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PROPOSED PLAN SITE 19 SMALL ARMS RANGE 910 NSTC GREAT LAKES IL  
4/1/2013  
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## Proposed Plan for Site 19 Former Small Arms Range 910 Naval Station Great Lakes Installation Restoration Program Great Lakes, Illinois

### About This Document

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)**. Its primary intent is to help the public understand and provide input on the proposed remedial alternatives to address impacted surface and subsurface soil at Site 19 – Former Small Arms Range 910, which was located in Building 910. The Department of the Navy, with the concurrence of Illinois Environmental Protection Agency (Illinois EPA), developed this plan to summarize the proposed remedy for this site. The Navy, as the lead agency, is accepting formal public comments on this Proposed Plan from June 21 to July 22, 2013 and, with input from Illinois EPA, will make a final remedy selection after reviewing and addressing the public comments received. Therefore, the public is encouraged to review and comment on the information presented in this Proposed Plan.

#### The Proposed Plan

To address contaminated surface and subsurface soil at Site 19, the Navy, with the concurrence of Illinois EPA, proposes Alternative 2 (**land use controls [LUCs]** and **Five Year Reviews**) as the recommended remedial action for the site. **LUCs** will be incorporated into the Base Master Plan to make sure restrictions are applied and enforced at the site.

Based on other **LUCs** implemented at Naval Station Great Lakes and site conditions, the **LUCs** at Site 19 would include property restrictions. While the contaminant concentrations in the soil at Site 19 are acceptable for commercial/industrial use and are safe for worker exposure, the concentrations do not meet Illinois' more restrictive standards for residential properties. Therefore, the area in question would be restricted to industrial/commercial (nonsensitive) use. In addition, Illinois EPA and the Navy have signed a **LUC Memorandum of Agreement (MOA)** that includes a Naval Station Policy Letter restricting use of groundwater on the Naval Station Great Lakes property.

**CERCLA** requires periodic re-evaluation when contaminants remain on site. Therefore, Five Year Reviews will be conducted to evaluate the protectiveness of the **LUCs** in order to determine if the remedy is or will remain protective of human health. Evaluation and determination of protectiveness should be based on and sufficiently supported by data and observations collected during the review process.

**LUCs** alone would not effectively reduce concentrations of **chemicals of concern (COCs)**; however, they would be an effective tool to prevent future exposure to the **COCs**, especially since property use is not expected to change in the foreseeable future.

#### What do you think?

You don't have to be a technical expert to comment. If you have a concern, question, 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 for a 30-day period from June 21 to July 22, 2013. To comment formally, send written comments post-marked no later than July 22, 2013 to:

Department of the Navy  
Naval Station Great Lakes  
NAVFAC Midwest  
Attn: Terese Van Donsel  
201 Decatur Avenue  
Building 1A, Code EV  
Great Lakes, IL 60088

Or e-mail comments by the end of the comment period to [terese.vandonsel@navy.mil](mailto:terese.vandonsel@navy.mil).

The Navy will provide opportunity for a public meeting during the public comment period if significant interest is expressed and a formal written request is made. The public will be notified of the date, time, and location. At the meeting, the proposed action will be discussed and questions about the action will be received. Written responses to the formal comments and questions will be prepared and included in the final **Record of Decision (ROD)**.

*This document summarizes the Proposed Plan for Site 19 at Naval Station Great Lakes. For detailed information on the investigation and Focused Feasibility Study of Site 19, consult the documents available for review at Naval Station Great Lakes. Call the Naval Station Great Lakes Environmental Division at (847) 688-2600, Extension 136 to review the information.*

*Bold terms throughout this Proposed Plan are explained in the Glossary of Terms presented on page 10.*

