training activities were halted between 1986 and 1988, when concrete burn pits were added to the FFTA. Subsequent training exercises at the FFTA involved extinguishing fuel fires located in various containers or the concrete burn pits using high-pressure water and AFFF (Tetra Tech NUS, Inc., 2001).
3.2 SITE CONTAMINATION

The FFTA was originally investigated based on the use of accelerants to ignite fires for firefighting training activities. The primary accelerants used to ignite fires at the FFTA included: waste oil, residual jet fuel, and other petroleum-based surplus fuels. Materials used to extinguish fires included high-pressure water and fire-suppressant foams, the most notable fire-suppressant foam being AFFF. Results from the 2001 Phase II Remedial Investigation (RI) identified petroleum contamination in the subsurface (Tetra Tech NUS, Inc., 2001). Under CERCLA, sites that are exclusively petroleum-contaminated are not subject to assessment under CERCLA. Therefore, in September 2004 the U.S. Navy and U.S. EPA signed the ROD specifying No Further Action (NFA) for the FFTA (U.S. Navy, 2004). The U.S. Navy successfully remediated the residual petroleum impacts at the FFTA in accordance with the Massachusetts Contingency Plan (MCP) (Tetra Tech EC, Inc., 2008).

In 2003, the U.S. Navy conducted a literature review on the specific types of AFFF used at the former NAS South Weymouth. The literature review was in response to concerns raised by the MassDEP regarding the constituents of AFFF. The research indicated that AFFF used at the former NAS South Weymouth may have included fluorinated alkyl substances. MassDEP also noted concern for documented use and spills of AFFF at the FFTA. AFFF contains PFAS, which are emerging contaminants that were not included as parameters for laboratory analysis prior to 2010, as they are not on the Target Compound List commonly used for environmental investigations.

In 2010-2011, a Phase II Environmental Baseline Survey (EBS) was conducted to assess the presence/absence and extent of PFAS at portions of the former NAS South Weymouth, which included the FFTA. The Phase II EBS focused on two PFAS, PFOS and PFOA, because they are considered marker compounds that serve to indicate the presence of other PFAS. Under the Phase II EBS, soil, groundwater, sediment, and surface water samples were collected for PFAS analysis at the FFTA. The Phase II EBS groundwater PFOS and PFOA concentrations from the FFTA were evaluated by comparing them to the U.S. EPA’s published subchronic Provisional Health Advisory (PHA) levels for PFOS and PFOA (U.S. EPA, 2009). Analytical results indicated that groundwater PFOS concentrations exceeded its U.S. EPA PHA in 6 of 14 wells sampled, while PFOA concentrations exceeded its PHA in 5 of 14 wells sampled. Since no U.S. EPA criteria were available as benchmarks to screen the results of other media sampled, the Navy and Marine Corps Public Health Center (NMCPHC) calculated site-specific soil, sediment, and surface water screening levels following the process used to derive the U.S. EPA PHA values. The U.S. EPA reviewed and approved those screening levels for other media sampled, and reported concentrations in soil, sediment, and surface water were below their respective NMCPHC screening levels (Tetra Tech, Inc., 2012).
Currently, there are no promulgated federal drinking water standards for PFOA or PFOS in groundwater. In May 2016, the U.S. EPA published a more stringent Lifetime Health Advisory (LHA) of 0.07 micrograms per liter (µg/L) for both PFOS and PFOA in groundwater used for drinking water (U.S. EPA, 2016a,b). The U.S. EPA guidance also recommended that when both PFOS and PFOA are present at the same time and location in a drinking water source sample that the sum of the PFOS and PFOA concentrations (combined PFOS and PFOA) also be compared against the 0.07 µg/L LHA (U.S. EPA, 2016c). When comparing the Phase II EBS PFAS groundwater concentrations to the 2016 U.S. EPA LHA, PFOS exceeded the LHA in 8 of the 14 monitoring wells sampled and PFOA exceeded the U.S. EPA LHA in 7 of the 14 monitoring wells sampled (Resolution Consultants, 2017).

Semi-annual long-term monitoring (LTM) for PFAS began at the FFTA in 2014 to monitor PFOS and PFOA concentrations in overburden and bedrock groundwater. A total of 11 subsurface soil samples and 28 surface soil samples have been analyzed for PFAS beneath and along the asphalt pad at the FFTA. Three surface soil samples slightly exceeded U.S. EPA’s site-specific risk-based screening levels; however, no significant areas of soil impacts were identified (Resolution Consultants, 2017). PFAS have also been identified in both surface water and sediment samples collected along the East Branch of French Stream; however, reported concentrations are below respective U.S. EPA site-specific risk-based screening levels. The aerial distribution of the overburden and bedrock combined PFOA and PFOS groundwater plumes at the FFTA, based on the March 2019 LTM sampling event, is shown on Figure 2. The area impacted with PFOS and PFOA at concentrations above the LHAs are located within the boundaries of the Basewide PFOS and PFOA LUC Boundary, established through the Basewide PFOS and PFOA LUCIP.

3.3 Site Selected ROD Remedy

The 2004 ROD for the FFTA concluded that NFA was appropriate since the risk assessments performed as part of the 2001 Phase II RI did not identify potential human health or ecological risks in excess of regulatory thresholds for CERCLA-regulated contaminants. The petroleum impacts identified at the FFTA were addressed under the MCP as discussed above.

In response to the groundwater exceedances of PFAS to the U.S. EPA PHAs at the FFTA detected during the Phase II EBS, in August 2013 an ESD was prepared to modify the 2004 NFA ROD to address the potential threat of PFAS-impacted groundwater being used in the future for drinking water or other purposes. The 2013 ESD consisted of implementing LUCs and LTM (U.S. Navy, 2013). The LUC, in the form of an institutional control as a deed restriction, established an 8.8 acre Groundwater Restriction Boundary area that restricts the installation of wells and the use of groundwater for drinking water purposes and non-drinking water purposes without the prior written consent from the U.S. Navy, the U.S. EPA, and MassDEP. The LUCs have not yet been recorded because the property is still owned by the U.S. Navy. The Groundwater Restriction Boundary is
depicted on Figures 1 and 2. An LTM plan was developed in 2014 (Resolution Consultants, 2014) that specified semi-annual monitoring of groundwater, surface water and sediment PFAS concentrations at the FFTA. The LTM plan was subsequently revised in 2016 and LTM is on-going (Resolution Consultants, 2016).
FIGURE 2
AREAL DISTRIBUTION OF COMBINED PFOS AND PFOA IN GROUNDWATER
EXPLANATION OF SIGNIFICANT DIFFERENCES
FORMER FIRE FIGHTING TRAINING AREA
FORMER NAVAL AIR STATION SOUTH WEYMOUTH

Notes:
1. PFOA = Perfluorooctanoic Acid.
2. PFOS = Perfluorooctane Sulfonate.
3. LHA = U.S. EPA Lifetime Health Advisory Screening Level (0.07 micrograms per liter [ug/l]).

Legend:
- Approximate Overburden PFOS and PFOA above LHA (Dashed where Inferred)
- Approximate Bedrock PFOS and PFOA above LHA (Dashed where Inferred)
- Surface Water and Sediment Sample Location
- Groundwater Restriction Boundary
- Town Boundary
- Road/Pavement
- NAS South Weymouth Boundary
- Fire Fighting Training Area
- TACAN Drainage Ditch

Path: P:\Gis\Projects\NavyCLEAN AECOM-EnSafe JV\South_Weymouth\GIS\Projects\FFTA\LTM_Fall_2018\MXD\Fig_8_Areal_Distribution_PFOS_PFOA_GW.mxd
4.0 BASIS FOR THE DOCUMENT

The 2004 ROD for the FFTA specified NFA under CERCLA. Subsequent to the 2004 ROD being issued and at the request of the U.S. EPA, new environmental data were collected at the FFTA site in 2010-2011 to investigate the potential presence of PFOS and PFOA in groundwater, soil, surface water, and sediment. During the 2010-2011 investigation, PFOS and PFOA were detected in groundwater at the FFTA at concentrations exceeding EPA PHAs [citation: EPA Provisional Health Advisories for PFOA and PFOS, dated January 8, 2009], which have since been superseded by EPA’s more stringent Lifetime Drinking Water Health Advisories for PFOS and PFOA (LHAs) [citation: EPA Drinking Water Health Advisory for PFOA, EPA 822-R-16-005, dated May 2016, and EPA Drinking Water Health Advisory for PFOS, EPA 822-R-16-004, dated May 2016]. Although specific to drinking water, the LHAs are being used as a benchmark concentration to initiate further investigations of the groundwater to determine if remedial measures may be required to address contaminants.

Since the PFOS and PFOA concentrations in groundwater exceeded their respective PHAs, additional actions were taken to render the parcels of land on which portions of the FFTA are located suitable for transfer. The actions taken to address PFOS and PFOA at the FFTA were to implement LUCs and LTM through the 2013 ESD to the ROD. The purpose of the LUCs were to establish an 8.8-acre Groundwater Restriction Boundary on portions of land identified as suitable for transfer and that prohibits the installation of wells and the use of groundwater for drinking water or other purposes without obtaining prior approval from the U.S. Navy, the U.S. EPA, and the MassDEP. The purpose of LTM was to monitor PFOS and PFOA concentrations to verify elevated contaminate concentrations were not migrating outside the 8.8-acre Groundwater Restriction Boundary (U.S. Navy, 2013). The LTM portion of the 2013 ESD was implemented in 2014 and is on-going; however, the LUCs have not yet been recorded because the property is still owned by the U.S. Navy.

In February 2018, the Navy, in conjunction with the U.S. EPA and MassDEP, issued a Basewide PFOS and PFOA LUCIP at the former NAS South Weymouth that encompasses the FFTA (Appendix A, Resolution Consultants, 2018). Since the Basewide PFOS and PFOA LUCIP was finalized in 2018, there are now two overlapping LUCs related to PFOS and PFOA at the FFTA site (Figures 1 and 2).
5.0 DESCRIPTION OF SIGNIFICANT DIFFERENCES OR NEW ALTERNATIVES

The restrictions proposed for the FFTA in the 2013 ESD have not been recorded on the property deed, as U.S. Navy has not transferred the property yet. The restrictions in the 2013 ESD will not be added to the deed when the property is transferred.

