Proposed Plan

Main Gate Encroachment Area
Operable Unit 26
Former Naval Air Station South Weymouth
Weymouth, Massachusetts

The Proposed Plan

This document was prepared in accordance with federal law to present the Navy's proposed **No Further Action** decision for the Main Gate Encroachment Area of Concern (the Site) at the former Naval Air Station (NAS) South Weymouth in Weymouth, Massachusetts. The Navy prepared this Proposed Plan after careful study in coordination with federal and state environmental regulatory agencies. This document provides the public with information regarding this plan and describes how to become involved in the decision-making process.

Let us know what you think!

Mark Your Calendar!

PUBLIC COMMENT PERIOD
July 25, 2011 to August 25, 2011

The Navy will accept written comments on this Proposed Plan during this period. Send written comments postmarked no later than August 25, 2011 to:

Mr. Brian Helland
Remedial Project Manager
BRAC Program Management Office, Northeast
4911 South Broad Street
Philadelphia, PA 19112

or email your comments to: brian.helland@navy.mil

PUBLIC MEETING AND PUBLIC HEARING – August 2, 2011

The Navy will hold a public meeting at 7:00 p.m. that will include posters and a Navy presentation describing the Proposed Plan. Following the presentation, Navy will host a question and answer session. The Navy will then hold a formal public hearing from 8:00 p.m. until all comments are heard. At the formal hearing an official transcript of comments will be entered into the record. The above activities will be held at the New England Wildlife Center, 500 Columbian Street, South Weymouth, Massachusetts (phone: 781-682-4878).

For more information, visit one of the Information Repositories listed at the end of this Proposed Plan.

Introduction

The Navy prepared this Proposed Plan for the Site based upon a thorough evaluation conducted in accordance with the federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). This law, better known as Superfund, establishes procedures for investigating and cleaning up hazardous waste sites. Key terms, such as CERCLA, are defined in the Glossary of Terms at the end of this document.

The Navy (as the lead agency) works closely with the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) in performing environmental investigations and related activities at the Base to return the property to the local communities.

The Navy prepared this Proposed Plan in accordance with CERCLA Section 117(a) and Section 300.430(f)(2) of the National Contingency Plan (NCP). This plan and the associated community involvement activities fulfill the Navy's public participation responsibilities under these laws.

The purpose of this document is to:

- Provide information about environmental investigations and removal actions completed at the Site;
- Identify and explain the Navy's Proposed Plan;
- Encourage public review, comments, and involvement in this decision process.

SDMS DocID 491259

This Proposed Plan summarizes key information from previous reports concerning the Site. More detailed information can be found in the reports referenced in this Plan. The reports are available for public review at the Information Repositories for the Base (locations listed at the end of this document).

The Navy encourages the public to review the referenced reports to gain a better understanding of the environmental activities completed for the Site and to provide the Navy with any comments or concerns.

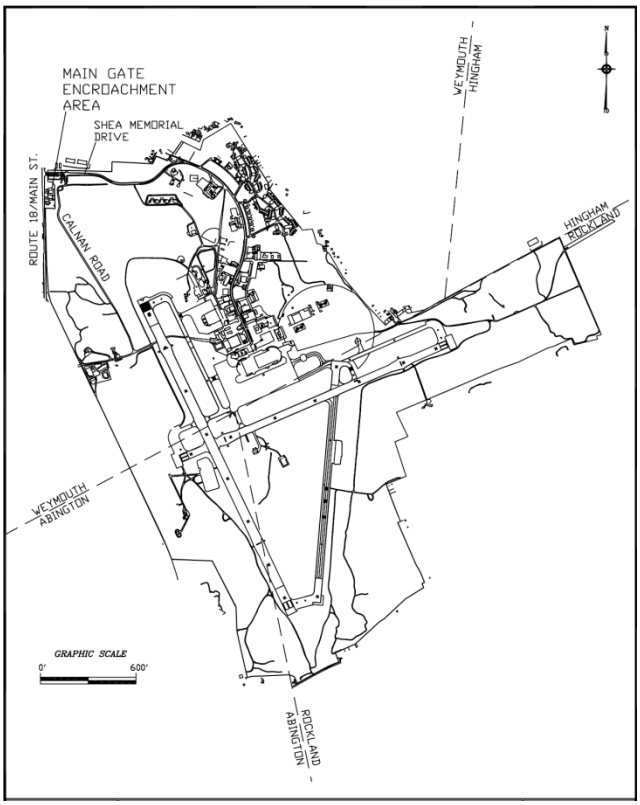

Figure 1 – Location of Main Gate Encroachment Area

The CERCLA Process and the Main Gate Encroachment Area

The Main Gate Encroachment Area is one of many sites identified as Areas of Concern (AOCs) at the former NAS South Weymouth (see Figure 1). This area was identified during planning for construction of a new entrance to the Base. Encroachment onto Navy property was reported to the Navy by the developer.

