
Proposed Plan for Site 17, Pettibone Creek and Boat Basin Naval Station Great Lakes, Installation Restoration Program Great Lakes, Illinois

About This Document

The Navy, as the lead agency, is accepting formal public comments on this Proposed Plan from January 2-31, 2009. The Navy with concurrence by Illinois Environmental Protection Agency (Illinois EPA), developed this plan to summarize the proposed cleanup of Site 17. This Proposed Plan is being presented to satisfy the statutory and regulatory requirements for public participation under the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** and to help the public understand and seek public input on the proposed cleanup alternatives. The Navy, with input from the Illinois EPA, will make the final remedy selection after considering and addressing the public comments received.

This plan highlights key information from the **Remedial Investigation/Risk Assessment (RI/RA)** and **Feasibility Study (FS)** reports. These reports are maintained at Naval Station Great Lakes. More complete information can be found in these reports and the Administrative Record at Naval Station Great Lakes.

Facility Description

Naval Station Great Lakes is located in Lake County, Illinois, north of the City of Chicago, and encompasses 1.5 miles of Lake Michigan shoreline. Naval Station Great Lakes is used to support naval training and consists of the Recruit Training Command, the Training Support Center, and Naval Facilities Engineering Command Midwest. In 1986, an **Initial Assessment Study (IAS)** conducted at Naval Station Great Lakes identified 14 potentially contaminated sites. Each site

was evaluated with respect to potential contamination, migration pathways, and pollutant receptors. The study concluded that seven of these sites, including Site 17, warranted further investigation to assess potential long-term impacts.

Site Description

Site 17 comprises two geographic areas as shown on Figure 1. The first is Pettibone Creek, including the North and South Branches, and the second is the Boat Basin. The Pettibone Creek watershed of Site 17 covers approximately 8,542,500 square feet (ft²) or 0.3 square mile. Pettibone Creek is located on the Mainside of Naval Station Great Lakes between Sheridan Road and the western shoreline of Lake Michigan. Pettibone Creek ranges between 15 and 30 feet in width and several inches to 2 feet in depth. The North Branch of Pettibone Creek originates in North Chicago and enters the northwestern corner of Naval Station Great Lakes, meandering through Mainside and discharging into Lake Michigan. A path along the North Branch is used by staff, military personnel and their family members, and students for recreational purposes. The South Branch of Pettibone Creek originates in a residential area southwest of Naval Station Great Lakes, meandering through a golf course country club and Mainside, and joins the North Branch of Pettibone Creek approximately 1,500 feet west of Lake Michigan. The South Branch flows at the base of steep slopes behind buildings and consequently is not frequented by people.

The Boat Basin portion of Site 17 covers approximately 113,256 ft². Boats are docked at the opening of the Boat Basin near the Inner Harbor. Past use of the Boat Basin included the

The Proposed Cleanup Plan

To address contaminated sediment at Site 17, the Navy and the Illinois EPA propose Alternative 4 as the cleanup remedy:

- Approximately 39,400 cubic yards of sediment with **chemicals of concern (COCs)** concentrations causing unacceptable risk will be excavated/dredged from the North Branch of Pettibone Creek and the Boat Basin. The excavation/dredging will occur on a staggered schedule (Pettibone Creek initiated in 2009 and Boat Basin with the harbor maintenance dredging within the next 5 years). It is assumed that a 2 foot excavation in Pettibone Creek will remove contaminated sediment deposits and return the creek bed to natural soil. A pre-design investigation will be conducted during the remedial design to identify the required depth of the excavation. Similarly, the Boat Basin excavation/dredging is assumed to be approximately 10 feet to

natural soil. Historical drawings will be used to identify the required depth of the excavation. During excavation/dredging, surface water will be diverted from the areas of sediment removal. Following excavation/dredging, the areas will be sampled. These confirmation/verification samples will be used to calculate the human health and ecological risks if the **COC** concentrations are greater than the regulatory criteria.

- On-site dewatering will consist of dewatering the excessively wet excavated sediment by temporarily stockpiling it in a dedicated area near the Boat Basin.
- Off-base disposal will consist of transporting the excavated and dewatered sediment to a permitted off-base disposal facility that would dispose of it by landfilling, with pre-treatment of the high-lead content sediment by chemical stabilization/fixation.

This document summarizes the Naval Station Great Lakes Proposed Plan. For detailed information on the investigation of Site 17, consult the documents available for review at Naval Station Great Lakes. Call the Naval Station Great Lakes Environmental Department at (847) 688-2600, Extension 243 to review the information.