Going forward, PFAS impacts to groundwater at the former NAS South Weymouth will be managed under a new ‘Basewide PFAS’ OU. The LUCs identified in the 2013 ESD for the FFTA are no longer relevant to the FFTA CERCLA remedy because PFAS impacts to groundwater at the former NAS South Weymouth are now going to be addressed through the Basewide PFAS OU rather than the FFTA OU. Groundwater restrictions, described in the Basewide PFOS and PFOA LUCIP to protect the U.S. Navy’s investigation of PFOS and PFOA, will be implemented to restrict disturbance of groundwater within the FFTA areas that are co-located within the Basewide PFAS OU. A copy of the Basewide PFOS and PFOA LUCIP is included as Appendix A.
6.0 SUPPORT AGENCY COMMENTS

U.S. EPA has reviewed and provided comments to this ESD. In signing the ESD, the U.S. EPA concurs with the findings of this document. MassDEP also reviewed this ESD and provided comments to the U.S. Navy. The U.S. Navy has addressed the comments received from both the U.S. EPA and MassDEP. The MassDEP has reviewed the U.S. Navy responses without further comment or objection. Evidence of MassDEP concurrence, U.S. EPA and MassDEP comments, and U.S. Navy response to comments are provided in Appendix B.
7.0 STATUTORY DETERMINATIONS

Considering the above-described changes to the selected remedy set forth in the 2004 ROD and 2013 ESD, the U.S. Navy believes that the remedy remains protective of human health and the environment. The changes described herein 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).
8.0  PUBLIC PARTICIPATION

Throughout the site's history, the U.S. Navy has kept the community and other interested parties apprised of activities at the FFTA site through informational meetings, press releases, public meetings, and contact with local officials. Also, the U.S. 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 U.S. Navy, U.S. EPA, and MassDEP attend these public meetings. The proposed ESD was discussed at the February 14, 2019 RAB meeting. The U.S. Navy will publish a Notice of Availability and a brief description of the ESD in a major local newspaper of general circulation, as required by NCP §300.435(c)(2)(i)(B)). The ESD will also be placed in the Administrative Record file and information repository.
9.0 REFERENCES


U.S. EPA. 2016b. Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA), EPA 822-R-16-005. May.


Appendix A

Basewide PFOS and PFOA Land Use Control Implementation Plan
LAND USE CONTROL IMPLEMENTATION PLAN
Basewide PFOS and PFOA
Former Naval Air Station (NAS) South Weymouth
Weymouth, Massachusetts

FINAL
Version: 1

Prepared for:

Department of the Navy
Naval Facilities Engineering Command, Mid-Atlantic
9742 Maryland Ave.
Norfolk, VA 23511-3095

Comprehensive Long-Term Environmental Action Navy
Contract Number N62470-11-D-8013

February 16, 2018
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Appendix B Land Use Control Annual Compliance Inspection Checklist
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<td>AFFF</td>
<td>Aqueous Film Forming Foam</td>
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<td>AOC</td>
<td>Area of Concern</td>
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1.0 INTRODUCTION

At the request of the Naval Facilities Engineering Command (NAVFAC), Mid-Atlantic, Resolution Consultants has prepared this Land Use Control Implementation Plan (LUCIP) for perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) in groundwater underlying the former Naval Air Station (NAS) South Weymouth in Weymouth, Massachusetts for Contract Task Order WE27, under the Comprehensive Long-Term Environmental Action Navy program. The U.S. Department of Navy’s (Navy) Base Realignment and Closure (BRAC) Program Management Office, East, is the lead agency conducting the evaluation and cleanup of the former NAS South Weymouth. This LUCIP was developed to protect the Navy’s ability to conduct investigations (“Navy Investigation”) and take any potential future remedial action throughout areas being investigated for two per- and polyfluoroalkyl substance (PFAS) compounds (PFOS and PFOA) under the Navy’s Basewide PFAS Site Investigation (SI), as requested in the U.S. Environmental Protection Agency (USEPA) Additional Work Letter, dated January 18, 2018.

This LUCIP controls potential unacceptable human health risks associated with exposures to contaminated groundwater by restricting access to groundwater and protecting the ongoing remedial investigation through LUCs. The LUCs will remain in effect until Basewide contaminant concentrations achieve the yet to be determined Remedial Goals (RGs) for PFOS and PFOA to be provided in the future ROD. Once PFOS and PFOA clean-up standards are established and achieved, LUCs presented in this LUCIP can be removed, if agreed upon by the FFA signatories. Implementation of this LUC is expected to achieve substantial long-term risk reduction, protect the ongoing remedial investigation, and will allow for use of the Site for all potential future uses consistent with the established zoning and the Reuse Plan.

This document is considered a primary document under the Federal Facilities Agreement (FFA). It has been prepared in accordance with the Navy Land Use Control (LUC) Principles as agreed to by the USEPA and the Department of Defense (DoD) (DoD 2004), and the USEPA’s Sample Federal Facility Land Use Control ROD Checklist with Suggested Language (LUC Checklist) guidance (USEPA 2013).
2.0 BACKGROUND AND SITE DESCRIPTION

The former NAS South Weymouth (the Base) is located approximately 15 miles southeast of Boston, Massachusetts, within Plymouth and Norfolk Counties, in the Towns of Abington, Rockland, and Weymouth (Figure 1). The Base was historically operated by the Navy and is comprised of approximately 1,444 acres of land that was originally developed in the 1940s for blimp aircraft used to patrol the North Atlantic during World War II. The facility was closed at the end of the war and subsequently reopened in 1953 as a Naval Air Station for aviation training. The Base was closed administratively on September 30, 1997 as part of the BRAC Commission's 1995 Base Closure List (BRAC IV), placed in caretaker status, and is currently under the supervision of the NAVFAC BRAC Program Management Office (PMO) East, Philadelphia, Pennsylvania. Since the Base was closed under the BRAC program, approximately 1,263 acres of land have been transferred by the Navy to the local redevelopment authority, South Shore Tri-Town Development Corporation (SSTTDC) (now Southfield Redevelopment Authority) for redevelopment (AECOM 2017).

2.1 Installation Restoration Program History

In 1988, Navy completed a Preliminary Assessment (PA) under the DoD Installation Restoration Program (IRP). The DoD IRP closely follows the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process for identifying and addressing hazardous waste sites. The PA identified five potential hazardous waste sites at the Base. In 1991, an SI was completed for the five PA sites, as well as three additional sites identified by Navy. The outcome of the SI was that seven of the IRP sites were designated for further assessment through a Phase I Remedial Investigation (RI), and it was agreed that IRP Site 6 (Fuel Farm) should be addressed in a manner consistent with the provisions of the Massachusetts Contingency Plan (MCP). The Base was subsequently placed on the National Priority List in 1994.

As part of Base closure, in 1996 Navy performed an Environmental Baseline Survey (EBS) to support ongoing environmental restoration programs and anticipated property transfers/leases. Phase I EBS investigations were conducted in those areas of the Base not already addressed by the IRP or MCP programs. Areas identified in the 1996 Phase I EBS Report as requiring additional investigation were designated as Phase II EBS Review Item Areas (RIAs). Based on the subsequent Phase II EBS investigations, RIAs where analytical results of environmental samples indicated concentrations of chemicals exceeding screening criteria were designated as Areas of Concern (AOCs). AOCs were then investigated under CERCLA.

Following completion of the Phase I RI and Phase I EBS, Navy incorporated three additional sites, for a total of ten, into the IRP.
2.2 PFAS Investigation History

PFAS are of recent environmental concern and are considered an emerging contaminant by the USEPA and Navy. An emerging contaminant is a chemical or material characterized by a perceived, potential, or real threat to human health or the environment, or by a lack of published health standards. A contaminant also may be "emerging" because of the discovery of a new source or a new pathway to humans (USEPA 2017). PFOS and PFOA are ‘pollutants or contaminants’ as defined under CERCLA.

In 2003, the Navy conducted a literature review on the specific types of aqueous film forming foam (AFFF) used at the Base. The literature review was in response to concerns raised by the Massachusetts Department of Environmental Protection (MassDEP) regarding the constituents of AFFF. Further research completed in 2009 indicated that AFFF used at the Base may have included formulations containing fluorinated alkyl substances (Tetra Tech NUS, Inc. 2009), also referred to as PFAS. MassDEP also noted concern for documented use and spills of AFFF at the former fire fighter training area (FFTA) and the Hangar 1 sites. The former Hangar 1 site was initially investigated under the EBS program and is identified as AOC – Hangar 1, OU 25. The former FFTA was originally investigated under the IRP program and identified as Site 4, Operable Unit (OU) 4. Both the former FFTA and Hangar 1 sites achieved regulatory closure, prior to being re-opened to address concerns related to PFOS and PFOA.

Findings from the RI at the FFTA identified petroleum contamination in the subsurface. Under CERCLA, sites that are exclusively petroleum-contaminated are not subject to assessment under CERCLA. Therefore, in September 2004, the Navy and USEPA signed the Record of Decision (ROD) specifying No Further Action for the FFTA. The Navy addressed the residual petroleum impacts at the FFTA in accordance with the MCP via a Release Abatement Measure (RAM) Plan. A RAM Completion report and Response Action Outcome statement was submitted by the Navy to the MassDEP in July 2008, specifying that the residual petroleum impacts at the FFTA had been remediated pursuant to applicable Massachusetts state law.

Findings from the EBS at Hangar 1 identified the presence of polychlorinated biphenyls and naphthalene above clean-up criteria in soil, likely due to the leaking floor drain system. Impacted soil was removed under a Time Critical Removal Action. Post-excision soil samples and down-gradient groundwater samples were collected and evaluated in a streamlined human health risk assessment (HHRA). The HHRA determined that cancer risks to future residents exposed to subsurface soil and groundwater were within the U.S. EPA’s target risk levels. In addition, the maximum concentrations of carcinogenic polycyclic aromatic hydrocarbons detected in soil were within background concentrations presented in literature for the State of Massachusetts. The noncancer risks calculated for the child resident exceeded the U.S. EPAs target risk level of 1 due to
manganese in groundwater. However, the maximum concentration of manganese in groundwater was less than the background manganese concentration. Therefore, adverse human health effects were not anticipated due to site-related contaminants at AOC Hangar 1. In July 2010, based on the previous removal actions, investigations, and findings of the streamlined HHRA, a No Further Action ROD was executed AOC Hangar 1.