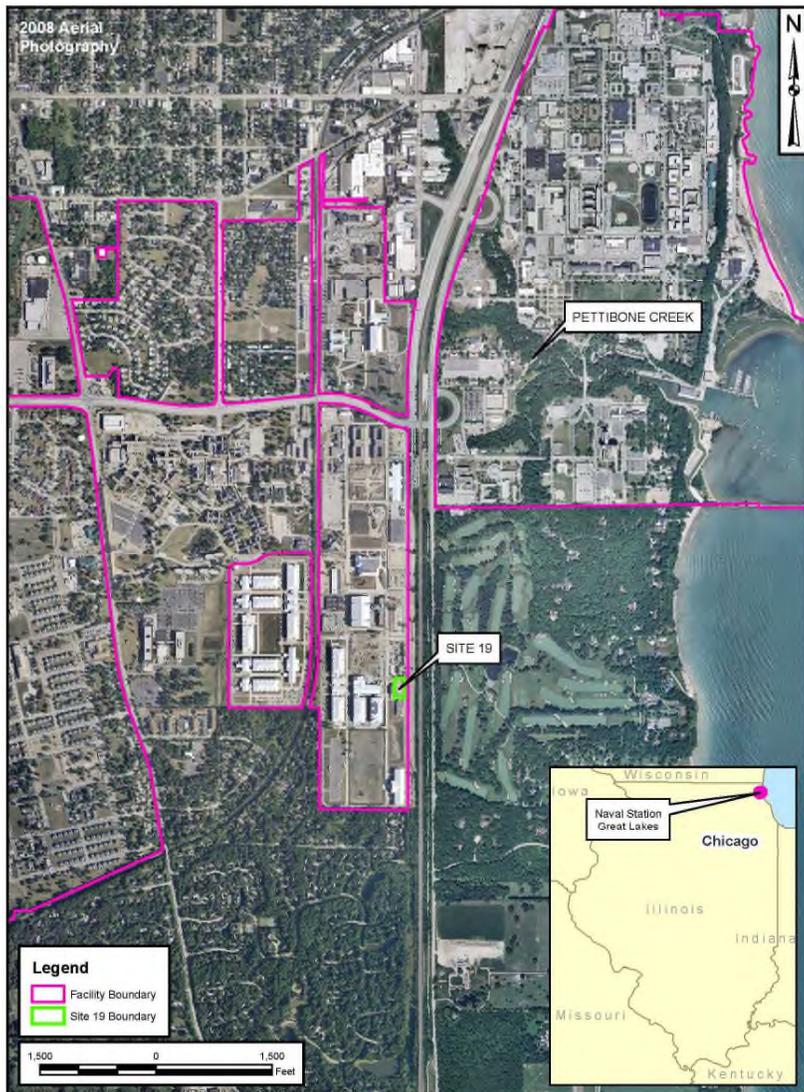


Figure 1: General Location

This Proposed Plan highlights key information from the **Remedial Investigation/Risk Assessment (RI/RA)** and **Focused Feasibility Study (FFS)** reports. More complete information can be found in the **Administrative Record**, available at Naval Station Great Lakes, 201 Decatur Avenue, Building 1A, Environmental Division, Great Lakes, Illinois 60088 or online at <http://go.usa.gov/RsJ>. From this website, just click on the “Administrative Record” tab, enter the Administrative Record, and search for “SITE 00019.”

### 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 (see Figure 1). Naval Station Great Lakes is used to support naval training and consists of the Recruit Training Command, Training Support Center, and Naval Facilities Engineering Command Midwest. In 1986, an **Initial Assessment Study** 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 warranted further investigation to assess potential long-term impacts. Although it was not one of the seven sites identified, Site 19 was named as a waste generation operation because of the Recruit Training Center Rifle Range in Building 910. In addition, investigations conducted prior to the demolition of Building 910 identified soil contamination that warranted further investigation to assess potential long-term impacts resulting from historical site activities.

### Summary of Site History

- > 1942 to 1997 — Site 19, Building 910, was an indoor rifle range.
- > 1998 - Limited sampling occurred. Two soil samples were collected adjacent to the building and analyzed for **Toxicity Characteristic Leaching Procedure (TCLP)** lead. Lead was detected and the concentration exceeded the **Resource Conservation and Recovery Act (RCRA)** toxicity characteristic criteria.
- > 2000 — Building 910 was demolished
- > 2001 — Soil samples were collected on Lake County property located east of Building 910, two of which were near Site 19. A sample collected slightly northeast of Site 19 had a lead detection below residential soil criteria and also had several **polynuclear aromatic hydrocarbons (PAHs)** detections that exceeded residential and commercial criteria based on Illinois EPA **Tiered Approach to Corrective Action Objectives (TACO)** limits. A sample collected southeast of Site 19 had a lead detection below residential soil criteria and no **TACO** exceedances for **PAHs**.
- > 2008 — Surface and subsurface soil and groundwater sampling was conducted. There were few **volatile organic compound (VOC)** detections and none exceeded screening criteria. **PAHs** were detected in soil and groundwater but were still below screening criteria and Illinois EPA **TACO** background criteria for the area and the detections were widespread with no discernible source. Inorganics, particularly arsenic and manganese, exceeded the screening criteria in surface and subsurface soil.
- > 2010 — The **RI/RA** was published recommending no further investigation of Site 19.
- > 2012 — The **FFS** was prepared to evaluate remedial alternatives for the sites since contaminants remain on site at concentrations above what is acceptable for unrestricted use.