Bolded terms throughout this Proposed Plan are explained in the Glossary of Terms presented on page 7.

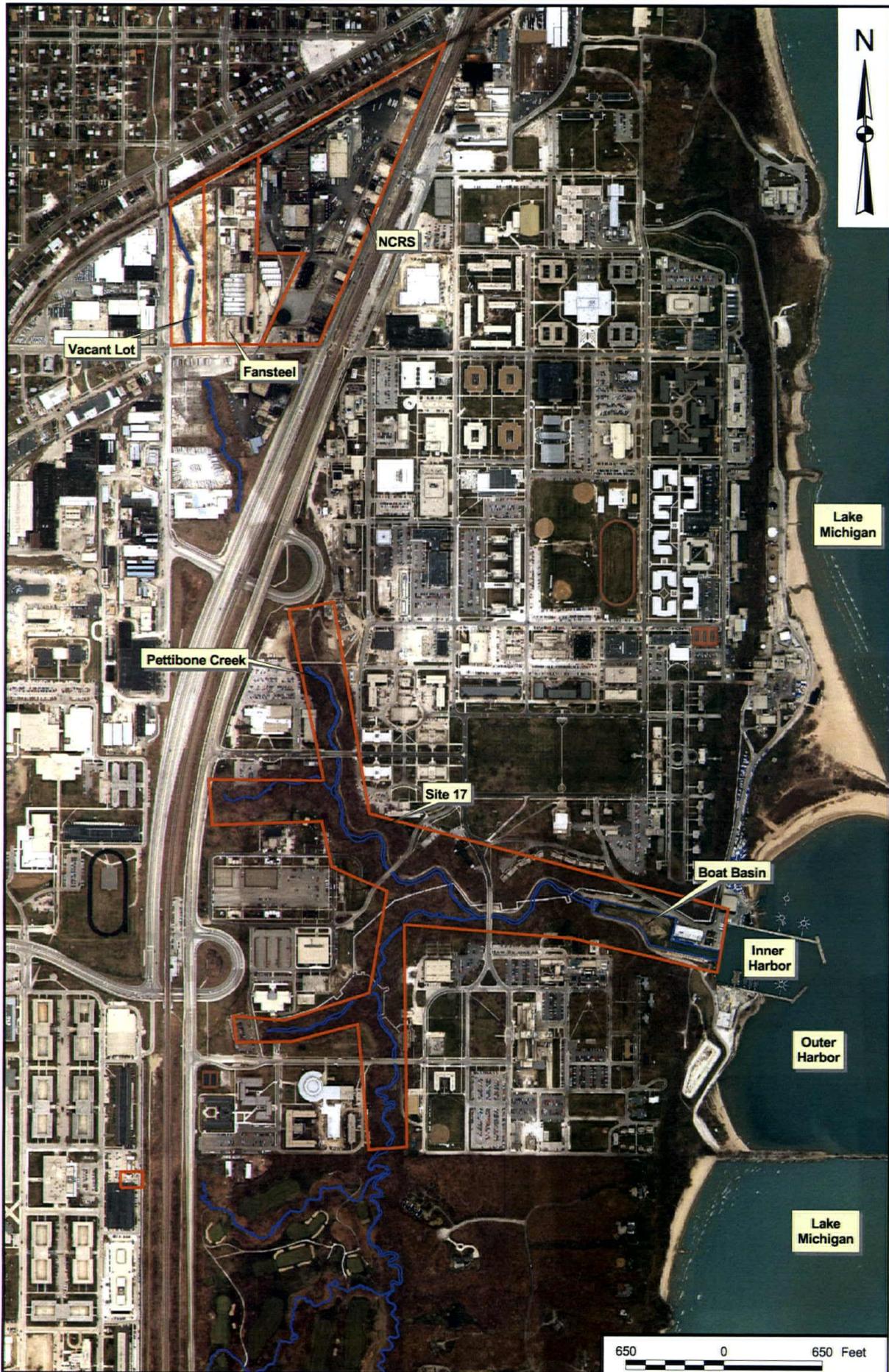


Figure 1 Site Vicinity Map

docking of boats and access to the boat repair building (Building 13). Due to sedimentation, the Boat Basin can no longer be used for these activities. Currently, recreational fishing occurs in the Boat Basin by base personnel.