In 2010-2011, a Phase II EBS was conducted to assess the presence/absence of PFOS and PFOA at the former FFTA and Hangar 1 sites. The Phase II EBS focused on PFOS and PFOA because they are considered marker compounds that serve to indicate the presence of other PFAS. The Phase II EBS identified PFOS and PFOA in groundwater at concentrations above screening criteria at both the former FFTA and Hangar 1 sites. As a result of these findings, an Explanation of Significant Differences (ESD) was developed for both sites to apply Land Use Controls to prevent potential unacceptable human health risks associated with exposures to contaminated groundwater by restricting access to groundwater. The ESD for AOC Hangar 1 Main Hangar Floor Drains (AOC Hangar 1, Operable Unit 25) at the former NAS South Weymouth, Massachusetts was issued on December 13 2011, and the ESD for the FFTA (Operable Unit 4) at the former NAS South Weymouth, Massachusetts was issued on August 22 2013. Navy will revisit the LUCs established under these ESDs, and may modify or eliminate them if they are found no longer to be necessary after the establishment of LUCs under this LUCIP. Assessments of PFAS have been on-going at both the former FFTA and Hangar 1 since their discovery in 2010.

Although AFFF is considered the primary source of PFAS at the Base, fluorinated compounds found in some AFFF are also used in herbicides, insecticides, cosmetics, greases, lubricants, and adhesives, and are now considered to be ubiquitous in the environment. Additionally, landfills and areas where industrial activities occurred, such as plating operations, may be a source of PFAS at the Base.

In July 2017, Navy completed a Basewide PFAS assessment. The Basewide PFAS assessment included groundwater samples collected from 12 sites that had achieved ROD status and from select locations along the Base perimeter. The former FFTA and Hangar 1 sites were not included in the Basewide PFAS assessment. Results from the Basewide PFAS sampling event indicated that either PFOS or PFOA were present above screening criteria at eight of the ROD sites, as well as at the former Main Gate (AECOM 2017). Concurrent with the Basewide PFAS assessment, Navy also completed a Basewide PFAS PA, which identified 13 locations for further PFAS assessment (Resolution Consultants 2016).

In response to the findings from the Basewide PFAS assessment and the PFAS PA, Navy is performing an SI and is expected to conduct a Remedial Investigation (RI) to evaluate the
presence of PFAS in groundwater, including at the eight ROD sites, the Main Gate, and 13 PA sites.
The purpose of the SI (Basewide PFAS Site Inspection) or RI will be to determine the extent of PFOS and PFOA in groundwater at each of the 22 sites identified for sampling. Once the SI is complete, it is anticipated that a basewide PFAS CERCLA Operable Unit will be designated, or a modification will be made to existing remedies at the site, or another appropriate remedy will be established, if required, to address PFAS to address actionable risk posed by PFAS contaminants of concern.

Currently, there are no promulgated clean-up standards for PFOS or PFOA. The USEPA has issued a Lifetime Health Advisory (LHA) for PFOS and PFOA in drinking water. Both PFOS and PFOA have been reported in groundwater at the Base at concentrations above the LHA. PFOS and PFOA impacts are located on land currently owned by the Navy and also land that has been transferred from the Navy to other owner(s). Due to the extent of PFOS and PFOA in groundwater at the Base, landowners of parcels that have already been transferred have voluntarily agreed, as part of interim restrictions called for under this LUCIP, to record Grants of Restrictions in favor of the Navy to limit activities that may disrupt or interfere with the Navy Investigation or the establishment of a final CERCLA remedy for PFOA and PFOS, if required (Appendix A). Similar interim restrictions, detailed in Section 3.0, will be imposed using deed restrictions on the Navy property as it is transferred from the Navy. The interim restrictions through the Grants and future Navy deeds will remain in place until the Navy determines whether a future CERCLA remedy to address the PFOS and PFOA is required that includes LUCs and that those LUCs are in place.

2.3 Site Development
The property developer, LSTAR, is engaged in active property transfer and redevelopment of numerous parcels with ongoing PFAS concerns in the area of the Navy Investigation. These include both former Navy properties already controlled and properties Navy still owns but will be transferring under CERCLA property transfer procedures (Figure 1). The proposed redevelopment includes the construction of commercial property, mixed-use buildings, recreational facilities, and associated roadways and utility infrastructure. The transfer and redevelopment activities have the potential, if not properly managed, to alter groundwater dynamics, disturb impacted soils, or otherwise interfere with ongoing and future Navy Investigations (e.g. destruction of monitoring wells from construction activity, obstructing access for investigations/potential future remedial actions).

2.4 Additional Work Requirement
On January 18, 2018 EPA requested, pursuant to Section 10.9 (c) of the Federal Facilities Agreement (FFA), that the Navy modify the Basewide PFAS Sampling Report to include a requirement to establish LUCs that will protect the Navy’s ability to conduct its investigation and
take any potential future remedial action throughout all areas being investigated for PFAS under the
*Basewide PFAS Site Inspection*. This LUCIP establishes how the Navy will create and maintain LUCs,
both on properties already transferred by the Navy and for properties it anticipates transferring
during the time period the Navy will be conducting its investigation and implementing any future
remedial actions, if required. The LUCIP identifies the investigation area covered, outlines specific
required and/or prohibited activities (e.g. protection of monitoring wells), describes how access
rights will be maintained, and provides implementation guidelines for how the LUCs will be
established, maintained, and enforced, if necessary. Establishing these LUCs will provide Navy, the
developer, and the regulators a mechanism to ensure that transfer and redevelopment proceeds in
a manner that does not interfere with ongoing Navy Investigation efforts, as well not interfering
with any future remedial action that may be required. As an added component of the FFA primary
document (*Basewide PFAS Sampling Report*), this LUCIP will be subject to the relevant
requirements of the FFA and CERCLA.
3.0 LAND USE CONTROLS

At sites where contaminants are left in place at levels that do not allow for unrestricted use, LUCs may be used. The LUCs ensure that any remaining contaminants do not pose an unacceptable risk to human health and the environment and protect the ongoing remedial investigation. LUCs generally consist of institutional controls and/or engineering controls. Institutional controls, such as restrictions, notifications, etc., are typically legal documents in the form of deed restrictions, easements, Notices of Activity and Use Limitation, and restrictive covenants, and generally run with the land. Engineering controls are typically barriers, such as a cap or a fence prohibiting access to the LUC area.

At the Base, LUCs will be used to prevent unacceptable risks from exposure to PFOS and PFOA in groundwater until clean-up standards are established and achieved and will also protect the ongoing remedial investigation. The LUCs included herein will be maintained for as long as they are required to prevent exposure to contaminated groundwater. It is anticipated that upon achievement of the yet to be established PFOS and PFOA groundwater RGs, the LUCs could be removed with the approval of the FFA signatories.

Additionally, LUCs will be used to prevent interference with ongoing Navy PFAS investigation efforts, as well preventing interference with any future remedial action that may be required. The LUCs included herein will be maintained until the Navy establishes any remedial LUCs that may be required as part of a CERCLA remedy to address PFAS at the Base, if required. For each property the Navy has already transferred, but where it needs to conduct its investigations, the LUC requirements will be incorporated into Grants of Restrictions (“Grants”), voluntarily recorded on the transferred property by its current owner, with the Navy as Grantee. For properties the Navy has not yet transferred, the Navy will issue deeds as part of the transfer that will include the LUC restrictions (“Deed Restrictions”). The LUCs will include the following requirements:

i. **Enforceability.** The Navy shall have the authority and right to enforce both Grants and Deed Restrictions. The Navy shall have the right to enter the restricted parcels, in a reasonable manner and at reasonable times, for the purposes of (i) implementing the Navy Investigation and any CERCLA response or remedial action found to be necessary; (ii) inspecting the restricted parcel to determine compliance with the Grant or Deed Restriction; and (iii) enforcing the Grant or Deed Restriction. If the Navy has reason to believe that activity on a portion of the restricted parcel is violating or attempting to violate the terms of the Grant or Deed Restriction, then the Navy shall send a written notice to the owner of such portion, specifying the violation or attempted violation. If (i) the owner of such portion receiving a notice does not cure the violation or attempted violation within thirty (30) days after its
receipt of the notice, or (ii) an emergency which would affect health, safety or the environment exists, then The Navy shall have the right to record a notice of violation with the applicable county registry of deeds (either Norfolk or Plymouth Counties) which identifies the portion of the restricted parcel on which the violation or attempted violation is occurring and thereafter bring proceedings at law or equity against the party or parties performing violations or attempted violations of the Grant or Deed Restriction on such portion of the restricted parcel to enjoin them from doing so and to cause any such violation to be remedied, including, but not limited to, restoration of the area(s) of the restricted parcel adversely affected by such violations. All reasonable costs and expenses of the Navy incurred after a notice of violation of a Grant or Deed Restriction is recorded with the relevant county registry of deeds (Norfolk or Plymouth County), including but not limited to attorneys' fees, incurred in any such enforcement action shall be borne by the party or parties violating or attempting to violate the terms of a Grant or Deed Restriction or their successors in title to the applicable portion of the restricted parcel. All remedies available hereunder shall be in addition to any and all other remedies at law or in equity, including those provided under CERCLA. Enforcement of the terms of a Grant or Deed Restriction shall be at the discretion of the Navy, and any forbearance, delay or omission to exercise its rights under a Grant or Deed Restriction in the event of a breach of any term of a Grant or Deed Restriction shall not be deemed to be a waiver of such term or of any subsequent breach of the same or any other term, or of any of the rights of the Navy. The Navy acknowledges that in exercising any of its rights and remedies under this Section, all actions taken by the Navy shall be coordinated in advance, with such coordination including reasonable notice provided to the landowner or its successors and assigns, and shall be performed in a manner which eliminates, or minimizes to the maximum extent possible, (i) any damage to any structures now or hereafter located on the restricted parcel and (ii) any disruption or disturbance of the use and enjoyment of the restricted parcel. Without limiting any of the prior provisions of this Section, the landowner agrees and acknowledges that all remedies available hereunder shall be in addition to any and all other remedies available to the Navy, EPA, or MassDEP at law or in equity, including without limitation those provided under CERCLA.

ii. Use Restrictions.

a. No groundwater shall be extracted from the restricted parcel for any use, including but not limited to, domestic, potable, irrigation or industrial uses, without the prior written consent of the Navy, provided, however, this subsection (a) shall not apply to the extraction of groundwater in the course of development or construction activities, subject to the additional requirements set forth below.
b. There shall be no drilling, boring, or other construction of, or any use of a well on the restricted parcel for the purpose of extracting groundwater from the restricted parcel, without the prior written consent of the Navy, provided, however, this subsection (b) shall not apply to the installation or use of (i) groundwater monitoring wells for the purpose of evaluating and assessing the environmental condition of groundwater or performing remedial activities required under CERCLA or other applicable laws and/or (ii) geothermal systems that do not involve the extraction of groundwater or the direct contact with groundwater.