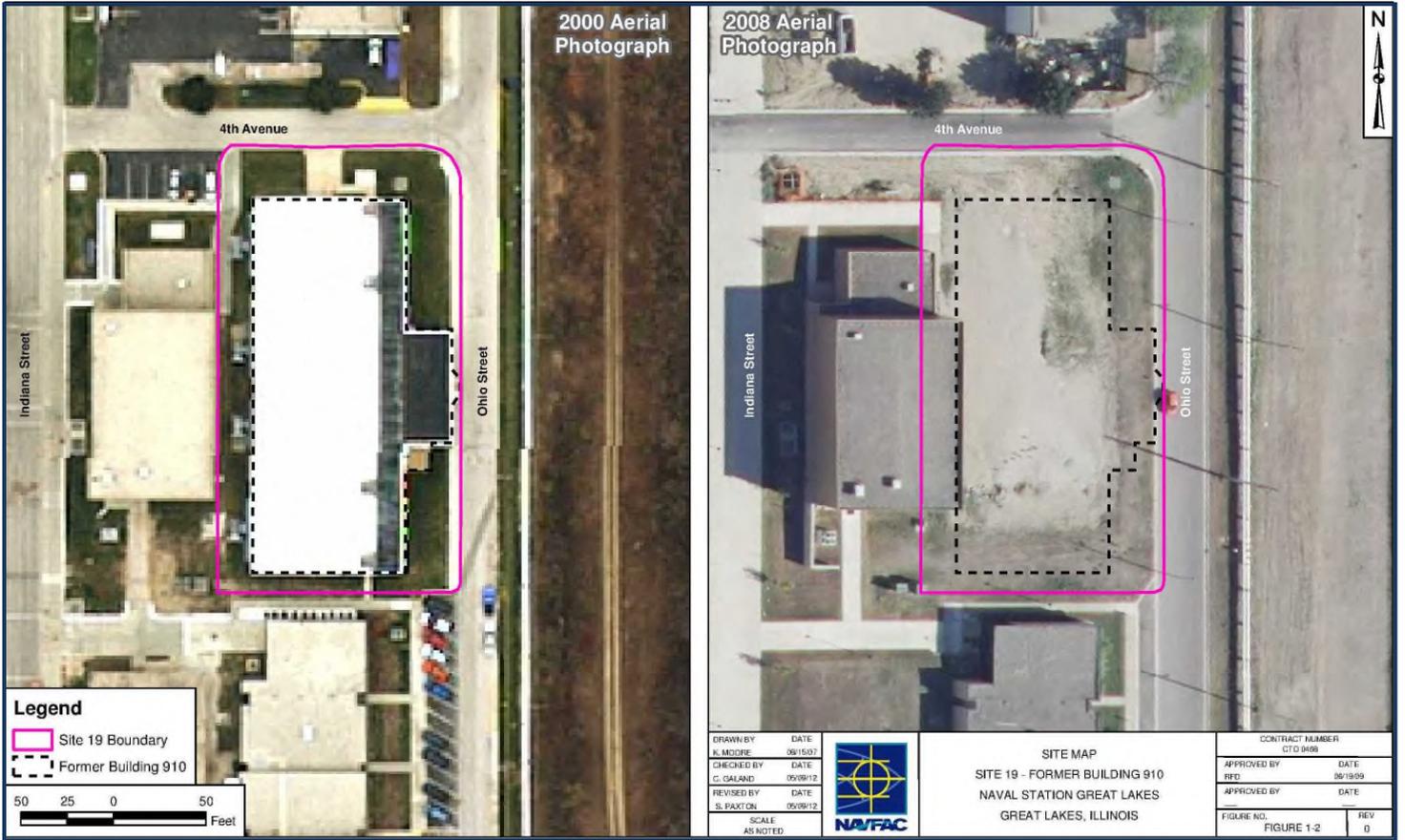


Figure 2: Site Plan



Figure 3: Current Site Conditions

## Site Description

Site 19 was an indoor rifle range operated between 1942 and 1997; the building was demolished in 2000 (see Figure 2). It is estimated that, during its 55 years of operation, 19 million pounds of spent ammunition were generated by this facility, providing the potential for lead to have impacted site soil and groundwater. Chemicals used at the rifle range include CLP brand cleaner and standard issue bore cleaner #6850-00-224-6663. These chemicals are primarily composed of petroleum products and distillates (i.e., **volatile organic compounds [VOCs]** and **PAHs**). The use of these chemicals provides the potential for **VOCs** and **PAHs** to have impacted site soil and groundwater.

Site 19 covers approximately 0.67 acre and is an open, grassy area (see Figure 3).

Soil and groundwater sampling have been conducted during several investigations at the site over the past 10 years. The investigations have included collection of soil samples and installation of temporary monitoring wells for monitoring groundwater. While lead was retained as a **contaminant of potential concern (COPC)** during these investigations, detections remained below soil screening criteria.

Naval Station Great Lakes is an active Navy facility and is expected to remain active for the foreseeable future. In accordance with Naval Station Great Lakes Instruction

11130.1 dated September 29, 2003, use of groundwater and surface water runoff within all geographical areas of the base, for any purpose, is strictly prohibited without prior written approval. Groundwater underlying Naval Station Great Lakes is not used for drinking water and is not expected to be used in the future.

## Nature and Extent of Contamination

For the 2008 **R/RA**, no contaminants in soil were eliminated as **COCs** on the basis of comparison to background concentrations. However, the **PAHs** selected as **COCs** in exposed surface soil had maximum detected concentrations that did not exceed Illinois EPA **Tiered Approach to Corrective Action Objectives (TACO)** surface soil background criteria, as shown in Table 1. **PAHs** did not appear to be confined to any particular area of the site. Based on this information and the Illinois EPA determination of urban **PAH** background concentrations, it is possible that these **PAHs** could be attributed to background conditions, and inclusion of these chemicals as **COCs** may result in an overestimation of total risks for this site. Background chemical levels do not signify a release of a hazardous substance according to the definition of a release as stated in the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**, and it is Navy policy to not clean up contaminants below background levels.

The inorganics arsenic and manganese were also retained as **COCs**. The average arsenic concentration was

## How are Human Health Risks Evaluated?

A **human health risk assessment (HHRA)** estimates “baseline risk,” which is an estimate of the likelihood of health problems occurring if no cleanup action occurs at a site. To estimate baseline risk at a site, the Navy undertakes a four-step process in accordance with EPA guidance:

Step 1: Analyze Contamination

Step 2: Estimate Exposure

Step 3: Assess Potential Health Dangers

Step 4: Characterize Site Risk

In Step 1, the Navy looks at the concentrations of chemicals found at a site as well as past scientific studies on the effects these chemicals have had on people (or animals when human studies are unavailable). Comparisons between site-specific concentrations and concentrations reported in past studies help determine which chemicals are most likely to pose the greatest threat to human health.

In Step 2, the Navy considers the different ways that people might be exposed to the chemicals identified in Step 1, the concentrations to which people might be exposed, and the potential frequency and duration of exposure. Using this information, the Navy calculates a “reasonable maximum exposure” (RME) and the central tendency exposure (CTE) scenarios, which represents the highest level and average level of human exposure, respectively, that could reasonably be expected to occur.

In Step 3, the Navy uses the information from Step 2 combined with information on the toxicity of each chemical to assess potential health risks. The likelihood of any kind of cancer resulting from exposure to a site is generally expressed as an upper bound probability, for example, a “1 in 10,000 chance.” In other words, for every 10,000 people that could be exposed, one extra cancer may occur as a result of exposure to site chemicals. An extra cancer case means that one more person could get cancer than would normally be expected from other causes. For non-cancer health effects, the Navy calculated an **HI**, where a “threshold level” (measured usually as a hazard index of less than 1) exists, below which non-cancer health effects are no longer predicted.