Environmental investigations by the United States Environmental Protection Agency (USEPA) and Illinois EPA of Pettibone Creek and Boat Basin surface water and sediment were conducted in the 1970s because of the abandoned industrial facilities in the City of North Chicago located upstream of Naval Station Great Lakes. Several of the facilities [Fansteel, North Chicago Refiners and Smelters (NCRS), and the Vacant Lot] were turn-of-the-century manufacturing facilities that produced tantalum mill products, non-ferrous metals, and zinc oxide. The operations at these manufacturing facilities have been shut down. The Navy has also conducted two investigations, one in the early 1990s and the other in 2001.

These investigations conducted by USEPA, Illinois EPA, and the Navy identified that **polynuclear aromatic hydrocarbons (PAHs)** were the predominant **semivolatile organic compounds (SVOCs)** detected in sediment samples collected at Site 17. The investigation also identified **polychlorinated biphenyls (PCBs)**, pesticides, and metals in the sediment samples. In general, concentrations of **PAHs** were greatest in surface sediment samples and concentrations decreased with increasing depth. The **PAH** concentrations in sediment samples have increased compared to historical data, and this is believed to be caused by widespread use of petroleum products in our modern, industrialized society. In general, concentrations of pesticides, **PCBs**, and metals were lower in surface sediment samples and increased with increasing depth. Copper, lead, and zinc were identified as significant environmental contaminants in sediment samples collected upstream and off site of Site 17 during past environmental investigations by USEPA and Illinois EPA. The concentrations that were reported for the off-site, upstream samples were often two to three times greater than concentrations in Site 17 sediment samples.

In summary, several chemicals, including **PAHs**, **PCBs**, pesticides, and metals, were retained as chemicals of potential concern in the North Branch of Pettibone Creek and the Boat Basin because they were detected in several sediment samples at concentrations that exceeded screening level regulatory criteria.

What do you think?

You don't have to be a technical expert to comment. If you have a concern, a question or suggestion, or preference, the Navy and Illinois EPA want to hear it before making a final

decision on how to protect our community. The Navy, as the lead agency, is accepting formal public comments on this Proposed Plan from January 2-31, 2009. To comment formally:

- Offer oral comments during the comment portion of the public meeting, if such a meeting is requested (see page 8 for details).
- Send written comments postmarked no later than January 31, 2009 to:

Dept. of Navy
Naval Station Great Lakes
NAVFAC MW Code EV
Attn: Howard Hickey
201 Decatur Avenue
Building 1A
Great Lakes, IL 60088

- E-mail comments by January 31, 2009 to:
howard.hickey@navy.mil

Summary of Site Risks

The 2001 Navy investigation of Pettibone Creek and the Boat Basin included evaluating potential human and ecological risks from chemicals in sediment and surface water. The risks to recreational receptors from direct exposure to surface water and sediment in Pettibone Creek and the Boat Basin were acceptable.

The analytical results reported for the South Branch of Pettibone Creek surface sediment are similar to reported background sediment concentrations. The concentrations in the South Branch of Pettibone Creek are relatively low and may represent a good background/reference location for comparisons to the chemical and biological data collected in the North Branch of Pettibone Creek and Boat Basin. The risks from exposure to sediment in the South Branch of Pettibone Creek were acceptable (within the USEPA risk management range).

The results of the risk assessment for both human and ecological receptors indicated that sediment was a medium of concern based on an exposure by fish ingestion at Site 17. The human health risk assessment (HHRA) indicated that risks from exposure to fish assumed to be caught and consumed by a recreational fisherman in the Boat Basin exceeded benchmark values for carcinogenic and noncarcinogenic health effects. The fish tissue concentrations evaluated in the risk assessment were estimated from detected sediment concentrations and standard sediment bioaccumulation factors.

Site History

Following is a brief environmental history of Site 17:

- **1906** – The original Boat Basin and harbor were constructed.
- **1970** – Initial sediment investigation by Illinois EPA.
- **1975 and 1980** – Sediment investigations by the United States Environmental Protection Agency
- **1986** – **IAS** conducted at Naval Station Great Lakes identified 14 potentially contaminated sites. Each site was evaluated with respect to contamination characteristics, migration pathways, and pollutant receptors. The study concluded that seven of these sites, including Site 17, warranted further investigation to assess potential long-term impacts.
- **1991** – Surface water samples contained **volatile organic compounds (VOCs)** and **SVOCs**, and sediment samples contained metals and **SVOCs** at concentrations three times the background concentrations.
- **1992** – Elevated concentrations of inorganics, chlorinated solvents, pesticides, **PAHs**, and **PCBs** were detected in sediment samples.
- **1995** – Metals contamination was detected in sediment samples. The Illinois EPA identified many potential sources that were part of upstream facilities.
- **2001** – **PAHs**, pesticides, **PCBs**, and metals were present in sediment samples; **VOCs** and metals were present in surface water samples.