c. No construction or development activities on the restricted parcel may be performed if they impact any groundwater located on or under the restricted parcel. Notwithstanding the foregoing, construction or development activities on the restricted parcel which impact groundwater located on or under the restricted parcel may be performed if they are performed in compliance with a dewatering plan, prepared by the landowner, and approved in writing by the Navy (“Dewatering Plan”), as any such Dewatering Plan may be amended from time to time. A copy of any Dewatering Plan, as approved by the Navy, and any amendments thereto, may be obtained from the Navy at Navy Base Realignment and Closure Program Management Office East, 4911 S. Broad Street, Philadelphia, PA 19112.

d. No activities on the restricted parcel shall disrupt or interfere with infrastructure components of the Navy Investigation (e.g. monitoring wells), without the prior written approval of the Navy.

iii. Duration; Binding Effect, Partial Release; Early Termination. A Grant or Deed Restriction and their provisions within shall run with the restricted parcel (subject to partial release and termination as set forth in the Grant or Deed Restriction) from the date of recordation with the county registry of deeds (Norfolk or Plymouth) until such time as the Navy has recorded a termination of a Grant or Deed Restriction with the county registry of deeds (Norfolk or Plymouth). The Grants or Deed Restrictions shall be binding upon the owners from time to time of the restricted parcel, all other persons with a property interest from time to time in the restricted parcel, and such owners’ and other persons’ tenants, invitees, licensees, employees, contractors and agents. All restrictions, covenants and agreements as are contained in the Grants or Deed Restrictions shall be deemed and shall constitute restrictions, covenants and agreements running with and touching and concerning the restricted parcel; it being understood and agreed that (a) an owner of a portion of the restricted parcel shall not have any liability or responsibility for any violation or breach of the restrictions, covenants and agreements contained in the Grants or Deed Restrictions by another owner of a portion of the
restricted parcel, or by such other owner's tenants, invitees, licensees, employees, contractors or agents and (b) from and after any conveyance of any portion of the restricted parcel, the landowner or transferee (and not the grantor or transferor) shall be liable for the performance or observance of said restrictions, covenants and agreements with respect to such transferred portion until such time as such portion is released from the Grant or Deed Restriction or the Grant or Deed Restriction terminates, provided that nothing in the Grant or Deed Restriction shall reduce such grantor's or transferor's liability after such grant or transfer for any nonperformance that occurred prior to such grant or transfer.

If the Navy determines, from time to time, that a portion of the restricted parcel may be released from the restrictions, covenants and agreements imposed on such portion of the restricted parcel without adversely affecting the Navy Investigation or a final remedy under CERCLA for PFOA and PFOS on the restricted parcel, then the Navy shall execute and record a partial release of the Grant or Deed Restriction with the county registry of deeds (Norfolk or Plymouth), whereupon such released land shall be released from the Grant or Deed Restriction.

The Grants of Restrictions, which are granted to a governmental body, are intended to be restrictions held by a government body pursuant to Massachusetts General Laws Chapter 184, Section 26(c). No re-recordation of the Grants of Restrictions under Massachusetts General Laws Chapter 184, Sections 23-30 or any other law shall ever be necessary in order to maintain their full legal effect. The landowner, landowner's successors and assigns, all owners from time to time of the restricted parcel, and other persons with a property interest in the restricted parcel, hereby waive all their legal rights to and shall forego any action in law or equity of any kind whatsoever attempting to contest the validity of any provision of the Grants or Deed Restrictions and shall not, in any enforcement action, raise the invalidity of any provision of the Grants or Deed Restrictions.

Notwithstanding anything in the Grants or Deed Restrictions which is inconsistent with, or to the contrary of the provisions set forth above, the Navy and/or the landowner hereby are authorized to record any notices and/or instruments that Navy and/or the landowner deem appropriate to assure the legal validity and enforceability of the Grants or Deed Restrictions. Each owner of any portion of the restricted parcel shall be deemed, by its acceptance of a deed to such portion, to have appointed the Navy, as its attorneys-in-fact to execute, acknowledge, deliver and record any such notice or instrument on its behalf. Without limiting the foregoing, each owner of any portion of the restricted parcel agrees to execute any such notices and instruments upon the request of the Navy.
iv. Modifications; Termination. The Grants or Deed Restrictions may only be modified or amended by an instrument in writing signed and acknowledged by the then owners of the portions of the restricted parcel which have not been released from the Grants or Deed Restrictions by the Navy, and recorded with the county registry of deeds (Norfolk or Plymouth). The Grants or Deed Restrictions may only be terminated by an instrument in writing signed and acknowledged by the Navy and recorded with the county registry of deeds (Norfolk or Plymouth).

v. Severability. If any court or other tribunal of competent jurisdiction determines that any provision of the Grants or Deed Restrictions is invalid or unenforceable, such provision shall be deemed to have been modified automatically to conform to the requirements for validity and enforceability as determined by such court or tribunal. In the event the provision invalidated is of such a nature that it cannot be so modified, the provision shall be deemed deleted from this instrument as though it had never been included herein. In either case, the remaining provisions of this instrument shall remain in full force and effect.

vi. Notices. All notices and other communications required or permitted hereunder shall be in writing, addressed as follows (or to such other address or addresses as Navy, EPA, or the Massachusetts Department of Environmental Protection (“MassDEP”) may hereafter designate), and shall be deemed given (i) when received if personally delivered, (ii) one (1) business day after prepaid receipted delivery to a nationally recognized overnight delivery service for next day delivery, or (iii) upon delivery, if sent by electronic mail:

If to Navy: Department of the Navy
    Navy Base Realignment and Closure
    Program Management Office East
    4911 S. Broad Street
    Philadelphia, PA 19112
    Attention: Gregory C. Preston
    Email: Gregory.preston@navy.mil

If to EPA: U.S. EPA, Region 1
    Federal Facilities Superfund Section 5
    Post Office Square, Suite 100 Mail
    Code: OSRR07-3
    Boston, MA 02109-3912
    Attention: Matthew Audet
    Email: audet.matthew@epa.gov
vii. **Non-Waiver.** Any election by Navy as to the manner and timing of its rights to enforce the Grants or Deed Restrictions or otherwise exercise its rights hereunder shall not be deemed or construed to be a waiver of such rights.

viii. **Access.** The Grantee’s right of access described herein shall include the right to conduct tests, investigations, and surveys (including, where necessary, drilling, test pitting, boring, and other similar activities). Such right shall also include the right to conduct, operate, maintain, or undertake any other CERCLA response or remedial action as reasonably necessary (including but not limited to monitoring wells, pumping wells, and treatment facilities). Any such entry, and all responses, or remedial actions, shall be coordinated in advance by the landowner, with such coordination including reasonable notice provided to landowner or its successors and assigns, and shall be performed in a manner which eliminates, or minimizes to the maximum extent possible, (i) any damage to any structures now or hereafter located on the restricted parcel and (ii) any disruption or disturbance of the use and enjoyment of the restricted parcel. EPA and MassDEP shall have the right to enter the restricted parcel, in a reasonable manner and at reasonable times, for the purposes of inspecting the restricted parcel to determine compliance with the Grants or Deed Restrictions and to assess the Navy Investigation and any CERCLA response or remedial action found to be necessary. The Grants or Deed Restrictions do not grant to the general public or to any person or entity, other than the Grantee, EPA, or MassDEP any right to enter upon the restricted parcel. However, the rights granted under the Grants or Deed Restrictions are in addition to, and in no way limit or restrict any rights or remedies that the Grantee, EPA, or MassDEP would have under applicable law, including without limitation under CERCLA.

ix. **Deeds, Mortgages, Lease and Instruments of Transfer.** Any deed, mortgage or other interest purporting to convey any portion of the restricted parcel without including the Grant or Deed Restriction in full, or be reference, therein shall be deemed and taken to include the Grant or Deed Restriction in full even though the Grant or Deed Restriction is not expressly described or referenced therein.

x. **Counterparts; Signatures.** The Grants or Deed Restrictions may be executed in multiple counterparts, all of which when taken together shall constitute one and the same instrument.
xi. **Controlling Law.** The Grants or Deed Restrictions shall be governed by and construed in accordance with applicable federal laws and the internal laws of the Commonwealth of Massachusetts; provided, however, in the event there is a conflict between applicable laws, federal law shall control, without regard to conflicts of law principles.

The groundwater within the PFOS and PFOA Groundwater LUC Area are further protected due to the following factors:

- The Southfield Redevelopment Authority (SRA, previously the South Shore Tri-Town Development Authority (SSTTDC) established Health Regulations for the former NAS South Weymouth on June 5, 2008, which prohibit any potable wells, and establish a permitting process for installation of private wells for non-potable use.

Implementation actions to be taken to ensure that the LUC objectives are met are discussed in Section 4.0. Section 4.0 also defines the required notifications and authorizations, and the roles and responsibilities for implementing the actions.
4.0 LAND USE CONTROL IMPLEMENTATION ACTIONS

The Navy is responsible for implementing, inspecting, reporting and enforcing the institutional controls in accordance with this LUCIP. For purposes of this LUCIP, the term “implementation actions” means actions to implement, operate, maintain and enforce the LUCs. The Navy will perform all short- and long-term implementation actions at the Base per the Navy LUC Principles (DoD 2004), the FFA, the January 18, 2018 USEPA Additional Work letter, and applicable Navy directives. Although the Navy may delegate or transfer authority in the future to conduct these actions to another entity as part of property transfer agreements (i.e., deed), the Navy shall retain ultimate responsibility for LUC integrity.

As set forth in this LUCIP, the following implementation actions will be performed to ensure that the LUC objectives are met in accordance with the FFA and the January 18, 2018 USEPA Additional Work letter. Key elements of the Navy LUC Principles for closed or BRAC bases have been incorporated into the actions.

1. Prepare a map indicating the PFOS and PFOA Groundwater LUC Area that would be used based on the current identified area of the Navy Investigation. The PFOS and PFOA Groundwater LUC Area shown on Figure 1 depicts the boundary area over which the LUC will apply to prevent interference with the Navy Investigation and to allow the Navy to implement any future remedial action, if required.

