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NAS CECIL FIELD
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PROPOSED PLAN OPERABLE UNIT 6 (OU6) SITE 11 NAS CECIL FIELD FL
3/1/1998
NAS CECIL FIELD



Installation Restoration Program



March 1998

Proposed Plan

Operable Unit 6, Site 11 Naval Air Station Cecil Field Jacksonville, Florida

Facility Description

NAS Cecil Field was established in 1941 and provides facilities, services, and material support for Naval operations. It was added to the National Priorities List in 1989. In July 1993, the Base Realignment and Closure (BRAC) Commission recommended the closure of the base.

Site Description

Operable Unit 6, Site 11 is a former pesticide disposal area located in the northwestern corner of the station (see Figure 1) between the 11th fairway and the 17th green of the Fiddler's Green Golf Course (see Figure 2).

This Document

In accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (Section 117), the law that established the Superfund program, this document summarizes the Navy's proposal for site clean-up to help the public understand and comment on the proposed alternatives. The plan has been developed by the NAS Cecil Field BRAC Clean-up Team (BCT), which consists of representatives from the Navy, U.S. Environmental Protection Agency (EPA) and The Florida Department of Environmental Protection (FDEP). The BCT, in consultation with the Restoration Advisory Board; (RAB) will select the final remedy for Operable Unit 6, Site 11 after all public comments have been addressed.

Why is Clean-up Needed?

The Navy's studies of Operable Unit 6, Site 11 have resulted in the following conclusions:

- Several contaminants were found in the soil at this site during the remedial investigation. These contaminants could be potentially harmful to human health if potential receptors (e.g., future residents or industrial workers) are exposed to the soil. The risk assessment has identified 1,2-dibromo-3-chloropropane (DBCP) and arsenic as the chemicals of concern (COCs).
- Certain pesticides and other contaminants related to previous disposal practices have also been found in the groundwater. DBCP, phenol, antimony, thallium, aluminum, and iron were identified as the COCs. No existing residential water supplies have been impacted and contamination is not widespread (the plume is estimated to only encompass an area of approximately 100 by 60 feet).
- In the summer of 1996, the Navy completed an interim soil removal action. This removal action eliminated the majority of the source for groundwater contamination. However, all contaminated soil was not removed.

The Clean-up Proposal...

After careful study, the BCT proposes the following plan to reduce risk from site contamination:

- Excavation and off-site landfill disposal of contaminated soil.
- Institutional controls including land use restrictions to prevent future ingestion of contaminated groundwater.
- Long-term monitoring of contaminated groundwater and 5-year site reviews to confirm the restoration of groundwater and ensure the protection of human health and the environment.

What do you think?

The Navy, as the lead agency, is accepting formal public comments on this proposal from April 2 through May 1, 1998. You don't have to be a technical expert to comment. If you have a concern or preference, the BCT wants to hear it before making a final decision on how to protect your community. To comment formally:

Offer oral comments during the comment portion of the public hearing, if such a hearing is requested (see page 10 for details).

Send written comments postmarked no later than May 1, 1998 to:

Mr. Charles Underwood
Public Affairs Officer
NAS, Cecil Field
P.O. Box 111
Jacksonville, Florida 32215-0111

E-mail comments by May 1, 1998 to:

pao@cecilfield.com

In accordance with CERCLA Section 117, the law that established the Installation Restoration program, this document summarizes the NAS Cecil Field BRAC Clean-up Team clean-up proposal. For detailed information on the options evaluated for use at the site, see the Operable Unit 6 Feasibility Study, available for review at the information repository located at the Charles D. Webb Wesconnett Public Library, 6887 103rd Street, Jacksonville, FL 32210, Tel: (904) 778-7305.