Based on the recreational fish ingestion scenario, several pesticides (4,4'-DDT and metabolites, aldrin, dieldrin, and alpha-BHC) and **PCBs** were identified as **COCs** for human health in Boat Basin sediment. The noncarcinogenic risk was estimated to be 6.6 (greater than the regulatory goal of unity [1.0]) and the carcinogenic risk was estimated to be 2×10^{-4} (exceeding the regulatory goal of 1×10^{-6}). The State of Illinois has also issued fish consumption advisories for Lake Michigan for salmon, trout, whitefish, perch, and bottom-feeding fish such as catfish and carp.

The ecological risk assessment indicated **PAHs**, **PCBs**, and metals in sediment could pose potential risks to aquatic organisms, fish, and piscivorous (fish eating) birds exposed to the contaminated sediment. These chemicals were detected in the North Branch of Pettibone Creek and the Boat Basin sediment samples at concentrations that exceeded literature-based ecological criteria benchmarks.

Why is Cleanup Needed?

The Navy's studies of Site 17 have resulted in the following conclusion:

- As a result of past activities on base and off base, several chemicals are present in the sediment at Site 17 that could result in unacceptable human health and ecological risk.

It is the judgment of the Navy and Illinois EPA that the Preferred Alternative identified in this Proposed Plan, or one of the other cleanup alternatives considered, is necessary to protect the public health and welfare and the environment from actual or potential releases of hazardous substances into the environment.

What are Cleanup Objectives and Levels?

Using the information gathered during the site investigations, the Navy and Illinois EPA have identified the following **Remedial Action Objectives (RAOs)** for sediment at Site 17:

- Prevent unacceptable human health risk associated with the ingestion of fish caught in the Boat Basin and containing pesticides and **PCBs** at concentrations greater than the established preliminary remediation goals and health advisories.
- Reduce unacceptable risk to aquatic receptors exposed to North Branch of Pettibone Creek and Boat Basin sediment containing **PAHs**, pesticides, **PCBs**, and metals at concentrations greater than literature-based risk values.
- Reduce unacceptable risk to piscivorous wildlife consuming fish exposed to sediment containing pesticides at concentrations greater than literature-based risk values in the North Branch of Pettibone Creek and the Boat Basin.

The Navy and Illinois EPA discussed developing site-specific ecological cleanup criteria by conducting an additional investigation to collect aquatic receptors for analysis. However, it was determined that the cost of this additional investigation was not justified based on the limited potential cost savings of obtaining a higher ecological cleanup criteria.

The cleanup goals identified in the **FS** are based on regulatory criteria and literature-based risk values. The excavation/dredging of Site 17 is anticipated to remove contaminated sediment deposits and return the area of excavation/dredging to natural soil. Confirmation/verification samples will be collected and the results of the analysis will be used to calculate the human health and ecological risks. No risk is anticipated with the excavation/dredging returning the area to natural soil (silt with clay and little sand).

Cleanup Alternatives for Site 17

The Site 17 **FS** report presents the options that the Navy and Illinois EPA considered for cleanup of this site. These options,

referred to as "cleanup alternatives," are different combinations of plans to restrict access and to contain, remove, or treat contamination in order to protect public health and the environment. The Preferred Alternative is Alternative 4: Partial Excavation of North Branch of Pettibone Creek Sediment, Excavation of Upper and Lower Boat Basin Sediment, Surface Water Controls, On-Site Dewatering, and Off-Base Disposal of Excavated Sediment.

No Action

Alternative 1: No Action

No remedial action would be conducted to reduce risks to human health and the environment and no restrictions would be imposed to prevent access to sediment contamination. This alternative does not address sediment contamination and is only retained to provide a baseline for comparison to other alternatives (as required under **CERCLA**).