2. Submit a survey plan showing the PFOS and PFOA Groundwater LUC Area, prepared by a professional land surveyor registered by the Commonwealth of Massachusetts, to the appropriate Commonwealth of Massachusetts agency (e.g., the Registry of Deeds, Massachusetts Circuit Court). This survey plan shall be placed in the information repository for CERCLA actions at the Base and copies will be provided to USEPA, the Commonwealth of Massachusetts, and the Abington, Rockland, and Weymouth Boards of Health. This survey plan would be referenced in deeds by the Navy conveying land within the PFOS and PFOA Groundwater LUC Area and in the Grants of Restrictions.

3. Conduct LUC monitoring to verify the LUCs are being properly implemented and that the LUC objectives are being met. The LUC monitoring results will be included in a separate report and provided to the USEPA and the Commonwealth of Massachusetts. Table 1 summarizes the LUC implementation actions and notification requirements to be assessed as part of LUC monitoring. LUC compliance inspections will be conducted by the Navy on an annual basis unless the frequency is reduced by agreement with the Navy, USEPA, and the Commonwealth of Massachusetts (see 6.e below). A checklist to be used during LUC inspections is provided in Appendix B.
4. Navy will incorporate the LUC objectives into property transfer documents (i.e. deeds and Grants of Restrictions), as applicable. The terms of the deeds and Grants of Restrictions will prohibit land uses inconsistent with the LUC objectives for the PFOS and PFOA Groundwater LUC Area, and will require prior approval by the Navy, in consultation with the USEPA and the Commonwealth of Massachusetts, before changes in land use for the areas subjected to LUCs. In addition, a map indicating the boundaries of the area over which the LUCs will apply will be included in the deeds and Grants of Restrictions. The deeds and Grants of Restrictions will contain appropriate provisions to ensure that the LUCs continue to run with the land, are enforceable by the Navy, and are referenced in all future transfer documents. The Navy will also ensure that no prior encumbrances on the conveyed property conflict with the deed restrictions or and Grants of Restrictions.

5. Reporting and notification requirements are summarized in Table 1 and include the following:

   a. For properties subject to either a Grant or Deed Restrictions, notify USEPA Region 1 and the Commonwealth of Massachusetts as soon as possible, but not less than 45 days in advance of any proposed change in land use that would require modifications to the LUC to remain consistent with the LUC objective. The notice shall describe how the LUC will be changed and mechanisms by which the new LUC(s) will be implemented to maintain protectiveness.

   b. For properties subject to either a Grant or Deed Restrictions, notify USEPA Region 1 and the Commonwealth of Massachusetts by telephone and by e-mail as soon as practicable, but no longer than seventy-two (72) hours, after discovery of any activity that is inconsistent with the LUC objectives or use restrictions, or any other action that may interfere with the effectiveness of the LUC. Notify USEPA Region 1 and the Commonwealth of Massachusetts regarding how the breach will be, or has been addressed, within 10 days of sending USEPA Region 1 and the Commonwealth of Massachusetts notification of the breach. Furthermore, any activity that is inconsistent with the LUC objective or use restrictions, or any other action that may interfere with the effectiveness of the LUC will be addressed as soon as practicable, but in no case will the process be initiated later than 10 days after the Navy becomes aware of the breach. Activities that are considered inconsistent with the LUC objective include the installation of groundwater extraction wells for production, supply, or irrigation at the Site, or implementing construction dewatering plans without the approval of USEPA Region 1, Commonwealth of Massachusetts, and Navy.
c. For properties subject to the Deed Restrictions, notify USEPA Region 1 and the Commonwealth of Massachusetts in writing at least six months prior to leasing or transferring the property subject to the LUC, including any federal-to-federal transfer. If it is not possible for the Navy to notify USEPA Region 1 and the Commonwealth of Massachusetts at least six months prior, the Navy will notify USEPA Region 1 and the Commonwealth of Massachusetts as soon as possible, but no less than 60 days prior to the Navy leasing or transferring the property subject to the LUC, including any federal-to-federal transfer. The Navy shall provide a copy of executed lease or transfer documents to USEPA Region 1 and the Commonwealth of Massachusetts. Additional notifications associated with property transfer are discussed below so that USEPA Region 1, MassDEP, and Navy can ensure that the appropriate and consistent provisions are included in the transfer document:

- The environmental use restrictions and controls on those portions of the PFOS and PFOA Groundwater LUC Area that are currently owned by the Navy will be communicated in writing to the new property owners, USEPA Region 1, and the Commonwealth of Massachusetts, in a Finding of Suitability to Transfer to ensure that the agencies can factor such conditions into their oversight and decision-making activities regarding the property. Concurrent with the transfer of fee title from the Navy to the transferee, information regarding the LUC will be incorporated into the deed, and will also be provided to appropriate state and local agencies.

- Prior to deeding those portions of the PFOS and PFOA Groundwater LUC Area that are currently owned by the Navy, more stringent restrictions are being implemented by the terms of the Lease in Furtherance of Conveyance (LIFOC) between Navy and the Local Reuse Authority. These lease terms shall remain in place until the property is transferred by deed, at which time they will be superseded by the institutional controls described herein. Prior to transfer by deed, all subleases and license agreements regarding the property subject to the LIFOC shall reference the LUC restrictions in the LIFOC.

- Concurrent with the transfer of fee title of those portions of the PFOS and PFOA Groundwater LUC Area that are currently owned by the Navy from the Navy to transferee, information regarding the environmental use restrictions and controls will be communicated in writing to the property owners and to appropriate state and local agencies to ensure such agencies can factor such conditions into their oversight and decision-making activities regarding the property.
d. For properties subject to either a Grant or Deed Restrictions, submit annual LUC monitoring reports to USEPA Region 1, the Commonwealth of Massachusetts, and, if performed by an entity other than the Navy, to the Navy, no later than 30 days after the inspection. The annual LUC Monitoring Reports will also be submitted to the Abington, Rockland, and Weymouth Boards of Health. The annual reports will include a map of the PFOS and PFOA Groundwater LUC Area and an up-to-date map showing the extent of PFAS in groundwater at concentrations exceeding the LHA levels. The annual report will include an evaluation of the status of the LUC and how any LUC deficiencies or inconsistent uses have been addressed. If the Navy has transferred the land to another entity, the annual evaluation will address whether the LUCs were communicated in the deed, whether the owners and state and local agencies were notified of the use restrictions and controls affecting the property, and whether use of the property has conformed to such restrictions and controls.

e. Notify USEPA, the Commonwealth of Massachusetts, and, if to be performed by an entity other than the Navy, the Navy, at least 7 days before any LUC compliance inspection so that either party will have the opportunity to participate in the LUC inspection if it so chooses.

6. Obtain USEPA Region 1 and, if sought by an entity other than the Navy, Navy concurrence, in consultation with MassDEP, prior to (a) modifying or terminating the LUCs provided for in this LUCIP, including any Grant, Deed Restriction, or Dewatering Plan, (b) approving any Dewatering Plan or any drilling, boring, or other construction of, or any use of a well on the restricted parcel for the purpose of extracting groundwater from the restricted parcel pursuant to any use restrictions implemented pursuant to Section 3.0, paragraphs ii(b) and ii(c) of this LUCIP, or (c) modifying or terminating any LUC implementation actions provided for in Section 4.0 of this LUCIP. The Navy or other entity shall seek prior concurrence from USEPA Region 1, in consultation with the Commonwealth of Massachusetts, before taking any anticipated action that may disrupt the effectiveness of the LUC or before taking any action that may alter or negate the need for the LUC.

7. The Navy will coordinate with the Southfield Redevelopment Authority, the recognized Local Reuse Authority for the former Weymouth NAS, to be given notice of public filings (e.g. Notice of Intent [NOI] for Remediation or Construction General Permit, NOI under the Massachusetts Wetlands Protection Act) required for stormwater management systems within the restricted parcel. The Navy will advise EPA and MassDEP as soon as
practicable if any proposed stormwater management system is expected to violate the LUC and what steps the Navy is taking to address the matter.

Should the Navy fail to complete LUC implementation actions, the USEPA shall notify the Navy Remedial Project Manager (RPM) and seek immediate action. Should there be a failure to complete LUC actions after such notification to the Navy, the USEPA may take such actions available to it under the FFA to ensure that LUC actions are taken to ensure the integrity of the PFOS and PFOA Groundwater LUC.

Should there be a failure by a subsequent owner or third party at a transferred property to complete the LUC implementation actions as set forth in contracts, agreements, and/or property transfer documents (i.e., Grant or deed), USEPA, MassDEP and the Navy will consult on the appropriate enforcement action. Should there be a failure to complete LUC implementation actions that are the remaining responsibility of the Navy at a transferred property, the USEPA will notify the Navy RPM and MassDEP. Ultimate responsibility for assuring that all LUC performance objectives are met remains with the Navy as the party responsible under CERCLA.
5.0 REFERENCES


Tetra Tech NUS, Inc. 2009a. Internal Memorandum. Research Summary: Ingredients in Aqueous Film Forming Foam (AFFF) and Analytical Method(s) for Detection of Fluorinated Compounds. May 7.


Table
### Table 1
Summary of Land Use Control Implementation Actions
Basewide PFOS and PFOA
Former NAS South Weymouth
Weymouth, Massachusetts

<table>
<thead>
<tr>
<th>LUC Requirement/ Description</th>
<th>Frequency</th>
<th>Starting Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institutional Controls</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issue Final LUCIP</td>
<td>Once</td>
<td>TBD</td>
</tr>
<tr>
<td>Conduct LUC Compliance Inspections</td>
<td>Annually</td>
<td>11/1/2018</td>
</tr>
<tr>
<td>Issue Annual Inspection Report to Navy, USEPA, MassDEP, and the Abington, Rockland, and Weymouth Boards of Health</td>
<td>Annually</td>
<td>30 days after inspection</td>
</tr>
<tr>
<td>Incorporate LUC into deed</td>
<td>Once</td>
<td>Upon transfer of property</td>
</tr>
<tr>
<td>Navy, USEPA, and MassDEP Approval of Dewatering Plans</td>
<td>As appropriate</td>
<td>As appropriate</td>
</tr>
<tr>
<td>Confirm that all required Grants on previously transferred parcels within the Restricted Area have been recorded and are still in effect.</td>
<td>Annually</td>
<td>11/1/2018</td>
</tr>
<tr>
<td><strong>Notification Requirements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Navy will notify USEPA and MassDEP of proposed land use change(s) inconsistent with LUC</td>
<td>Per event</td>
<td>45 days prior</td>
</tr>
<tr>
<td>Navy will notify USEPA and MassDEP of activities that are inconsistent with the LUC objective, restrictions, or effectiveness</td>
<td>Per event</td>
<td>72 hours after discovery</td>
</tr>
<tr>
<td>Navy must notify USEPA and MassDEP how the inconsistent activities were / will be addressed</td>
<td>Per event</td>
<td>10 days after discovery</td>
</tr>
<tr>
<td>Navy will notify USEPA and MassDEP prior to transfer or sale of property</td>
<td>As appropriate</td>
<td>At least 6 months prior; and no less than 60 days prior</td>
</tr>
<tr>
<td>Navy will notify USEPA and MassDEP of the date of each LUC compliance inspection</td>
<td>Per event</td>
<td>7 days prior</td>
</tr>
</tbody>
</table>
FIGURE 1
TOTAL PFOS AND PFOA GROUNDWATER LUC AREA