The Navy followed the CERCLA process in investigating and cleaning up the Main Gate Encroachment Area. Each step in the CERCLA process was completed by the Navy with input, review, and approval from the EPA and input, review and comment from MassDEP. As part of the CERCLA process, samples were collected and analyzed for potential contaminants of concern. The results were screened against background values for the Base, human health risk-based benchmarks, and ecological risk-based benchmarks. The results of this screening indicated that soils and sediments were impacted by polycyclic aromatic hydrocarbons (PAHs) and soils were also impacted to a limited extent by pesticides.

After a site is identified as an AOC, the Navy may then perform a streamlined risk assessment and/or removal action to address site concerns. Based on a review of the site investigation results, and discussions with EPA and MassDEP, the Navy elected to perform a CERCLA removal action to excavate soil and sediment with elevated contaminant concentrations. An engineering evaluation/cost analysis (EE/CA) was conducted to select a removal action. A non-time critical removal action (NTCRA) was completed at the Site to remove impacted soil and sediment. The excavated material was disposed of off-site and the area backfilled, graded and reseeded.

Based on the available information, the Navy has concluded that No Further Action is required for the Site. The recommendations for this AOC do not affect the strategy or progress of environmental investigations at other sites at the Base.

Information about the Site is provided below. Documents referenced in this Proposed Plan are available at the Information Repositories for the Base.

Site Background and Characteristics

Where is the Site?

The Site is located in the northwest corner of the Base and has an area of about 0.36 acres. It is approximately 250 feet south of the intersection of Route 18 and Shea Memorial Drive, which is the main entrance to the Base. The Site is bounded by Navy property on the north and east, a drainage ditch and Route 18 to the west, and a newly-installed fence to the south, along the abutter's property line. The encroachment onto Navy property was approximately 100 feet north of the fencing.

What was the Site used for?

The Site is part of property acquired by the Navy in the mid-1980s to establish a new entrance to the Base. The area was not used by the Navy for any other purpose. The apparent encroachment occurred from activities on the abutting property, located at 1182 Main Street, Weymouth, Massachusetts. The abutting property is used by businesses that perform

building and property maintenance, bituminous and concrete pad repair, sewer water infrastructure repair, and street sweeping. A site reconnaissance and records review completed in May 2007 indicated that equipment (trucks, roll-off containers, etc.) and debris piles (brick, asphalt, sand, and piping) were stored, without the Navy's permission, on Navy property (see Figure 2).

Figure 2 – Site During Initial Site Visit, May 2007

What does the Site look like today?

The equipment, piles of debris, etc. have been removed from the Navy property and a new fence has been installed along the property line. A removal action was completed and the site was re-graded and seeded. A soil berm and grading have been constructed along the property line to prevent surface water run-off from the abutter's property from reaching the Navy property. Figure 3 below shows the site following completion of the removal action.

Figure 3 – Site After Removal Action, May 2011

Environmental Investigations

1994: EPA listed the former NAS South Weymouth on the National Priorities List.

2007: During redevelopment of the main entrance to the Base, encroachment of a nearby business onto Navy property was identified. The Navy performed a file review and site inspection to research ownership history and past site activities, and assess possible contamination on Navy property from the encroachment.

2007-2008: The Navy prepared a work plan for initial site investigation activities. Soil, sediment, and groundwater samples were collected to evaluate environmental conditions at the Main Gate AOC. A field investigation report was prepared which summarized the results.

2009-2010: The Navy completed an engineering evaluation/cost analysis (EE/CA) under CERCLA to determine the most appropriate way to remove contamination and eliminate unacceptable risks on Navy property. The Navy's Action Memorandum documented the selected action. A removal action work plan was developed.