In Step 4, the Navy determines whether site risks are great enough to cause health problems for people at or near the site. The results of the three previous steps are combined, evaluated, and summarized. The Navy adds the potential risks from the individual chemicals to determine the total risk resulting from the site.

**TABLE 1**  
**MAXIMUM AND AVERAGE SOIL CONCENTRATIONS FOR INORGANICS AND PAHS COMPARED TO**  
**ILLINOIS EPA TACO BACKGROUND CRITERIA**

COCs	Surface Soil Average/ Maximum	Subsurface Soil Average/ Maximum	Illinois EPA Background Soil	Illinois EPA TACO Residential Direct Contact Criteria
<b>Inorganics (mg/kg)</b>				
Arsenic	11.5/32.2	9.77/25.1	13	---
Manganese	889/1820	736/1600	636	1600
<b>PAHs (µg/kg)</b>				
Benzo(a)anthracene	444/1700	17/20	1800 <sup>(1)</sup>	900
Benzo(a)pyrene	314/1200	14.5/22	2100 <sup>(1)</sup>	90
Benzo(b)fluoranthene	429/1700	16/18	2100 <sup>(1)</sup>	900
Chrysene	372/1900	10.6/18	2700 <sup>(1)</sup>	88000
Dibenzo(a,h)anthracene	68.3/160	N/A	420 <sup>(1)</sup>	90

(1) Applies to surface soil only

mg/kg – milligram per kilogram

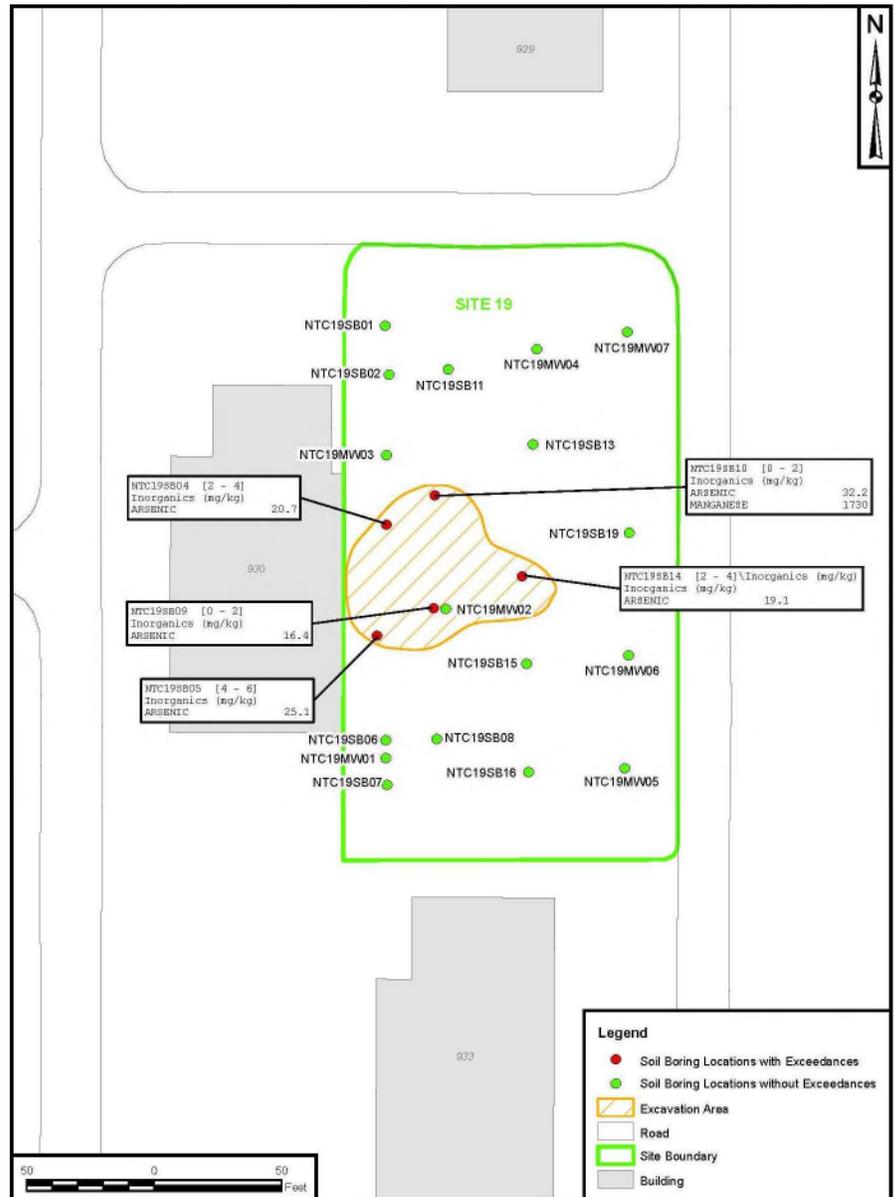
µg/kg – microgram per kilogram

below the Illinois EPA background level of 13 milligram per kilogram (mg/kg) for both surface and subsurface soil, as shown in Table 1. Average concentrations of manganese in both surface and subsurface soil exceeded the Illinois EPA background level (see Table 1). Figure 4 illustrates the horizontal extent of arsenic and manganese contamination and exceedances with respective depths.

### Summary of Site Risks

The investigation at this site included evaluating potential **human health risk** from inorganics in surface and subsurface soil. Under current land use scenarios, the potential exposed population included maintenance workers, occupational workers, construction workers, and adolescent trespassers. Future use scenarios considered the same population but also considered site residents under the unlikely premise that the site would be developed for residential use.