Legend
- Monitoring Well with Exceedance
- Monitoring Well with No Exceedance
- Surface Water/Sediment Sampling Location with No exceedance
- Site Boundary
- AOC Boundary
- NAS South Weymouth Boundary
- Town Boundary

- Existing Building
- Former Building
- Railroad
- 76 ppt Total PFOS and PFOA Isocontour (Dashed Where Inferred)
- PFOS and PFOA-Groundwater LUC Area
- Transferred Land subject to Grant of Restrictions
- Navy-owned Land (Subject to Deed Restrictions)
Appendix A

LStar Basewide PFOS and PFOA Grant of Environmental Restrictions (Grant for which similar Grants are constructed)
GRANT OF RESTRICTIONS AND ACCESS RIGHTS

THIS GRANT OF RESTRICTIONS AND ACCESS (this “Grant of Restrictions”) is made and entered into as of the ____ day of __________, 2018, by SOUTHFIELD REDEVELOPMENT AUTHORITY (“Grantor”), a body politic and corporate established under Chapter 291 of the Acts of 2014 (Massachusetts) as it may be amended and supplemented, as the reconstituted successor entity to the South Shore Tri-Town Development Corporation, to the United States of America, acting by and through the Department of the Navy (“Navy”), the “Grantee.”

WHEREAS, Grantor is the owner of ____ acres of land, which includes various parcels of land located in Weymouth, County of Norfolk, and in Rockland and Abington, County of Plymouth, Commonwealth of Massachusetts, all as more particularly shown on the plan referred to in Exhibit “A” attached hereto and incorporated herein by reference and described by the metes and bounds description contained in Exhibit “A” (the “Restricted Parcel”). The Restricted Parcel is located within a portion of Union Point (the “Project”), which is within the former South Weymouth Naval Air Station, which has been designated the South Weymouth Naval Air Station Superfund Site (the “Site”); and

WHEREAS, the United States of America, by and through the United States Navy (“Navy”) is engaged in an investigation of perfluorooctanoic acid (“PFOA”) and perfluorooctane sulfonate (“PFOS”) in soil and groundwater (the “Navy Investigation”) on the Restricted Parcel under the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”), 42 U.S.C. § 9601 et seq. The Navy Investigation is being conducted under the terms of a Federal Facility Agreement (“FFA”), signed by the Navy and the United States Environmental Protection Agency (“EPA”) in November 1999, a copy of which is on file with the Grantee at the Navy Base Realignment and Closure Program Management Office Northeast, 4911 S. Broad Street, Philadelphia, PA 19112; and

WHEREAS, in order to allow the Navy Investigation to proceed, Grantor desires to grant the restrictions set forth in this Grant of Restrictions over the Restricted Parcel to limit activities that may disrupt or interfere with the Navy Investigation or the establishment of a final CERCLA remedy for PFOA AND PFOS, if required; and
WHEREAS, Grantor intends this Grant of Restrictions to remain effective until such time as the Navy has recorded a termination of this Grant of Restrictions with the [Norfolk County Registry of Deeds] [Plymouth County Registry of Deeds]; it being anticipated that such termination shall not be recorded until Grantee has determined either that: (a) no CERCLA remedy with land use controls ("LUCs") is required at the Restricted Parcel or (b), if a CERCLA remedy with LUCs is required, any land use controls required by the CERCLA remedy have been implemented and recorded.

NOW, THEREFORE, Grantor hereby grants as a gift to Grantee the following covenants, conditions and restrictions imposed upon the Restricted Parcel, and said Restricted Parcel shall be held, transferred, sold, conveyed, occupied and used subject to the covenants, conditions, and restrictions hereinafter set forth.

1. **Enforceability.** Grantee shall have the authority and right to enforce this Grant of Restrictions. Grantee shall have the right to enter the Restricted Parcel, in a reasonable manner and at reasonable times, for the purposes of (i) implementing the Navy Investigation and any CERCLA response or remedial action found to be necessary; (ii) inspecting the Restricted Parcel to determine compliance with this Grant of Restrictions; and (iii) enforcing this Grant of Restrictions. If Grantee has reason to believe that activity on a portion of the Restricted Parcel is violating or attempting to violate the terms of this Grant of Restriction, then Grantee shall send a written notice to the owner of such portion, specifying the violation or attempted violation. If (i) the owner of such portion receiving a notice does not cure the violation or attempted violation within thirty (30) days after its receipt of the notice, or (ii) an emergency which would affect health, safety or the environment exists, then Grantee shall have the right to record a notice of violation of this Grant of Restrictions with the [Norfolk County Registry of Deeds] [Plymouth County Registry of Deeds] which identifies the portion of the Restricted Parcel on which the violation or attempted violation is occurring and thereafter bring proceedings at law or equity against the party or parties performing violations or attempted violations of this Grant of Restrictions on such portion of the Restricted Parcel to enjoin them from doing so and to cause any such violation to be remedied, including, but not limited to, restoration of the area(s) of the Restricted Parcel adversely affected by such violations. All reasonable costs and expenses of the Grantee incurred after a notice of violation of this Grant of Restrictions is recorded with the [Norfolk County Registry of Deeds] [Plymouth County Registry of Deeds], including but not limited to attorneys' fees, incurred in any such enforcement action shall be borne by the party or parties violating or attempting to violate the terms of this Grant of Restrictions or their successors in title to the applicable portion of the Restricted Parcel. All remedies available hereunder shall be in addition to any and all other remedies at law or in equity, including those provided under CERCLA. Enforcement of the terms of this Grant of Restrictions shall be at the discretion of the Grantee, and any forbearance, delay or omission to exercise its rights under this Grant of Restrictions in the event of a breach of any term of this Grant of Restrictions shall not be deemed to be a waiver of such term or of any subsequent breach of the same or any other term, or of any of the rights of the Grantee under this Declaration. Grantee acknowledges that in exercising any of its rights and remedies under this Section 1, all actions taken by Grantee shall be coordinated in advance, with such coordination including reasonable notice provided to Grantor or its successors and assigns, and shall be performed in a manner which eliminates, or minimizes to the maximum extent possible, (i) any damage to any structures now or hereafter located on the Restricted Parcel and (ii) any disruption or disturbance of the use and enjoyment of the Restricted Parcel. Without
limiting any of the prior provisions of this Section 1, Grantor agrees and acknowledges that all remedies available hereunder shall be in addition to any and all other remedies available to Grantee, EPA or the Massachusetts Department of Environmental Protection (“MassDEP”) at law or in equity, including without limitation those provided under CERCLA.

2. **Use Restrictions.**

   (a) No groundwater shall be extracted from the Restricted Parcel for any use, including but not limited to, domestic, potable, irrigation or industrial uses, without the prior written consent of Grantee, provided, however, this subsection (a) shall not apply to the extraction of groundwater in the course of development or construction activities, subject to the additional requirements set forth below.

   (b) There shall be no drilling, boring, or other construction of, or any use of, a well on the Restricted Parcel for the purpose of extracting groundwater from the Restricted Parcel, without the prior written consent of Grantee, provided, however, this subsection (b) shall not apply to the installation or use of (i) groundwater monitoring wells for the purpose of evaluating and assessing the environmental condition of groundwater or performing remedial activities required under CERCLA or other applicable laws and/or (ii) geothermal systems that do not involve the extraction of groundwater or the direct contact with groundwater.

   (c) No construction or development activities on the Restricted Parcel may be performed if they impact any groundwater located on or under the Restricted Parcel. Notwithstanding the foregoing, construction or development activities on the Restricted Parcel which impact groundwater located on or under the Restricted Parcel may be performed if they are performed in compliance with that certain dewatering plan approved in writing by the Grantee ("Dewatering Plan"), as such Dewatering Plan may be amended from time to time. A copy of the Dewatering Plan as approved by the Grantee, and any amendments thereto, may be obtained from the Grantee at Navy Base Realignment and Closure Program Management Office Northeast, 4911 S. Broad Street, Philadelphia, PA 19112.

   (d) No activities on the Restricted Parcel shall disrupt or interfere with infrastructure components of the Navy Investigation (e.g. monitoring wells), without the prior written approval of the Grantee.

3. **Duration; Binding Effect, Partial Release; Early Termination.** This Grant of Restrictions and its provisions herein set forth shall run with the Restricted Parcel (subject to partial release and termination as set forth below) from the date of recordation with [the Norfolk County Registry of Deeds]/[the Plymouth County Registry of Deeds] until such time as the Grantee has recorded a termination of this Grant of Restrictions with the [Norfolk County Registry of Deeds] [Plymouth County Registry of Deeds] This Grant of Restrictions shall be binding upon the owners from time to time of the Restricted Parcel, all other persons with a property interest from time to time in the Restricted Parcel, and such owners’ and other persons’ tenants, invitees, licensees, employees, contractors and agents. All restrictions, covenants and agreements as are contained in this Grant of Restrictions shall be deemed and shall constitute restrictions, covenants and agreements running with and touching and concerning the Restricted Parcel; it being understood and agreed that (a) an owner of a portion of the Restricted Parcel shall
not have any liability or responsibility for any violation or breach of the restrictions, covenants and agreements contained in this Grant of Restrictions by another owner of a portion of the Restricted Parcel, or by such other owner’s tenants, invitees, licensees, employees, contractors or agents and (b) from and after any conveyance of any portion of the Restricted Parcel, the grantee or transferee (and not the grantor or transferor) shall be liable for the performance or observance of said restrictions, covenants and agreements with respect to such transferred portion until such time as such portion is released from this Grant of Restrictions or this Grant of Restrictions terminates; provided that nothing in this Grant of Restrictions shall reduce such grantor’s or transferor’s liability after such grant or transfer for any nonperformance that occurred prior to such grant or transfer.