2011: The Navy conducted a NTCRA under CERCLA to remove impacted soil and sediment on Navy property and restore the area.

What were the investigation results?

An initial site inspection conducted on May 25, 2007 documented the encroachment by the abutter and the potential impact on the Navy property. The Navy then prepared a site investigation work plan to assess the environmental conditions at the Site. The work was conducted in accordance with the Environmental Baseline Survey (EBS) process. See sidebar above for a timeline of the environmental investigations and removal action.

2008 Field Investigation

In February and March 2008, several sediment, soil, and groundwater samples were collected. Samples were analyzed for a wide range of compounds, with the following results:

- ***Volatile Organic Compounds (VOCs) -*** VOCs were detected in soil, sediment, and ground-water samples at trace/low concentrations, below benchmark screening levels. One VOC, benzene, was detected in one groundwater sample above screening levels but below federal and state drinking water standards.

- ***Semi-Volatile Organic Compounds (SVOCs)* –** SVOCs (including PAHs) were detected in soil, sediment, and groundwater samples; several sample concentrations exceeded benchmark screening levels. SVOC concentrations were generally lower in the deeper (1-3 ft) soil samples than in surface (0-1 ft) soil samples. Most detections, and the highest concentrations, were in sediments in the ditch along Route 18 and soils in the paved portion of the encroachment area.

- ***Extractable Petroleum Hydrocarbons* –** Extractable petroleum hydrocarbon (EPH) concentrations (C11-C22 aromatics) exceeded benchmark screening levels in soil samples. EPHs were detected infrequently in sediment samples; none were detected in the groundwater samples.

- ***Pesticides* –** Concentrations of six pesticides exceeded screening levels in one or more sediment and soil samples. Pesticides were not detected in the groundwater samples.

- ***Polychlorinated Biphenyls (PCBs)* –** PCBs were not detected in soil, sediment, or groundwater samples.

- ***Inorganics* –** Several concentrations exceeded applicable benchmark screening levels in sediment, soil, and groundwater. Metals concentrations were generally lower in the deeper soil samples. One sediment sample cyanide concentration exceeded its ecological benchmark screening level. There were no exceedances of federal and state drinking water standards for inorganics.

Removal Action

The field report for the environmental investigations determined that concentrations of several SVOCs, primarily PAHs, and pesticides in soil and sediment, as well as three metals in soil, exceeded human health and ecological risk-based benchmarks. Because of the potential for human health or ecological exposure to these compounds in soils and sediments, the Navy, with input from the EPA and MassDEP, concluded that additional action under CERCLA was required.

2010 Engineering Evaluation/Cost Analysis

The Navy prepared an EE/CA to develop and evaluate alternatives for a NTCRA. The objectives of the NTCRA were to prevent human and ecological exposure to compounds in soil and sediments at concentrations above cleanup goals and prevent migration of those compounds to groundwater or surface water. Three alternatives were evaluated: no action; excavation and off-site disposal; and an asphalt cap with selective excavation and monitoring.

The recommended removal action as described in the EE/CA included excavation, transportation, and off-site disposal of contaminated soil and sediment. Following excavation, the removal areas would be backfilled, graded to the pre-existing base grade elevation present across the Site, and replanted to restore the surface vegetation and protect the area from erosion.

Groundwater in the area is not a drinking water source, the area is not classified as a potential drinking water aquifer, and the detected PAH concentrations were low; therefore, no action directly related to groundwater was proposed.

An Action Memorandum documenting the selected removal action was signed by the Navy on July 12, 2010. The Action Memorandum noted that the intended NTCRA would provide long-term effectiveness and permanent protection for human health and the environment, and would constitute the final remedy for the Site.