Under current and future use scenarios, risks to **ecological receptors** were not evaluated because the site is an open grassy lot surrounded by a light industrial area. Additionally, because contaminant concentrations are low and there is a lack of suitable ecological habitat, the overall **ecological risk** from site contaminants is low.



**Figure 4 (right): Approximate Limits of Excavation**

Non-carcinogenic risks (represented by **Hazard Indices [HIs]**) for surface and subsurface soil were less than United States Environmental Protection Agency (U.S. EPA) and Illinois EPA benchmarks for the potential receptors evaluated at the sites. A **HI** greater than 1 indicates non-carcinogenic risk. **HIs** were less than or equal to 1.0 for trespassers, maintenance workers, occupational workers, construction workers, and future adult residents in the study area. For this reason, adverse non-carcinogenic health effects are not anticipated for these receptors at Site 19.

For future child residents, ingestion of soil and groundwater containing arsenic presents a primary pathway of concern for non-carcinogenic risk. The **HI** was greater than 1 for future child residents, indicating that adverse non-carcinogenic health effects are possible under the conditions established in the exposure assessment for this receptor.

Carcinogenic risk estimates for construction workers, maintenance workers, occupational workers, trespassers, future child residents, and future adults residents and the cancer risk estimate for total future residential risk (child + adult) for Site 19 do not exceed the target USEPA cancer risk range ( $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ). However, cancer risk estimates for maintenance workers, occupational workers, future child residents, and future adult residents and the cancer risk estimate for total future residents (child + adult) do exceed the Illinois EPA risk goal ( $1 \times 10^{-6}$ ).

The total (soil + groundwater) site cancer risk estimates for total future residents (adult + child), exceed the USEPA cancer risk range ( $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ) and Illinois EPA risk goal ( $1 \times 10^{-6}$ ). The major contributors to cancer risk at Site 19 are arsenic and **PAHs** (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, and dibenzo(a,h)anthracene). However **PAHs** in the site soil do not exceed the Illinois EPA **TACO** background criteria. Concentrations of **PAHs** were higher in the surface soil than the subsurface soil. Inclusion of **PAHs** exposure in the carcinogenic risk estimate results in an overestimation of total risk.

## Why is remedial action needed?

The Navy's environmental studies of Site 19 resulted in the following conclusion:

- As a result of past activities, several chemicals are present in surface and subsurface soil, at the site that may result in unacceptable human health risk.
- The concentrations of contamination found in the soil at Site 19 are acceptable for commercial/industrial use and are safe for worker exposure. Under the current land use within Naval Station Great Lakes, no action would be necessary to protect those who work at or near the property. However, because concentrations of contamination in soil do not currently meet Illinois' standards for residential properties, the Navy is considering remedial alternatives to address this hypothetical future risk.

**Preliminary Remediation Goals (PRGs)** were developed to identify the concentrations of chemicals that, when exceeded, cause potentially unacceptable risk to human health and the environment. This Proposed Plan recom-

mends no further action in zones or media with concentrations below the established **PRGs**. Recommended actions for zones exceeding **PRGs** were either removal of the soil or **LUCs** (engineering controls, institutional controls, and inspections) and monitoring.

For an alternative in which concentrations of **COCs** greater than residential **PRGs** remain, **LUC** implementation establishes institutional controls to restrict unauthorized disturbance of soil and prevent residential development. **CERCLA** risk-based engineering controls, including regular inspections and maintenance, are required when concentrations of **COCs** greater than the residential **PRGs** remain.

It is proposed by the Navy and Illinois EPA that Alternative 2, identified in this Proposed Plan, be implemented to protect public health and welfare from actual or threatened releases of hazardous substances, and to meet the applicable or relevant and appropriate requirements (ARARs) necessary to achieve that goal.

## What is the remedial action objective?

Remedial Action Objectives (RAOs) provide a general description of what the cleanup will accomplish. RAOs are medium-specific goals that define the objectives of conducting cleanups or implementing measures to protect receptors at risk from contaminated media. Site-specific RAOs specify **COCs**, media of interest, exposure pathways, and cleanup goals or acceptable contaminant concentrations. The RAO for this **FFS** was developed based on current land use as industrial/commercial property and future potential land use as residential property, with the goal of protecting the public from potential current and future health risks.

The following RAO was developed for Site 19:

RAO1: Prevent unacceptable human health risk to hypothetical residents associated with exposure to soil containing arsenic and manganese at concentrations greater than **PRGs**.

## Site 19 Remedial Action Alternatives

The **FFS** report presents the options that the Navy and Illinois EPA developed for remedial action at the site. Based on the evaluation of various technologies documented in the **FFS**, the following three remedial alternatives were developed:

Alternative 1: No Action

This alternative is a "walk-away" alternative that maintains the site as is and is required for consideration under **CERCLA** to establish a basis for comparison with other alternatives. No restriction would be imposed to prevent access to the site and the alternative does not address the site contamination. Under this alternative, the property would be released for unrestricted use. In addition, there would be no Five-Year Review required to assess contamination at the site over time. This alternative could only be chosen if it is determined that taking no action would be protective of human health and the environment.

## Alternative 2: LUCs

While the contaminants in the soil at Site 19 are at concentrations that are acceptable for commercial/industrial use and are safe for worker exposure, the concentrations do not meet Illinois' more restrictive standards for residential properties. Therefore, **LUCs** would be established at the site to make sure the property is not developed for residential or non-residential special use (such as for a park, day care, or school). Five-Year Reviews would be required since concentrations of contaminants will remain in soil above those acceptable for unrestricted use at the site.