If the Grantee determines, from time to time, that a portion of the Restricted Parcel may be released from the restrictions, covenants and agreements imposed on such portion of the Restricted Parcel without adversely affecting the Navy Investigation or a final remedy under CERCLA for PFOA AND PFOS on the Restricted Parcel, then the Grantee shall execute and record a partial release of this Grant of Restrictions with the [Norfolk County Registry of Deeds]/[the Plymouth County Registry of Deeds], whereupon such released land shall be released from this Grant of Restrictions.

This Grant of Restrictions, which is granted to a governmental body, is intended to be a restriction held by a government body pursuant to Massachusetts General Laws Chapter 184, Section 26(c). No re-recording of this Grant of Restrictions under Massachusetts General Laws Chapter 184, Sections 23-30 or any other law shall ever be necessary in order to maintain its full legal effect. Grantor, Grantor’s successors and assigns, all owners from time to time of the Restricted Parcel, and other persons with a property interest in the Restricted Parcel, hereby waive all their legal rights to and shall forego any action in law or equity of any kind whatsoever attempting to contest the validity of any provision of this Grant of Restrictions and shall not, in any enforcement action, raise the invalidity of any provision of this Grant of Restrictions.

Notwithstanding anything in this Grant of Restrictions which is inconsistent with, or to the contrary of the provisions set forth above, Grantor and/or the Grantee hereby are authorized to record any notices and/or instruments that Grantor and/or the Grantee deem appropriate to assure the legal validity and enforceability of this Grant of Restrictions. Each owner of any portion of the Restricted Parcel shall be deemed, by its acceptance of a deed to such portion, to have appointed Grantor and the Grantee, acting singly, as its attorneys-in-fact to execute, acknowledge, deliver and record any such notice or instrument on its behalf. Without limiting the foregoing, each owner of any portion of the Restricted Parcel agrees to execute any such notices and instruments upon the request of Grantor or the Grantee.

4. Modifications; Termination. This Grant of Restrictions may only be modified or amended by an instrument in writing signed and acknowledged by the then owners of the portions of the Restricted Parcel which have not been released from this Grant of restrictions and the Grantee, and recorded with [the Norfolk County Registry of Deeds]/[the Plymouth County Registry of Deeds]. This Grant of Restrictions may only be terminated by an instrument in writing signed and acknowledged by Grantee and recorded with [the Norfolk County Registry of Deeds]/[the Plymouth County Registry of Deeds].
5. **Severability.** If any court or other tribunal of competent jurisdiction determines that any provision of this Grant of Restrictions is invalid or unenforceable, such provision shall be deemed to have been modified automatically to conform to the requirements for validity and enforceability as determined by such court or tribunal. In the event the provision invalidated is of such a nature that it cannot be so modified, the provision shall be deemed deleted from this instrument as though it had never been included herein. In either case, the remaining provisions of this instrument shall remain in full force and effect.

6. **Notices.** All notices and other communications required or permitted hereunder shall be in writing, addressed as follows (or to such other address or addresses as Navy, EPA, the MassDEP or Grantor may hereafter designate), and shall be deemed given (i) when received if personally delivered, (ii) one (1) business day after prepaid receipted delivery to a nationally recognized overnight delivery service for next day delivery, or (iii) upon delivery, if sent by electronic mail:

   If to Navy:
   
   Department of the Navy  
   Navy Base Realignment and Closure  
   Program Management Office Northeast  
   4911 S. Broad Street  
   Philadelphia, PA 19112  
   Attention: Gregory C. Preston  
   Email: Gregory.preston@navy.mil

   If to Grantor:
   
   Southfield Redevelopment Authority  
   223 Shea Memorial Drive  
   South Weymouth, MA 02190  
   Attention:  
   Email:

   If to EPA:
   
   U.S. EPA, Region 1  
   Federal Facilities Superfund Section  
   5 Post Office Square, Suite 100  
   Mail Code: OSRR07-3  
   Boston, MA 02109-3912  
   Attention: Matthew Audet  
   Email: audet.matthew@epa.gov

   If to MassDEP:
   
   MassDEP  
   Bureau of Waste Site Cleanup  
   One Winter Street
7. **Non-Waiver.** Any election by Grantor or the Grantee as to the manner and timing of its rights to enforce this Grant of Restrictions or otherwise exercise its rights hereunder shall not be deemed or construed to be a waiver of such rights.

8. **Access.** The Grantee’s right of access described herein shall include the right to conduct tests, investigations, and surveys (including, where necessary, drilling, test pitting, boring, and other similar activities). Such right shall also include the right to conduct, operate, maintain, or undertake any other CERCLA response or remedial action as reasonably necessary (including but not limited to monitoring wells, pumping wells, and treatment facilities). Any such entry, and all responses, or remedial actions, shall be coordinated in advance by Grantee, with such coordination including reasonable notice provided to Grantee or its successors and assigns, and shall be performed in a manner which eliminates, or minimizes to the maximum extent possible, (i) any damage to any structures now or hereafter located on the Restricted Parcel and (ii) any disruption or disturbance of the use and enjoyment of the Restricted Parcel. EPA and MassDEP shall have the right to enter the Restricted Parcel, in a reasonable manner and at reasonable times, for the purposes of inspecting the Restricted Parcel to determine compliance with this Grant of Restrictions and to assess the Navy Investigation and any CERCLA response or remedial action found to be necessary. This Grant of Restrictions does not grant to the general public or to any person or entity, other than the Grantee, EPA, or MassDEP, any right to enter upon the Restricted Parcel. However, the rights granted by Grantor under this Grant of Restrictions are in addition to, and in no way limit or restrict any rights or remedies that the Grantee, EPA, or MassDEP would have under applicable law, including without limitation under CERCLA.

9. **Deeds, Mortgages, Lease and Instruments of Transfer.** Any deed, mortgage or other interest purporting to convey any portion of the Restricted Parcel without including this Grant of Restrictions in full, or be reference, therein shall be deemed and taken to include this Grant of Restrictions in full even though this Grant of Restrictions is not expressly described or referenced therein.

10. **Counterparts; Signatures.** This Grant of Restrictions may be executed in multiple counterparts, all of which when taken together shall constitute one and the same instrument.

11. **Controlling Law.** This Grant of Restrictions shall be governed by and construed in accordance with applicable federal laws and the internal laws of the Commonwealth of Massachusetts; provided, however, in the event there is a conflict between applicable laws, federal law shall control, without regard to conflicts of law principles.

12. **Grantor’s Assignees.** As used in this Grant of Restrictions, the term “Grantor” shall include any assignee of the rights of the Grantor under this Grant of Restrictions.

[Signature Page Follows]
IN WITNESS WHEREOF, Grantor and Navy have executed this Grant of Restrictions under seal as of the day and year first written above.

GRANTOR:

SOUTHFIELD REDEVELOPMENT AUTHORITY, a body politic and corporate

By: __________________________
Name: __________________________
Its: __________________________

COMMONWEALTH OF MASSACHUSETTS

COUNTY OF ____________________

On this ___ day of ____________, 2018, before me, the undersigned notary public, personally appeared ____________________, ______________ of the Southfield Redevelopment Authority, proved to me through satisfactory evidence of identification, which was __________________________, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she signed it voluntarily for its stated purpose as his/her free act and deed as ________________ of the Southfield Redevelopment Authority.

______________________________
Notary Public

(AFFIX SEAL)

Notary name printed: __________________

My commission expires: ________________
NAVY:

THE UNITED STATES OF AMERICA

By: The Department of the Navy

By: __________________________
   Name: Gregory C. Preston
   Title: Real Estate Contracting Officer

COMMONWEALTH/STATE OF _____________

_________________________, ss

On this _____ day of ________________, 2018, before me, the undersigned notary public, personally appeared Gregory C. Preston proved to me through satisfactory evidence of identification, which was personal knowledge of the identity of the principal, to be the person whose name is signed on the preceding or attached document, as a Real Estate Contracting Officer for the United States of America, and acknowledged to me that he signed it voluntarily for its stated purpose.

_________________________
Notary Public
Print Name:
My Commission Expires: ___________________
Appendix B

Land Use Control Annual Compliance Inspection Checklist
## I SITE INFORMATION

Name: BASEWIDE PFOS AND PFOA  
EPA ID: MA2170022022  
Location: FORMER NAVAL AIR STATION SOUTH WEYMOUTH, WEYMOUTH, MA  
Period of Performance:  

## II DOCUMENTATION INSPECTION

<table>
<thead>
<tr>
<th>ITEM</th>
<th>CIRCLE ONE</th>
<th>COMMENTS</th>
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<tbody>
<tr>
<td>Are there correspondence records (i.e. letters, e-mails) on file documenting USEPA and MassDEP notifications regarding:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Activities inconsistent with LUCs</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>b. Corrective actions regarding activities inconsistent with LUCs</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>c. Changes in procedures affecting LUCs</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>d. Proposed land use changes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>e. Proposed transfer or sale of the property</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Has the current LUCIP documentation, as specified in Implementation Action No. 2 of Section 4 of the LUCIP, been provided to the Commonwealth of Massachusetts? If not, explain.

Has the LUC documentation provided to the Commonwealth of Massachusetts been reviewed to determine if it needs to be updated? If not, explain.

Have EPA and MassDEP been provided with a 7-day notification of the LUC compliance inspection?

Was a file review completed at the Towns of Abington, Rockland, and Weymouth and the Southfield Redevelopment Authority Office to identify any well construction permit applications and new water supply wells within a ¼ mile radius of the site?