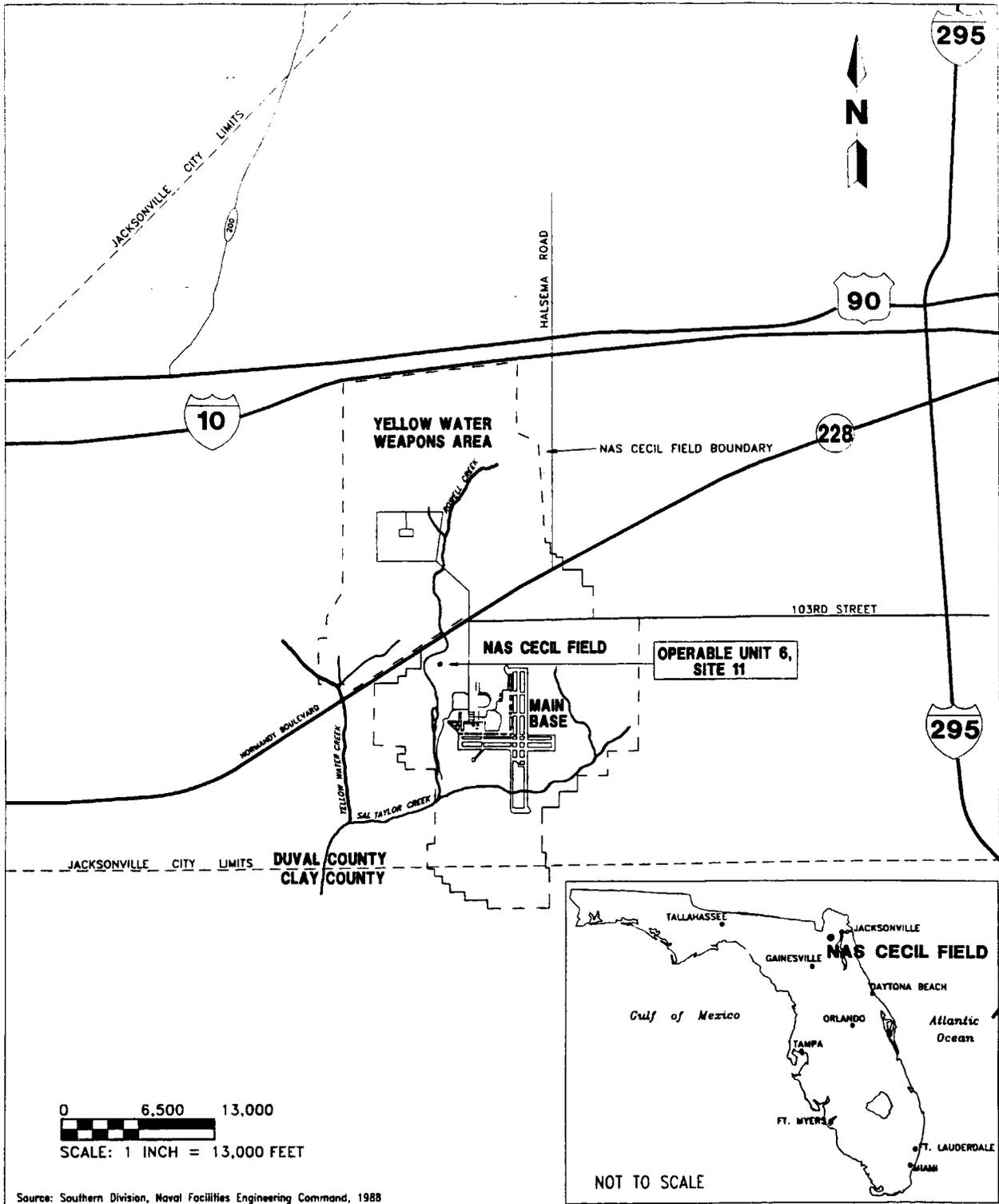


FIGURE 1
GENERAL LOCATION MAP



OPERABLE UNIT 6
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

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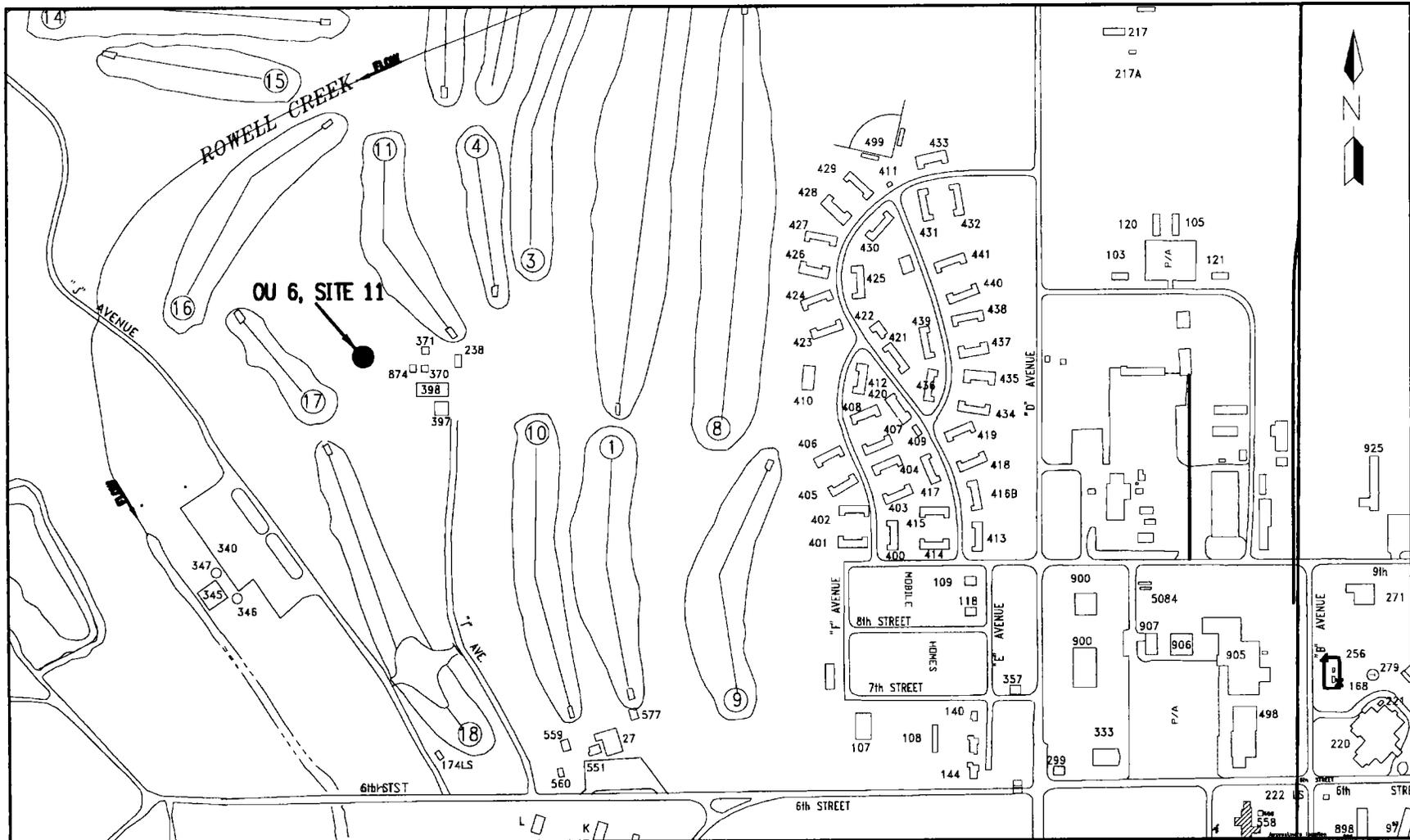


FIGURE 2
SITE 11 LOCATION MAP



OPERABLE UNIT 6

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Site History

The following is a brief history of the site:

- **Early 1970s-1978:** The property was used by golf-course maintenance personnel for disposal of empty, partially full or full fungicide and herbicide containers. These containers were reportedly buried in a pit. In 1978 the disposal practices were discontinued when a new pesticide facility was built by the Navy.
- **1984/1985:** Navy's Installation Restoration program (IRP) was established and Site 11 was one of 18 CERCLA sites identified in the Initial Assessment Study (IAS). The study revealed that approximately two to four empty, unrinsed 5-gallon pesticide containers were disposed at the site each month by golf-course maintenance personnel.
- **1993/1994:** A focused remedial investigation/feasibility study (RI/FS) was conducted as part of an interim remedial action (IRA). Forty-one empty pesticide containers, seven full or partially full liquid pesticide containers, and three 50-pound bags of powdered pesticide were found during the investigation.
- **1995-1996:** As part of the IRA, the Navy excavated and removed 417 cubic yards of soil, along with the wastes, and disposed of the material in off-site solid waste landfills and hazardous waste landfills, depending on the levels of contamination. One pesticide found at the site included 1,2-dibromo-3-chloropropane or DBCP (trade name: Nemagon™), which is listed as a hazardous waste by the EPA.
- **1997:** An RI/FS was conducted by the Navy to address the conditions of the site following the removal action. Inorganic contaminants (mainly arsenic) were found in the soil at levels that could be of human health concern if residences were established at the site or if a worker were to excavate the soil.

A Closer Look at the BRAC Clean-up Team's Proposal

1. Excavation and Off-Site Disposal of Contaminated Soil.

Contaminants in the soil are present at levels that present potential human health concerns to potential receptors (future residents or industrial workers) that may be associated with the site. Under this alternative, approximately 267 cubic yards of contaminated soil would be excavated and removed from the site. The excavated soil would be tested for hazardous characteristics then disposed offsite at either a solid waste or a hazardous waste landfill depending on the level of contamination.