A draft **LUC Remedial Design (RD)** would be developed after the signing of the **ROD** to document the **LUC** requirements. Five-Year Reviews to evaluate the continued protectiveness of the remedy would be required for the alternative since contamination would remain in excess of concentrations that allow for unrestricted use and unlimited exposure.

## Alternative 3: Excavation and Off-Site Disposal

Alternative 3 would consist of excavating approximately 795 tons of soil at the area shown on Figure 4, as necessary, to meet the **TACO** Tier 1 Remedial Objectives for arsenic and manganese. Excavated material would be transported off-base to a non-hazardous landfill for disposal. Excavation, disposal, and restoration is expected to take approximately 1 month. No Five-Year Review would be required for this alternative since the contaminated soil would be removed from the site. After completion of remedial action, the property could be developed with no restrictions on land use.

## Evaluation Criteria for Superfund Remedial Alternatives

### Threshold Criteria

The primary threshold criterion in the selection of an alternative is the overall protection of human health and the environment. The Navy and Illinois EPA will not choose a plan that does not meet this basic criterion. The second threshold criterion that must be met is compliance with ARARs. The alternative must meet federal and state environmental and facility siting statutes, regulations, and requirements in order to be selected.

These two criteria must be satisfied for an alternative to be eligible for selection.

### Primary Balancing Criteria

The five balancing criteria considered in the alternative selection are:

- **Long-Term Effectiveness and Permanence:** The effects of the cleanup plan should be permanent or prevent future risk to human health and the environment.
- **Reduction of Toxicity, Mobility or Volume through Treatment:** The alternative should reduce the harmful effects of the contaminants, the spread of contaminants, or the amount of contaminated material.
- **Short-Term Effectiveness:** An alternative that reduces site risk sooner rather than later and one that causes

fewer short-term hazards to workers, residents, or the environment is preferred.

- **Implementability:** This criterion considers whether the alternative is technically feasible and if the right goods and services (e.g., treatment machinery) are available for the plan.
- **Cost:** Navy and Illinois EPA must find a plan that gives necessary protection for a reasonable cost over the life of the alternative.

### Modifying Criteria

The final two criteria are the modifiers. They are state and community acceptance. The state considers the objections, suggestions, and modifications offered by the community during the public comment period. If the state agrees with the proposal once the criteria are considered, the alternative is presented in the **ROD**.

### Use of ARARs and To Be Considered (TBC) Guidelines in the Evaluation Process

Applicable requirements are cleanup standards, standards of control, or other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a **CERCLA** site.

If a requirement is not applicable, it still may be relevant and appropriate. Relevant and appropriate requirements mean those cleanup standards that address problems or situations sufficiently similar to those encountered at the **CERCLA** site so that their use is suited to the site. A requirement that is relevant and appropriate may not meet one or more jurisdictional prerequisites for applicability but still make sense, given the circumstances of the site and the release.

When a requirement is deemed relevant and appropriate, it must be complied with as if it were applicable. However, there are significant differences between the identification and analysis of the two types of requirements. Applicability is a legal and jurisdictional determination, while the determination of relevant and appropriate relies on professional judgment, considering environmental and technical factors at the site. Also, there is more flexibility when determining relevant and appropriate. A requirement may be relevant in that it covers situations similar to those at the site, but may not be appropriate; therefore, may not be well suited to the site. In some situations, only portions of a requirement or regulation may be judged relevant and appropriate; however, if a requirement is applicable, all substantive parts must be followed.

Potential chemical-, location-, and action-specific ARARs that apply to the sites are presented in Section 2.0 of the **FFS** Report. Each alternative was evaluated to determine its compliance with ARARs. TBC criteria are non-enforceable guidelines or criteria that may be useful for developing a remedial action or that are necessary for determining what is protective to human health and/or the environment.

TABLE 2

## SUMMARY OF COMPARATIVE EVALUATION OF REMEDIAL ALTERNATIVES

EVALUATION CRITERION	ALTERNATIVE 1: NO ACTION	ALTERNATIVE 2: LUCs	ALTERNATIVE 3: EXCAVATION AND OFF-BASE DISPOSAL
Overall Protection of Human Health and Environment	Not protective. The potential for exposure of human receptors to contaminated soil would remain unchanged.	Protective of human health by minimizing exposure to contaminated soil.	Protective of human health as contaminants would be permanently removed from the site.
Compliance with ARARs & TBCs:			
Chemical-Specific	*Would not comply	*Would comply via control of exposure pathways.	*Would comply
Location-Specific	*Not applicable	*Would comply	*Would comply
Action-Specific	*Not applicable	*Not Applicable	*Would comply
Long-Term Effectiveness and Permanence	Neither effective nor permanent.	Provides long-term effectiveness and permanence.	Provides long-term effectiveness and permanence.
Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment	None.	None.	None.
Short-Term Effectiveness	Would not result in risks to on-site workers or result in short-term adverse impact to the local community and the environment. Would not achieve <b>RAOs</b> or <b>PRGs</b> .	Would not result in risks to on-site workers or result in short-term adverse impact to the local community and the environment. Would achieve <b>RAOs</b> and <b>PRGs</b> via control of exposure pathways.	Would result in minimal risks to on-site workers or in short-term adverse impacts to local community and the environment.; however, this potential for exposure would be minimized by the implementation of engineering controls and compliance with site-specific health and safety procedures.  Would achieve <b>RAOs</b> and <b>PRGs</b> by removal of the contaminated soil.  Life cycle impacts resulting from excavation activities include greenhouse gas and criteria pollutant emissions, water and energy consumption. This alternative can be optimized to reduce greenhouse gas and criteria pollutant emissions by using biodiesel fuel.
Implementability	Readily implementable.	Readily implementable.	Readily implementable.
Costs:	\$0	Capital Cost: \$23,000 Annual Cost \$3,000 5 Year Cost: \$25,000 30-Year NPW: \$190,000	\$385,000
State Acceptance	Illinois EPA has indicated that Alternative 2 would be acceptable.		
Community Acceptance	Assessment will be performed after comments on the Proposed Plan are received from the public.		