Limited Action

Alternative 2: Institutional Controls and Monitored Natural Recovery

This alternative would implement the following institutional controls: (1) establish a no recreational swimming restriction from Naval Station property in the Boat Basin area; (2) post signs and periodically publish fish consumption warnings; (3) impose specific fish catch and release requirements on Naval Station property in the Boat Basin area, and; (4) impose sediment disturbance and disposal controls for the Boat Basin area. Access to contaminated areas of Pettibone Creek and the Boat Basin would be controlled by posting of signs that would warn against fish consumption and implementing catch and release requirements at the Boat Basin. Site 17 would be added to the Navy's Land Use Control Memorandum of Agreement, and land use controls would prevent future development of the site. Monitored natural recovery would consist of regularly collecting and analyzing samples of sediment and surface water to assess expected natural recovery over time and to detect additional contaminant migration from any upstream source(s).

Removal and Disposal

Alternative 3: Partial Excavation and Disposal of North Branch of Pettibone Creek Sediment, Excavation of Lower Boat Basin Sediment, In-Situ Capping of the Upper Boat Basin, Surface Water Controls, Institutional Controls, and Monitored Natural Recovery

This alternative includes excavation and dewatering of approximately 5,800 cubic yards of sediment from the North Branch of Pettibone Creek in areas where contaminant concentrations exceed the regulatory criteria and dispose of the sediment in an appropriate off-site landfill. Approximately 6,000 cubic yards of sediment from the Lower Boat Basin would be excavated and consolidated with the sediment from the Upper Boat Basin. A 75,000 square foot cover system would be installed over the contaminated sediment in the Upper Boat Basin. This alternative also consists of installation of a dam to contain the sediment, surface water controls, and institutional controls and monitored natural recovery similar to Alternative 2.

Alternative 4: Partial Excavation and Disposal of North Branch of Pettibone Creek Sediment, Excavation of Upper and Lower Boat Basin Sediment, Surface Water Controls, On-Site Dewatering, and Off-Base Disposal of Excavated Sediment

This alternative includes excavation/dredging of approximately 39,400 cubic yards of sediment with **COC** concentrations greater than regulatory criteria from the North Branch of Pettibone Creek and the Boat Basin. Excavated/dredged sediments would be dewatered and disposed of in an

appropriate off-site landfill. This remedy alternative would also include surface water controls. Institutional controls would not be required for this alternative after the contaminated sediment had been removed.

The excavation/dredging would be completed on a staggered schedule. Pettibone Creek excavation/dredging would be initiated in 2009, and the Boat Basin excavation/dredging would be conducted in conjunction with the harbor maintenance dredging within the next 5 years.

Use of ARARs in the Evaluation Process

Applicable or relevant and appropriate requirements (ARARs) are federal and state environmental requirements to evaluate the appropriate extent of site cleanup, to scope and formulate remedial alternatives, to identify cleanup levels, and to control the implementation and operation of a selected cleanup action. Potential chemical-, location-, and action-specific **ARARs** that apply to Site 17 are presented in Section 2.0 of the **FS** report. Each alternative was evaluated to determine its compliance with **ARARs**.

Detailed Analysis of Cleanup Alternatives

In accordance with **CERCLA**, a detailed analysis of each alternative must be conducted with respect to the nine evaluation criteria to select a site remedy. These include two threshold criteria (Overall Protection of Human Health and the Environment and Compliance with **ARARs**), five balancing criteria (Long-Term Effectiveness and Permanence; Reduction of Toxicity, Mobility, and Volume through Treatment; Short-Term Effectiveness; Implementability; and Cost), and two modifying criteria (State Acceptance and Community Acceptance). An analysis of these criteria was performed for each cleanup alternative, and summary comparisons of these analyses are presented in Table 1. Consult the Site 17 **FS** for more detailed information.

State (Illinois EPA) acceptance of the proposed alternative was secured during the development of this Proposed Plan. During the upcoming comment period, the Navy and Illinois EPA also welcome your comments on the proposed cleanup plan and on other technical approaches that were evaluated.

A Closer Look at the Proposed Cleanup Plan

Naval Station Great Lakes is conducting maintenance dredging of the harbor system (Inner Harbor and Outer Harbor). During this maintenance dredging of the harbor system, the top five feet of the sediment in the Boat Basin will also be removed. The remaining sediment in the Boat Basin will be dredged as part of this proposed/preferred alternative. The schedule for the maintenance dredging starts with the Outer Harbor in 2009 and ends with the Basin in 2014. Remedial actions in Pettibone Creek are anticipated to occur in 2009.

Component 1: Surface Water Controls

Surface water controls would consist of isolating the work areas and diverting water around these areas. Surface water controls would also include installation of screens downstream of the work areas to capture potentially contaminated sediment particles that may migrate as a result of remedial activities. A screen, vertical barrier, or other means of surface water controls would be installed at the end of the Boat Basin and beginning of the Inner Harbor to minimize the migration of contaminated sediment into the Inner Harbor.