Removal of the affected soil and sediments to attain the cleanup goals (see tables below) would reduce the concentrations of the chemicals of concern to acceptable levels. The cleanup goals shown in the tables below were developed and discussed in the EE/CA. The cleanup goal for protection of human health is to prevent exposure to, or remove, COC concentrations in soil and sediment which exceed

Chemicals of Concern - Soil	Max Conc. (mg/kg)	Cleanup Goal (mg/kg)
Benzo(a)anthracene	310	0.81
Benzo(a)pyrene	290	1.83
Benzo(b)fluoranthene	280	0.77
Benzo(k)fluoranthene	280	2.7
Chrysene	310	1.4
Dibenzo(a,h)anthracene	67	0.096
Fluoranthene	620	160
Indeno(1,2,3-cd)pyrene	150	0.175
Phenanthrene	500	10
Pyrene	600	120
Gamma-BHC (Lindane)	1.2	0.015
Heptachlor	0.7	0.018
Arsenic	12.2	5.31
Cobalt	5.3	3.98
Iron	13000	11300

select human health risk-based criteria and applicable Base background concentrations. The cleanup goal for protection of the environment is to prevent exposure to, or remove, COC concentrations in surface soil (0-1 ft) and sediment which exceed ecological risk-based criteria and applicable Base background concentrations.

2011 Non-Time Critical Removal Action

A removal action work plan was prepared based on the EE/CA and Action Memorandum. The NTCRA was then conducted from January to April 2011.

Prior to beginning the excavation activities, a topographic survey of the area was conducted to establish a baseline for site restoration. Site preparation activities included site clearing, installation of silt/sediment fencing to minimize erosion, and erection of a permanent 8-foot fence at the property line. A temporary gravel access road was constructed from Calnan Road to the eastern edge of the Site. The access road included a culvert to allow free flow of water from an intermittent drainage ditch next to Calnan Road. Vegetation was removed as needed to allow access to the Site. The stockpile and staging area was located on the east side of Calnan Road (see Figure 4 below).

Excavation of the main soil removal area began in early February 2011, proceeding from west (Route 18) to east in order to prevent cross-contamination of excavated areas (see Figure 5). Excavation was to a minimum depth of 3.5 feet below ground surface (bgs), with the actual limits determined by visual observations and confirmed by sidewall and excavation floor analytical samples.

Chemicals of Concern - Sediment	Max Conc. (mg/kg)	Cleanup Goal (mg/kg)
Acenaphthene	7.0	0.15
Anthracene	24	0.436
Benzo(a)anthracene	46	1.4
Benzo(a)pyrene	41	3.447
Benzo(b)fluoranthene	37	2
Benzo(g,h,i)perylene	29	0.375
Benzo(k)fluoranthene	47	1.1
Chrysene	51	1.7
Dibenzo(a,h)anthracene	8.9	0.19
Dibenzofuran	4.5	0.42
Fluoranthene	120	3
Fluorene	6.1	0.13
Indeno(1,2,3-cd)pyrene	26	0.49
Phenanthrene	74	1.4
Pyrene	91	2.3
Total PAHs	612.5	14.82
4,4-DDT	1.2	0.29
Endosulfan I	0.01	0.0086