ARAR - Applicable or Relevant and Appropriate Requirement

LUC - Land use control

PRG - Preliminary Remediation Goal

RAO - Remedial Action Objective

TBC - To Be Considered

NPW - Net Present Worth

The Illinois EPA **TACO** Tier 1 Soil Remediation Objectives were retained as chemical TBC guidance. The Tier 1 **TACO** for residential and industrial/commercial properties does not regulate activities at a site or mandate fixed cleanup standards, rather, **TACO** provides methodologies for meeting the requirements of programs to which it is applied. **TACO** language is permissive and is not a requirement. Therefore, **TACO** is not enforceable by its own terms, but relies upon the language of the governing program for its enforceability. Because **TACO** is not enforceable unto itself, **TACO** cannot be an ARAR as defined in the **NCP** and must be treated as TBC guidance.

Based on the evaluation of contaminant concentrations in Site 19 soil, it was concluded that concentrations of **PAHs** are acceptable based on a comparison with the most conservative **TACO** Tier 1 criteria and the **TACO** Appendix A Table H background values identified for surface soil. Therefore, no remedial actions are proposed to address **PAHs** in Site 19 soil.

The **Illinois Coastal Management Program (ICMP)** was retained as a location-specific TBC. In January 2012, National Oceanic and Atmospheric Administration approved the **ICMP**, which was prepared according to the federal Coastal Zone Management Act.

## Analysis of Alternatives

In accordance with **CERCLA**, a detailed analysis of the alternatives must be conducted with respect to the nine **CERCLA** evaluation criteria. These include the two threshold, five balancing, and two modifying criteria described above. An analysis of these criteria was performed for each remedial alternative, and summary comparisons of these analyses are presented in Table 2. Consult the Site 19 **FFS** Report 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 remedial action.

Alternative 1 - The No Action alternative would not be effective in reducing risks or meeting the RAO and **PRGs** because no exposure control or treatment would be performed. Because no monitoring or maintenance would be performed, the No Action alternative would not be effective in evaluating the potential migration of **COCs**, or the potential reduction of **COC** concentrations.

Alternative 2 - Based on other **LUCs** implemented at Naval Station Great Lakes and site conditions, the **LUCs** would be limited to property use restrictions allowing only industrial/commercial (nonsensitive) use. The Illinois EPA and the Navy have signed a **LUC MOA** that includes a Naval Station Policy Letter restricting use of groundwater on the Naval Station Great Lakes property.

Alternative 3 - The only technology considered for removal is mechanical excavation. Mechanical excavation of the impacted soil would be performed using excavators. After excavation is completed, the location would be filled and graded with clean fill material. Excavated material would be transported offsite for disposal in a non-hazardous landfill.

Mechanical excavation would not reduce concentrations of **COCs** in the impacted soil, but it would be an effective means for addressing soil with **COC** concentrations greater than **PRGs** from the site in order to open the property to unrestricted use.

## A CLOSER LOOK AT THE PROPOSED REMEDIAL ACTION

Alternative 2, **LUCs**, would be established at the site to make sure the property is not developed for residential or non-residential special use (such as for a park, day care, or school) and would be incorporated into the Base Master Plan. Five-Year Reviews would be required since concentrations of contaminants will remain in soil above concentrations acceptable for unrestricted use at the site.

Alternative 2 would provide protection to human health by prohibiting residential exposure to contaminated soil.

Although no action would be taken to reduce **COC** concentrations, Alternative 2 would comply with chemical-specific ARARs and TBCs by restricting access to the site and controlling exposure to contaminant concentrations in excess of those acceptable for residential use. In addition, this alternative would require that a site review be conducted every 5 years to assess the protectiveness and effectiveness of the controls that would be placed on the property. No location-specific ARARs have been identified for the property. No action-specific ARARs are associated with this alternative.

Alternative 2 would be an effective means of minimizing exposure to contaminants in site soil over the long term. The permanence of Alternative 2 would depend on the maintenance of the controls and verification that the land use is being properly controlled and maintained.

While Alternative 2 would not reduce the toxicity, mobility, or volume of **COCs** through treatment because no treatment would occur, neither would it pose risk to on-site workers or result in short-term adverse impact to the local community and the environment.

Alternative 2 would not achieve the **PRGs**, but would achieve the RAO by restricting exposure to soil at the site. Alternative 2 would be easily implemented since groundwater **LUCs** are already in place at Naval Station Great Lakes and only property use restrictions are necessary.

Based on information currently available, the lead agency believes 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 expects the 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 possible; and 5) satisfy the preference for treatment as a principal element.

## WHY DOES THE NAVY RECOMMEND THIS PROPOSED ALTERNATIVE?

The proposed alternative (Alternative 2) is recommended

because it would meet the RAO for the following reasons:

- This alternative would effectively prevent exposure to surface and subsurface soil contamination through **LUCs** until concentrations have naturally decreased to less than the USEPA and Illinois EPA criteria.
- It would protect human health and the environment.
- **LUCs** at the sites are in accordance with the Naval Station Great Lakes Base Master Plan and are not overly burdensome.
- Five-Year Reviews would be conducted to make sure the **LUCs** are in place and maintained for continued protection of human health and the environment.
- It is deemed to be cost effective and represents a reasonable value for the money to be spent.
- Land use is not expected to change in the foreseeable future.