Component 2: Excavation

Sediment with **COC** concentrations causing unacceptable risk would be excavated/dredged from the North Branch of Pettibone Creek and the Boat Basin. It is estimated that a

total of approximately 39,400 cubic yards of contaminated sediment would be excavated. A pre-design investigation will be conducted to identify the depth of excavation required in Pettibone Creek. Historical drawings will be used to identify the depth for the Boat Basin.

The excavation activities would begin at the most upstream end of the North Branch of Pettibone Creek and proceed downstream to the Boat Basin. Sediment would be excavated to the natural soil (assumed to be 2 feet for Pettibone Creek and 10 feet for the Boat Basin). During excavation, surface water would be diverted from the areas of sediment removal as described under Component 1.

The excavated sediment would be transported to a permitted off-base treatment, storage, and disposal facility as discussed under Component 4. As required, excess free water would be removed from the excavated sediment by temporarily stockpiling it and allowing it to drain in a dedicated area as discussed under Component 3.

Following excavation, the excavated areas would be sampled (confirmation/verification samples). Calculations of human health and ecological risks will be conducted if the **COC** concentrations are greater than the regulatory screening criteria. Also following excavation, the North Branch of Pettibone Creek would be backfilled with clean material and restored to pre-excavation conditions.

Component 3: On-Site Dewatering

This component would consist of dewatering the excessively wet excavated sediment by temporarily stockpiling it in a dedicated area near the Boat Basin. This area would be graded and surrounded by silt fences to allow drained free water to return to the Boat Basin while containing contaminated sediment. It is assumed that approximately half of the excavated sediment, or 19,700 cubic yards, would require dewatering prior to off-base transportation. It is also assumed that stockpile dewatering would result in a reduction of approximately one-third of the volume of sediment, which corresponds to the drainage and removal of approximately 6,600 cubic yards (1,300,000 gallons) of free water.

After the stockpiled sediment is drained, it would be transported to a permitted off-base treatment, storage, and disposal facility as discussed under Component 4.

Component 4: Off-Base Disposal

This component would consist of transporting the excavated and dewatered sediment to an off-base treatment, storage, and disposal facility that will dispose of the sediment in a permitted landfill, with pre-treatment of the high-lead-content sediment by chemical stabilization/fixation as needed. Excavated sediment would be loaded onto trucks for transportation.

Taking into consideration the volume reduction achieved through stockpile dewatering, it is assumed that a total of approximately 32,800 cubic yards of sediment would require off-base disposal. It is also assumed that approximately 10 percent of that volume of sediment, or 3,300 cubic yards, would require chemical stabilization/fixation. Because chemical stabilization/fixation typically results in an increase of approximately 10 percent in the volume of treated material, the total volume of material to be landfilled would be approximately 33,100 cubic yards.

This component would also include the manifesting of the waste materials to be transported.

Based on the information currently available, the Navy and Illinois EPA believe the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. The Navy and Illinois EPA expect the