Figure 4 – Planned Excavation Areas

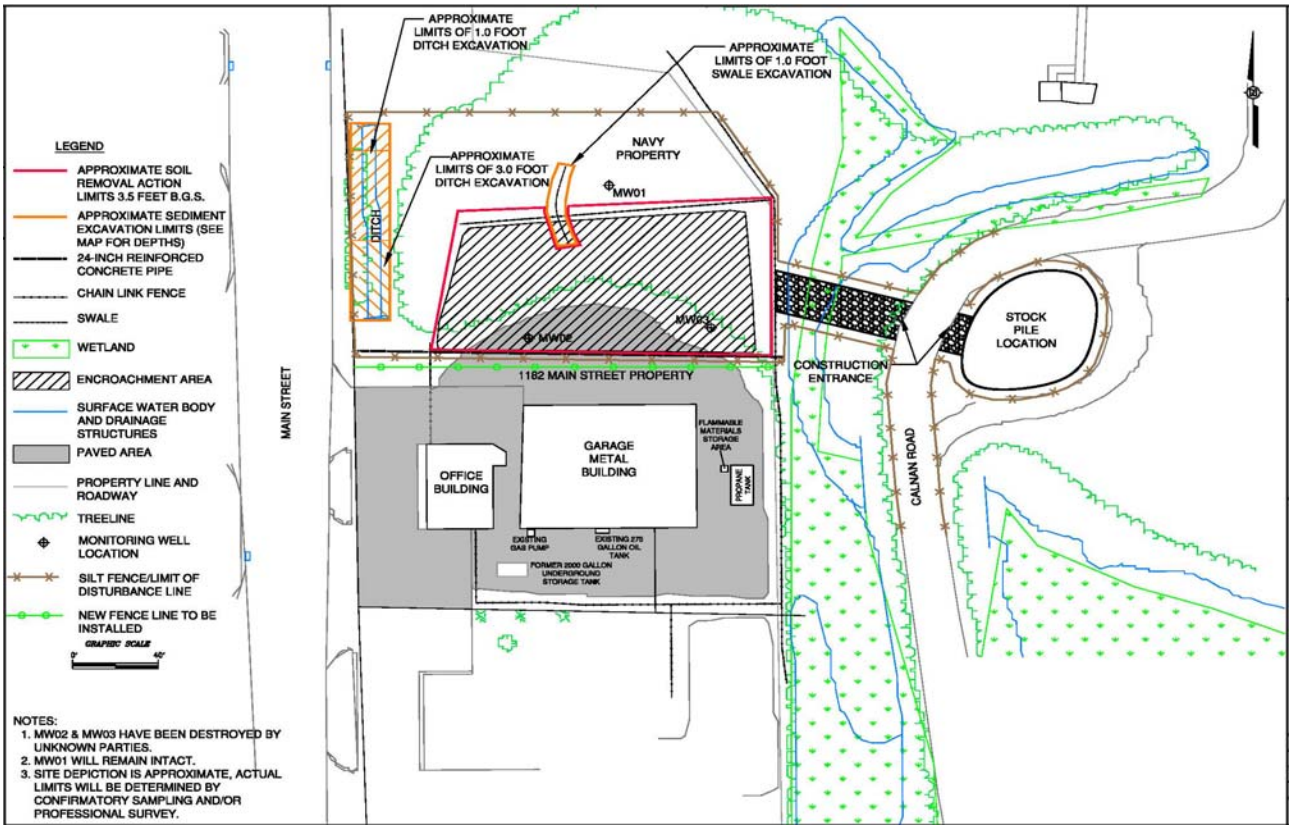

Figure 5 – 2011 Removal Action

Post-excavation confirmatory samples were collected from the floor every 1000 square feet and along the sidewalls, every 40 linear feet. Additional excavation was required in five locations, based on PAH exceedances.

Excavation of the sediment from the ditch along Route 18 was conducted in March 2011. The northern half of the ditch was excavated to a depth of 1 foot bgs and the southern half excavated to 3 feet bgs. A separate swale in the center of the encroachment area was excavated to a depth of 1 foot bgs. Larger debris was separated from the sediment. Post-excavation samples were collected in the same manner as for the soil removal area. Due to PAH exceedances, additional excavation was required along three sidewalls of the ditch excavation.

At a few locations (sidewall along the abutter's property line, the ditch floor, and ditch sidewall close to the Route 18 roadway) confirmatory soil and sediment results slightly exceeded the cleanup goals following the second round of excavation. Because of the close proximity to the Route 18 roadway and structural concerns with further excavation in that direction, coupled with encroachment concerns of excavating beyond the Navy property line, the Navy, with input from EPA and MassDEP, agreed to perform a risk screening using the confirmatory sample analytical results to determine if further excavation was warranted. All parties agreed that the exceedances along the abutter sidewall would not be evaluated in the risk screening or excavated further as they are not on Navy property. The results of the risk screening indicated that the residual concentrations on the Navy property posed no unacceptable risk; therefore no additional excavation was necessary.

Upon completion of excavation and analysis of all confirmation samples, the excavated areas were backfilled with clean fill (1200 cubic yards of common fill and 500 cubic yards of topsoil) to the pre-excavation topographic elevations.

Approximately 1700 cubic yards of soil and sediment were removed from the Navy property, characterized, and transported off-site to a licensed disposal facility.

A soil berm was constructed and the Site graded to prevent future encroachment and surface water runoff from the adjacent property onto the Navy property. Topsoil and grass seed (covered with straw to minimize erosion) were added once other construction activities were completed. Erosion matting was added to the excavated ditches, and the road building and other constructed materials were removed and the staging area re-seeded. The removal action activities were documented in a removal action completion report.

Groundwater samples were collected in June 2011 to evaluate post-removal conditions. As described in the EE/CA, these data were compared to the 2007 data from the initial site investigation and various benchmarks. There were no exceedances of federal drinking water standards or state GW-1 standards. The results confirmed that there are no impacts to site groundwater.