This recommended alternative can change in response to public comments or based on receipt of new information. The Illinois EPA has indicated that Alternative 2 would be acceptable.

## Next Steps:

The Navy will receive comments during the 30-day public comment period. A public meeting will be conducted if there is significant public interest. In response to public comments or upon receipt of new information, the preferred alternative for the site may change. By September 2013, the Navy expects to have reviewed comments and signed the **ROD** describing the chosen remedial action. The **ROD**, which includes a summary of responses to public comments, will then be made available to the public at Naval Station Great Lakes, 201 Decatur Avenue, Building 1A, Environmental Division, Great Lakes, IL 60088. 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 this site, this publication summarized a number of reports and studies. The technical and public information prepared to date for the site is available online at <http://go.usa.gov/RsJ>. From this website, just click on the "Administrative Record" tab, enter the Administrative Record, and search for "SITE 00019."

If you do not have a computer or internet access, hard copies of the Administrative Record can be viewed at Naval Station Great Lakes as noted above. Please contact Ms. Van Donsel at (847) 688-2600 x136 to arrange a time and location for viewing the information.

## 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.

**Administrative Record:** The complete body of documents pertaining to the investigation and restoration of an

environmental site. This body of documents is kept at a location where it can be accessed by the general public.

**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.

**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.

**Ecological receptor:** A plant or animal that could be exposed to a chemical in the environment by direct contact or through the food chain.

**Ecological Risk:** Defined as a process that evaluates the likelihood that adverse ecological effects are occurring or may occur as a result of exposure to one or more stressors.

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

**Hazard Index (HI):** The ratio of the daily intake of chemicals from onsite exposure divided by the reference dose for those chemicals. The reference dose represents the daily intake of a chemical that is not expected to cause adverse health effects.

**Human Health Baseline Risk Assessment:** A baseline risk assessment is an assessment conducted before cleanup activities begin at a site to identify and evaluate the threat to human health and the environment. After remediation has been completed, the information obtained during a baseline risk assessment can be used to determine whether the cleanup levels were reached.

**Illinois Coastal Management Program (ICMP):** Illinois' regulation to meet the requirements of National Oceanic and Atmospheric Administration and the federal Coastal Zone Management Act to preserve, protect, restore, and enhance coastal resources. The **ICMP** identifies a framework of existing programs, laws, and policies that bring the state agencies into a comprehensive network.

**Initial Assessment Study:** An assessment to determine if further environmental analysis is needed.

**Land use controls (LUCs):** Engineered and non-engineered measures formulated and enforced to regulate current and future land use options. Engineered measures include fencing and posting. Non-engineered measures typically consist of administrative deed restrictions that prohibit residential development and/or construction restrictions.

**Memorandum of Agreement (MOA):** An agreement between Illinois EPA and Naval Station Great Lakes, on behalf of the Department of the Navy, to implement base-wide, certain periodic site inspections, condition certifications, and agency notification procedures to make sure the maintenance by Naval Station Great Lakes personnel of site-specific **LUCs** deemed necessary for present or future protection of human health and the environment.

**National Contingency Plan (NCP):** The federal government's blueprint for responding to both oil spills and hazardous substance releases. The National Contingency Plan is the result of our country's efforts to develop a national response capability and promote overall coordination among the hierarchy of responders and contingency plans.

**Net Present Worth (NPW):** A present-worth analysis is used to evaluate costs that occur over different time periods by discounting future costs to a common base year. It represents the amount of money that, if invested in the base year and dispersed as needed, would be sufficient to cover the costs associated with the remedial action over its planned life. NPW considers both capital (construction) costs and costs for annual operation and maintenance.

**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.

**Preliminary Remediation Goals (PRGs):** Chemical-specific goals for site contaminants that when achieved will result in site concentrations that pose acceptable risk for the targeted receptor.

**Resource Conservation and Recovery Act (RCRA):** Enacted in 1976, is the principal Federal law in the United States governing the disposal of solid waste and hazardous waste.

**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.

**Remedial Design (RD):** The phase in Superfund site cleanup where the technical specifications for cleanup remedies and technologies are designed.

**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.

**Tiered Approach to Corrective Action Objectives (TACO):** The Illinois EPA's method for developing remediation objectives for contaminated soil and groundwater. These remediation objectives protect human health and take into account site conditions and land use. Remediation objectives generated by TACO are risk-based and site-specific.

**Toxic Characteristic Leaching Procedure (TCLP):** A USEPA test for non-hazardous waste, a test designed to measure substances that might dissolve into the ecosystem.

**Volatile organic compound (VOC):** Any organic compound that has a high tendency to pass from the solid or liquid state to the vapor state under typical environmental conditions. Such compounds participate in a range of processes that lead to atmospheric pollution, including the formation of urban smog.

## WHAT'S A FORMAL COMMENT?

Formal comments are used to improve the final decision for site remedy. 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 submit a written comment during the comment period or present your views during the public meeting.

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 July 22, 2013. Written comments and requests for a public meeting or an extension of the public comment period should be sent to:

Department of the Navy  
Naval Station Great Lakes  
NAVFAC Midwest  
Attn: Terese Van Donsel  
201 Decatur Avenue  
Building 1A, Code EV  
Great Lakes, IL 60088

Email: [terese.vandonsel@navy.mil](mailto:terese.vandonsel@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 included in the Responsiveness Summary issued as part of the