TABLE 1 - SUMMARY OF COMPARATIVE EVALUATION OF REMEDIAL ALTERNATIVES

EVALUATION CRITERIA	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2: INSTITUTIONAL CONTROLS AND MONITORED NATURAL RECOVERY	ALTERNATIVE 3: PARTIAL EXCAVATION AND DISPOSAL OF NORTH BRANCH OF PETTIBONE CREEK SEDIMENT, EXCAVATION OF LOWER BOAT BASIN SEDIMENT, IN-SITU CAPPING OF THE UPPER BOAT BASIN, SURFACE WATER CONTROLS, INSTITUTIONAL CONTROLS, AND MONITORED NATURAL RECOVERY	ALTERNATIVE 4: PARTIAL EXCAVATION AND DISPOSAL OF NORTH BRANCH OF PETTIBONE CREEK SEDIMENT, EXCAVATION OF UPPER AND LOWER BOAT BASIN SEDIMENT, SURFACE WATER CONTROLS, ON-SITE DEWATERING, AND OFF-BASE DISPOSAL OF EXCAVATED SEDIMENT	
Overall Protection of Human Health and Environment	Not protective Potential COC migration	Protective of human health receptors Not protective of ecological receptors	More protective of human health and ecological receptors than Alternative 2 Temporary impact to benthic invertebrates	Most protective Temporary impact to benthic invertebrates	
Compliance with ARARs and TBCs: Chemical-Specific Location-Specific Action-Specific	Would not comply Would not comply Not applicable	Might eventually comply Would comply Would comply	Might eventually comply Would comply Would comply	Would comply Would comply Would comply	
Long-Term Effectiveness and Permanence	Not effective and permanent	Effective and permanent	More effective and permanent than Alternative 2	Most long-term effective and permanent	
Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment	None	Might achieve reduction of toxicity, mobility, and volume through monitored natural recovery	5,800 yd ³ permanently removed for reduction of mobility, toxicity, and volume through excavation and disposal Reduction of mobility through consolidation and in-situ capping. Might achieve reduction of toxicity, mobility, and volume through monitored natural recovery	33,100 yd ³ permanently removed for reduction of mobility, toxicity, and volume through removal and treatment	
Short-Term Effectiveness	No relevant issues to address	Would be effective Minimum potential for risk of exposure to workers No risk to surrounding community. Timeframe for monitored natural recovery to attain RAOs is unknown	Would be effective Significant potential risk of exposure to workers- No risk to surrounding community Timeframe for removal and capping is 1 year; for monitored natural recovery to attain RAOs is unknown	Would be effective Significant potential risk to workers Slight risk of impact to surrounding community Timeframe to attain RAOs is less than 1 year	
Implementability	Nothing to implement	Simple to implement.	More difficult to implement than Alternative 2	Comparable or slightly easier to implement as Alternative 3.	
Costs: Capital NPW of O&M NPW	\$0 \$0 \$0	\$25,000 \$419,000 (30 years) \$444,000 (30 years)	Rip-Rap Cap \$2,407,000 \$358,000 \$ (30 years) \$2,765,000 (30 years)	Wetland Cap \$2,294,000 \$358,000 (30 years) \$2,652,000 (30 years)	\$3,142,000 \$0 \$3,142,000
State Acceptance	Illinois EPA concurs with the selection of Alternative 4 as the Preferred Alternative				
Public Acceptance	Public acceptance of Alternative 4 as the preferred alternative will be determined following the period of public comment.				

Preferred Alternative to satisfy the following statutory requirements of CERCLA §121(b): 1) be protective of human health and the environment; 2) comply with ARARs; 3) be cost-effective; 4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and 5) satisfy the preference for treatment as a principal element.

What impacts would the cleanup have on the local community?

- Alternatives that involve the treatment and handling of contaminated sediment during construction and/or maintenance (Alternatives 2, 3, and 4) could pose a limited risk to construction workers or maintenance personnel. However, most of the excavated sediment would be non-hazardous and measures would be taken to minimize the risks associated with handling hazardous waste.
- Alternatives that involve the transportation of contaminated sediment and treatment for off-site disposal (Alternatives 3 and 4) could pose a risk to nearby communities. However, measures would be taken to minimize and control these risks.
- Alternatives that do not immediately achieve regulatory criteria (Alternatives 2 and 3) or require restrictions in future site use (Alternatives 2 and 3) include administrative action to restrict land use and periodic site re-evaluations. This may affect future use of the property.
- Alternatives that involve on-site treatment and/or site construction activities (Alternatives 3 and 4) would occupy the site. This would limit use and/or development of the site for the duration of the cleanup.
- The No Action Alternative (Alternative 1) would not prevent exposure to site contaminants and would result in unacceptable human health risks.

Why Does the Navy Recommend this Proposed Alternative?

The proposed alternative (Alternative 4) is recommended for the following reasons:

- It would meet the **RAOs** and sediment cleanup goals.
- It would protect human health and the environment; however, there would be a temporary impact to benthic invertebrates.
- It is deemed to be cost effective and represents a reasonable value for the money to be spent.

This recommended alternative can change in response to the public comments or based upon receipt of new information.

Next Steps:

By April 2009, the Navy expects to have reviewed comments and signed the **Record of Decision (ROD)** describing the chosen cleanup plan. The **ROD**, which includes a summary of responses to public comments, will then be made available to the public at Naval Station Great Lakes. The Navy will also announce its decision through the local news media.

For More Detailed Information

To help the public understand and comment on the proposal for the site, this publication summarized a number of reports and studies. The technical and public information prepared to date for the site are available at Naval Station Great Lakes, 201 Decatur Avenue, Building 1A, Environmental Department, Great Lakes, IL 60088.

Glossary of Terms

This glossary defines the terms used in this Proposed Plan. The definitions in this glossary apply specifically to this Proposed Plan and may have other meanings when used in different circumstances.