Conclusions

The Navy concludes that the 2011 removal action sufficiently reduced the elevated chemical concentrations documented in the EE/CA to eliminate unacceptable risks on the Navy property. Therefore, the Site no longer poses unacceptable risk to human health or the environment, as documented in the removal action completion report.

Rationale for the No Further Action Proposal

The Navy has concluded that No Further Action is appropriate for the Site for the following reasons:

- Areas on Navy property where concentrations of chemicals in soil and sediments exceeded cleanup goals were excavated and disposed off site.
- A risk screening of post-excavation sample results concluded that no unacceptable risks remain on Navy property at the Site.
- Because no hazardous substances, pollutants, or contaminants remain at the Site in excess of levels that allow for unlimited use and

unrestricted exposure, five-year reviews are not required.

Under CERCLA, if no unacceptable risks to human health or the environment are identified, then no further action is required.

Next Steps

Community review of and comment on this Proposed Plan is the next step in the CERCLA process for the Main Gate AOC. The Navy encourages the public to review this plan and to submit comments. The Navy will accept written comments on the Proposed Plan during the public comment period, from July 25, 2011 to August 25, 2011. The Navy will accept oral comments during a Public Hearing that will follow a Public Meeting to be held on August 3, 2011 at the New England Wildlife Center, Weymouth, Massachusetts.

Once the communities have commented on this Proposed Plan, the Navy and the EPA will consider all comments received. The Navy's no further action proposal could change based on community comments. The Navy will provide written responses to formal comments received on the Proposed Plan. These responses will be provided in a document called the Responsiveness Summary that will be part of the Record of Decision (ROD) for the Site.

The ROD will contain the rationale for the Navy's and EPA's decision for the Site. The Navy and the EPA anticipate that all comments will be reviewed and the ROD will be signed by September 2011. The document will then be made available to the public at the Information Repositories listed at the end of this document. Also, the Navy will announce the availability of the ROD through the local news media and the community mailing list.

Commitment to the Communities

The Navy is committed to informing the communities about the environmental cleanup programs at the former NAS South Weymouth. A Restoration Advisory Board (RAB), composed of the community leaders, government agency representatives, and local citizens, meets regularly to discuss the environmental cleanup program at the former NAS South Weymouth. At these meetings, you can learn about and offer suggestions for the Navy's program activities. RAB meetings are held on the second Thursday of every other month. Upcoming RAB meetings are publicized in local news media and are open to the public. Past meeting minutes are available on the former NAS South Weymouth website: http://www.bracpmo.navy.mil.

The Navy also maintains a community mailing list for distributing information about the environmental cleanup program. If you would like to be added to the mailing list, please contact Mr. Brian Helland at the address or email provided on the first page of this document. Details of the information summarized in this Proposed Plan are available for review at the information repositories listed at the end of this document.

Important Dates

Public Comment Period
July 25, 2011 to August 25, 2011

Public Meeting and Public Hearing
August 2, 2011

Your Questions and Comments Are Important

Formal comments are used to improve the decision-making process. The Navy will accept written comments from the public during the 30-day comment period and will hold a public meeting and hearing to receive oral comments (see page 1 regarding how to submit formal comments to the Navy).

Your formal comments during this time will become part of the official record for the Main Gate Encroachment Area. The Navy will consider the comments received during the comment period before making the final decision for the Site. The public is encouraged to participate during this period. You do not have to be a technical expert to take part in the process.

GLOSSARY OF TERMS

Analyte: A substance or chemical constituent that is determined in an analytical procedure.

Area of Concern (AOC): Former Environmental Baseline Survey Review Item Area currently being investigated under CERCLA. These sites require removal actions and/or risk assessments to address site concerns.

Background Level: Chemicals or concentrations of chemicals present in the environment due to naturally occurring geochemical processes and sources, or to human activities not related to specific point sources or source releases.

Benchmark: Concentration of a chemical considered to be protective of human health or the environment.

Chemicals of Concern (COCs): Chemicals of concern are chemicals identified in the risk assessments as the primary drivers of unacceptable risks.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law passed in 1980 and amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA). These laws created a system and funding mechanism for investigating and cleaning up abandoned and/or uncontrolled hazardous waste sites. The Navy's cleanup of sites regulated by CERCLA/SARA is funded by the Department of Defense under the Defense Environmental Restoration Fund.