If yes, were any well construction permit applications and new water supply wells within a ¼ mile radius of the site identified?
### II DOCUMENTATION INSPECTION (CONTINUED)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>CIRCLE ONE</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>As of this inspection, are there plans for any construction dewatering activities?</td>
<td>Yes  No  N/A</td>
<td></td>
</tr>
<tr>
<td>If yes, have the Navy, USEPA, and MassDEP approved those plans?</td>
<td>Yes  No  N/A</td>
<td></td>
</tr>
<tr>
<td>As of this inspection, does the Navy have plans to transfer the property within the next 6 months?</td>
<td>Yes  No  N/A</td>
<td></td>
</tr>
<tr>
<td>If yes, have the USEPA and MassDEP been notified?</td>
<td>Yes  No  N/A</td>
<td></td>
</tr>
<tr>
<td>Was a file review completed at the Southfield Redevelopment Authority and local Conservation Commission offices to identify if a Notice of Intent (NOI) for Remediation or Construction General Permit was filed or if a NOI has been filed or an Order of Conditions granted by the local jurisdictional Conservation Commission under the Massachusetts Wetlands Protection Act?</td>
<td>Yes  No  N/A</td>
<td></td>
</tr>
</tbody>
</table>

### III ON-SITE PHYSICAL INSPECTION

<table>
<thead>
<tr>
<th>ITEM</th>
<th>CIRCLE ONE</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there evidence of changes in land use of the property? If yes, explain.</td>
<td>Yes  No  N/A</td>
<td></td>
</tr>
<tr>
<td>Is there evidence of the installation of extraction wells? If yes, explain.</td>
<td>Yes  No  N/A</td>
<td></td>
</tr>
<tr>
<td>Is there evidence that dewatering activities have been conducted? If yes, explain.</td>
<td>Yes  No  N/A</td>
<td></td>
</tr>
<tr>
<td>Do site conditions indicate that LUCs are being properly implemented? If no, explain.</td>
<td>Yes  No  N/A</td>
<td></td>
</tr>
<tr>
<td>Are Navy monitoring wells and infrastructure for the Navy Investigation undisturbed and accessible?</td>
<td>Yes  No  N/A</td>
<td></td>
</tr>
</tbody>
</table>

### IV ONSITE INSPECTION TEAM

Lead Inspector: [Signature]

Title/Affiliation: ____________________________

Date: ____________________________
LAND USE CONTROL ANNUAL COMPLIANCE INSPECTION CHECKLIST
BASEWIDE PFOS AND PFOA
FORMER NAVAL AIR STATION SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS

Others Present:

Name: ___________________________ Affiliation: ___________________________
Name: ___________________________ Affiliation: ___________________________
Name: ___________________________ Affiliation: ___________________________

V OTHER COMMENTS

VI NAVY ANNUAL CERTIFICATION

I hereby certify that a complete and thorough inspection and an evaluation of compliance with land use controls established for the Site in the most recent Land Use Control Implementation Plan have been performed and that the items noted on this inspection form have been assessed with respect to the intent of the implemented LUC objectives for the Site.

_________________________________________  ___________________________
Navy Representative                        Title

_________________________________________  ___________________________
Signature                                    Date
Introduction

In February 2018, the United States Department of the Navy (Navy), in conjunction with the United States Environmental Protection Agency (U.S. EPA) and Massachusetts Department of Environmental Protection (MassDEP), issued the Basewide perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) Land Use Control Implementation Plan (LUCIP) for the former Naval Air Station (NAS) South Weymouth, located in Weymouth, Massachusetts. The purpose of this Amendment #1 is to add Subparcel SP-24, the West Gate Landfill (WGL) site, to the Land Use Control (LUC) Areas included in the Basewide PFOS and PFOA LUCIP. A brief summary of the WGL site is provided below. A figure depicting the SP-24 LUC Area is included as Attachment A.

West Gate Landfill Site History/Background

The WGL is a closed and capped landfill covering approximately 5 acres in the western portion of the former NAS South Weymouth. The WGL was active for approximately 30 years, from the 1940s through 1972. The landfill was used primarily for domestic wastes, and occasionally other wastes generated onsite. Material observed within the landfill include metal scraps, asphalt, bricks, concrete, plastic sheeting, wires, bottles, cans, metal wheel rims, rubber pieces, tubing, hoses, glass, and other general debris. The disposal area contained an estimated 85,000 cubic yards of landfilled material. The depth of material ranged from surficial waste to ten feet below ground surface.

In 1991, 1996, and 1999, samples of several media were collected and analyzed to characterize the WGL. Media sampled during these environmental studies included surface soil, subsurface soil, groundwater, surface water, and sediment. In general, the heterogeneous mixture of soil, fill, and debris within the landfill contained concentrations of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), pesticides, dioxins, arsenic, and other metals (aluminum, cadmium, copper, lead, mercury, nickel, silver, vanadium, and zinc) in excess of background conditions and at concentrations posing potential excess risks.
A baseline Human Health Risk Assessment conducted for the site indicated potential risks from exposure to surface soils for on-site workers, trespassing children, construction workers, future residents, and children if the site was used for recreational purposes. These potential risks were based on the presence of PCBs, arsenic, dioxins, PAHs, dieldrin, and lead in surface soil. Potential risks were also identified if groundwater beneath the site were used as drinking water. These potential risks were based on the presence of arsenic, chromium, dibenz(a,b)anthracene, other PAHs, hexachlorobenzene, and 1,4-dioxane in groundwater.

A baseline Ecological Risk Assessment conducted for the site indicated a potential risk to certain ecological receptors from exposure to surface soil. Unacceptable risk was found for terrestrial invertebrates, birds, and mammals from exposure to aluminum, cadmium, chromium, copper, lead, mercury, nickel, vanadium, zinc, total PAHs, dioxin, and total PCBs in surface soil. No unacceptable risks were identified for ecological receptors (aquatic invertebrates, amphibians, and fish) from exposure to surface water or sediment from French Stream, which is located adjacent to the site.

Based on the risks identified, remedial action objectives and remedial goals (RGs) were established for the constituents in soil and groundwater that were identified as contaminants of concern (COCs). Groundwater RGs were established for 1,4-dioxane, arsenic, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, hexachlorobenzene, indeno(1,2,3-cd)pyrene, and chromium.

In September 2007, the Navy and U.S. EPA issued a Record of Decision (ROD), with MassDEP concurrence, that set forth the Selected Remedy for WGL Operable Unit (OU) 1. The major components of the Selected Remedy included the following:

- Conducting a pre-design investigation to properly design and construct an effective and protective cover system;
- Removing landfill-related wastes and debris from the adjacent wetlands and placing on the landfill;
- Clearing the landfill area of trees, brush, and exposed rubble, removing tree stumps, and grading the site;
• Constructing a soil cover on the site meeting Commonwealth of Massachusetts solid waste regulations and federal PCB regulations. The design goal for the soil cover is to eliminate direct contact with landfill materials;
• Restoring the wetland area that was disturbed during the removal of debris from the site;
• Implementing an institutional control to restrict invasive activities (e.g. digging) on the surface of the site;
• Implementing an institutional control to prevent the use of groundwater for any purpose at the site until groundwater cleanup objectives are met as determined by the post-remedial groundwater monitoring program;
• Conducting long-term groundwater monitoring and site maintenance; and
• Conducting a review of the site every 5 years.

In March 2010, the Navy finalized a Memorandum for the Record documenting a change to the cover material to be used in the landfill cap. The design change involved the use of a flexible, low permeability, membrane liner material, rather than a soil or clay layer.

In August 2010, the Navy finalized an Explanation of Significant Differences (ESD) to the WGL OU1 ROD. The ESD allowed for excavated soil from the Sewage Treatment Plant site and from Area of Concern 55C to be used as common fill in the subgrade layer of the WGL landfill cap. The excavated soil from the two sites was placed on top of the consolidated waste materials and beneath more than 24 inches of additional cover components, including the low permeability liner.

In August 2010, the WGL LUCIP was issued by the Navy, and approved by U.S. EPA and MassDEP, to establish how the institutional controls (i.e. restrictions) and engineering controls (fencing and signage) would be implemented to ensure that the following LUC performance objectives are met:

• Prevent human exposure to groundwater containing contaminant concentrations in excess of federal or more stringent drinking water standards or posing potential risks to humans; and
• Prohibit activities or uses of the site that would disturb or otherwise interfere with the integrity or function of the cap.
The LUCs will be implemented via a Notice of Activity and Use Limitation (NAUL). The 2007 WGL OU1 ROD defined the area over which the LUCs would apply to prevent human exposure to groundwater and disturbance of the landfill cap. This area will be referred to in the NAUL as the ‘WGL Cap Area’.

WGL Per- and Polyfluoroalkyls substances (PFAS) Investigation

PFAS, including PFOS and PFOA, are currently classified as unregulated or “emerging” contaminants. There are currently no promulgated federal or state standards for PFAS in environmental media. In May 2016, the U.S. EPA issued a Lifetime Health Advisory (LHA) guidance level for exposure to PFOS and PFOA in drinking water. The LHA value is set at 0.07 micrograms per liter (μg/L) for both PFOS and PFOA concentrations in drinking water. The U.S. EPA also recommends that when both PFOS and PFOA are detected in the same sample, that the 0.07 μg/L LHA be applied to the total of the combined PFOS and PFOA concentrations.

At the request of U.S. EPA, in 2016 new environmental data were collected at the WGL, to investigate the potential presence of PFOS and PFOA in groundwater, surface water, and sediment. PFAS had not been included in previous WGL investigations because PFAS were not on the Target Compound List commonly used for environmental investigations. Results from the 2016 sampling event indicate that PFOS exceeded the LHA in one of four wells sampled at the WGL (Subparcel SP-24).

The U.S. EPA issued an ‘Additional Work Letter’, in accordance with Federal Facilities Agreement Section 10.9 (C), dated January 18, 2018, requiring that Navy conduct Additional Work for the investigation and remediation of PFOS and PFOA, considered pollutants or contaminants.

The ‘Additional Work Letter’ set forth the following requirements:

- Modify the Basewide PFAS Sampling Report (July 27, 2017), which includes the 2016 WGL sampling event, to include a requirement to establish LUCs that will protect the Navy’s ability to conduct its investigation and take any potential future remedial action throughout areas being investigated for PFAS under the Basewide PFAS Site Investigation.

- The means Navy will take to establish the LUCs needs to be documented in a LUCIP (this was accomplished via the Basewide PFOS and PFOA LUCIP).
PFOS and PFOA impacts at the former NAS South Weymouth, including the WGL site, will be managed under a separate OU. Although PFOS and PFOA concentrations at the WGL exceed the LHA, as set forth in the NAUL for ROD COCs (pending), groundwater will not be used for drinking water purposes; therefore, there is no complete exposure pathway.

Closing

LUCs will be implemented at the WGL to address PFOS and PFOA impacts, as documented in the February 2018 Basewide PFOS and PFOA LUCIP. The LUCs described in the Basewide PFOS and PFOA LUCIP will apply to Subparcel SP-24 (the WGL site), as shown in Attachment A. The Navy will include the restrictions set forth in the Basewide PFOS and PFOA LUCIP to the transfer deed for Subparcel SP-24.

Attachments:
Attachment A – Total PFOS and PFOA Groundwater LUC Area
Appendix B

MassDEP Concurrence, U.S. EPA and MassDEP Comments, and Navy Responses to Comments
For Use In Intra-Agency Policy Deliberations

MassDEP accepts the revised document without comment.

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