Applicable or relevant and appropriate requirements (ARARs): The federal, State, and local environmental rules, regulations, and criteria that must be met by the selected remedy under **CERCLA**.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law also known as "Superfund." This law was passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). This law created a special tax that goes into a trust fund to investigate and cleanup abandoned or uncontrolled hazardous waste sites.

Chemical of concern (COC): A substance detected at a concentration and/or in a location where it will have an adverse effect on human health and the environment.

Feasibility Study (FS): A report that presents the development, analysis, and comparison of cleanup alternatives.

Initial Assessment Study (IAS): A report that describes several sites and documents the types and locations of environmental contaminants.

Net Present Worth (NPW): A costing technique that expresses the total of initial capital expenditure and long-term operation and maintenance costs in terms of present day dollars.

Polychlorinated biphenyls (PCBs): Organic compounds with 1 to 10 chlorine atoms attached to biphenyl and a general chemical formula of $C_{12}H_{10-x}Cl_x$. **PCBs** have low water solubilities, low vapor pressures, and are very stable compounds that do not readily degrade.

Polynuclear aromatic hydrocarbons (PAHs): High molecular weight, relatively immobile, and moderately toxic solid organic chemicals that feature multiple benzenic (aromatic) rings in their chemical formula. **PAHs** are typically formed during the incomplete combustion of coal, oil, gas, garbage, or other organic substances.

Record of Decision (ROD): An official document that describes the selected Superfund remedy for a specific site. The **ROD** documents the remedy selection process and is issued by the Navy with concurrence of Illinois EPA following the public comment period.

Remedial Action Objectives (RAOs): A cleanup objective agreed upon by the Navy and Illinois EPA. One or more **RAOs** are typically formulated for each environmental site.

Remedial Investigation/Risk Assessment (RI/RA): A report that describes the site, documents the type and location of environmental contaminants, and presents the results of the risk assessment.

Semivolatile organic compounds (SVOCs): Organic compounds that do not readily volatilize at standard temperature and pressure. **SVOCs** are amenable to analysis by extraction of the sample with an organic solvent.

Volatile organic compounds (VOCs): Organic compounds that have high enough vapor pressures under normal conditions to significantly vaporize and enter the atmosphere. **VOCs** can become soil and groundwater contaminants or air pollutants.

What's a Formal Comment?



Formal comments are used to improve the final decision. During the 30-day formal comment period, the Navy will accept formal written comments and hold a meeting, if requested, to accept formal verbal and written comments. To make a formal comment, you need to present your views during the public meeting or submit a written comment during the comment period.

A request for an extension to the public comment period (minimum of 30 days) must be made in writing. A request for a public meeting to present your formal comments must also be made in writing. These requests must be postmarked no later than January 31, 2009. Written comments and requests for a public meeting or an extension of the public comment period should be sent to:

Dept. of Navy
Naval Station Great Lakes
NAVFAC MW Code EV
Attn: Howard Hickey
201 Decatur Avenue
Building 1A
Great Lakes, IL 60088
Email: howard.hickey@navy.mil



Federal regulations require the Navy to distinguish between "formal" and "informal" comments. Although the Navy uses public comments throughout site investigation and cleanup activities, the Navy is only required to respond in writing to formal comments on the Proposed Plan. If a public meeting is held, there will be no Navy verbal responses to your comments during the formal meeting portion of the meeting. After the formal portion of the public meeting is closed, the Navy may respond to informal questions.

The Navy will review the transcript of formal comments received at the meeting and written comments received during the formal comment period before making a final decision. They will then prepare a written response to formal comments. The transcript of formal comments and the Navy's written responses will then be issued in a document called a Responsiveness Summary when the Navy releases the final **ROD**.

Use This Space to Write Your Comments

The Navy wants your written comments on the options under consideration for dealing with Site 17, Pettibone Creek and the Boat Basin. You can use the form below to send written comments or to request a formal public meeting be held. If you have questions about how to comment, please call Howard Hickey at (847) 688-2600, Extension 243. This form is provided for your convenience. Please mail this form or additional sheets of written comments, postmarked no later than January 31, 2009, to the address below. Comments may also be e-mailed to the address shown below.

Dept. of Navy
Naval Station Great Lakes
NAVFAC MW Code EV
Attn: Howard Hickey
201 Decatur Avenue
Building 1A
Great Lakes, IL 60088
Email: howard.hickey@navy.mil

(Attach sheets as needed)

Comment submitted by: _____