Environmental Baseline Survey: An environmental assessment conducted by the Navy at bases that have been closed under the Base Realignment and Closure (BRAC) Act.

Engineering Evaluation and Cost Analysis (EE/CA) — A description and engineering study of potential cleanup alternatives, e.g., removal actions, for a site.

Groundwater: Water found beneath the earth's surface that fills pores and cracks between such materials as sand, soil, gravel, or rock.

Monitoring Well: A well drilled at a specific location allowing groundwater to be sampled at selected depths and groundwater flow directions to be determined.

No Further Action: Under CERCLA, if a removal action has been conducted and "no unacceptable risks" to human health or the environment remain at a site, no further action is required.

Operable Unit: A site or sites being addressed collectively under the CERCLA process.

Proposed Plan: A document that summarizes the Navy's preferred cleanup remedy for a site and provides the public with information on how they can participate in the remedy selection process.

Record of Decision (ROD): A legal, technical and public document that explains the rationale and final cleanup decision for a site. It contains a summary of the public's involvement in the cleanup decision.

Removal Action— A type of short-term cleanup that can be conducted at any time during the CERCLA process to address threats to human health or the environment. Typically, "time critical" removal actions are conducted when it is determined that less than 6 months are available before site activities must be initiated and when the site has less complex or less extensive contamination than sites that would require long-term cleanup. An Action Memorandum is prepared to outline the removal action.

Responsiveness Summary: A document containing the responses to the formal comments submitted by the public regarding the Proposed Plan. This summary is issued as a section of the ROD.

COMMENT SHEET – Proposed Plan for the Main Gate Encroachment Area

Use this space to write your comments or to be added to the mailing list

The Navy encourages your written comments on the Proposed Plan for the Main Gate Encroachment Area, Former Naval Air Station South Weymouth, Weymouth, Massachusetts. You can use the form below to send written comments. If you have questions about how to comment, please contact Brian Helland at (215) 897-4912 or via email at brian.helland@navy.mil.

This form is provided for your convenience. Please mail this form or additional sheets of written comments, postmarked no later than August 25, 2011, to the address shown below:

Mr. Brian Helland
Remedial Project Manager
BRAC Program Management Office, Northeast
4911 South Broad Street
Philadelphia, PA 19112

Comment Submitted by: _____

Address: _____

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_____

_____

Affix
Postage

Mr. Brian Helland
Remedial Project Manager
BRAC Program Management Office, Northeast
4911 South Broad Street
Philadelphia, PA 19112

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For More Information…

Contacts

If you have questions or comments about this Proposed Plan, or any other questions about the Main Gate Encroachment Area, please contact us:

Mr. Brian Helland
Navy Remedial Project Manager
(215) 897-4912
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(617) 918-1393
keating.carol@epa.gov

Mr. David Chaffin
MassDEP Project Manager
(617) 348-4005
david.chaffin@state.ma.us

Information Repositories

Documents relating to environmental cleanup activities for the former NAS South Weymouth property are available for public review at the following information repositories:

Tufts Library
46 Broad Street
Weymouth, MA 02188
(781) 337-1402
Monday-Thursday: 9:00 – 9:00
Friday, Saturday: 9:00 – 5:00
Sunday: Closed

Abington Public Library
600 Gliniewicz Way
Abington, MA 02351
(781) 982-2139
Monday, Wednesday: 10:00 – 5:00
Tuesday, Thursday: 10:00 – 8:30
Saturday: 10:00 – 3:30
Friday, Sunday: Closed

Department of the Navy
Caretaker Site Office
c/o David Barney
1134 Main Street, Building 11
South Weymouth, MA 02190
Monday-Friday: 10:00 – 4:00

Hingham Public Library
66 Leavitt Street
Hingham, MA 02043
(781) 741-1406
Monday-Thursday: 10:00 – 9:00
Friday: Closed
Saturday: 9:00 – 5:00
Sunday: 1:00 – 5:00

Rockland Memorial Library
20 Belmont Street
Rockland, MA 02370
(781) 878-1236
Monday: 10:00 – 5:00
Tuesday, Wednesday: 10:00 – 8:00
Thursday-Friday: 10:00 – 5:00
Saturday-Sunday: Closed