2. Implementation of Institutional Controls for Groundwater.

Land use restrictions, identified as institutional controls including deed restrictions, would be implemented to limit the use of impacted groundwater until natural processes reduce the concentration of contaminants to acceptable levels.

3. Long-Term Sampling and Analysis of Groundwater.

Groundwater from existing wells at the site would be sampled and analyzed on an annual basis. This groundwater monitoring would be continued until site contaminants are reduced, through natural processes, to acceptable levels.

4. Five-Year Reviews to Inspect Site Conditions.

Site conditions and groundwater data collected from the site would be reviewed every 5 years to ensure that the removal of contaminants from the site through natural treatment processes are adequately protective of human health and the environment.

5. Contingency Remedy

If during the implementation of institutional controls and long-term monitoring for groundwater, it is identified that natural processes will not achieve the established clean-up objectives, then additional active remedial measures will be evaluated and implemented.

Summary of Site Risk

Exposure to surface and subsurface soil was determined to result in excess lifetime cancer risks (ELCR) of 4×10^{-6} and 5×10^{-6} , respectively. An ELCR of 4×10^{-6} means that four additional persons out of 1,000,000 would be at risk of developing cancer assuming that these persons would be exposed to the surface soils at the site. These values are within the EPA acceptable range but exceed the FDEP risk criterion. Organic contaminants (mainly DBCP and phenol) were found in the groundwater at levels that could pose a human health concern if residential wells were installed and the shallow aquifer were used for drinking-water purposes. The ELCR from ingestion of groundwater was determined to be 5×10^{-5} , which is within the EPA acceptance range but exceeds the FDEP risk criterion. An ELCR of 5×10^{-6} means that five additional persons out of 1,000,000 would be at risk of developing cancer assuming the person would use the contaminated groundwater as a drinking water source.

Actual or threatened releases of hazardous substances from this site, if not addressed by the preferred alternative or one of the other active measures considered, may present a current or potential threat to public health, welfare, or the environment.

What are the Clean-Up Objectives and Levels?

Using the information gathered during the site investigation and the results of the Baseline Risk Assessment, the BCT identified the objectives for clean-up of Operable Unit 6, Site 11. These Remedial Action Objectives (RAOs) are listed below:

- Reduce human health risk associated with exposure to surface soil containing arsenic concentrations in excess of the risk-based action levels.
- Reduce human health risk associated with exposure to subsurface soil containing arsenic and DBCP above leaching potential action levels.
- Reduce human health risk associated with exposure to groundwater containing DBCP and phenol in excess of the risk-based action levels.

To meet these objectives, action levels were established for surface soil, subsurface soil and groundwater at the site, based on state and federal criteria for residential land use and industrial land use. The action levels are expected to reduce the risks discussed earlier to acceptable levels of less than one in 1,000,000. The range of detected contaminant concentrations and clean-up levels set for contaminants at the site are listed in the table below:

Site-related Contaminants of Concern	Range of Detection	Site Specific Cleanup Level
Arsenic in surface soil	0.74 - 5.7 mg/kg	2.1 mg/kg ⁽¹⁾
Arsenic in subsurface soil	0.79 - 449 mg/kg	29 mg/kg ⁽²⁾
DBCP in subsurface soil	2.0 - 230 µg/kg	0.2 µg/kg ⁽³⁾
DBCP in groundwater	8.9 µg/L	0.2 µg/L ⁽⁴⁾
Phenol in groundwater	27 µg/L	10 µg/L

NOTE: mg/kg = milligrams per kilogram
 µg/kg = micrograms per kilogram
 µg/L = micrograms per liter

- 1 Cecil Field established background level.
- 2 Brownfield draft 62-785.
- 3 Minimum method detection limit is 2.0 µg/kg.
- 4 Minimum contract required quantitation limit is 1.0 µg/L using Contract Laboratory Program (CLP) Statement of Work (SOW) OLC02.1.

Use of ARARs in Evaluation Process

Applicable or relevant and appropriate requirements (ARARs) are federal and state human health and environmental requirements used to evaluate the appropriate extent of site clean-up, scope and formulate remedial alternatives, and control the implementation and operation of a selected remedial action. Potential chemical-, location-, and action-specific ARARs are defined in the General Information Report (GIR). Each alternative has been evaluated to determine its compliance with ARARs. Chemical-, location-, and action-specific ARARs that apply to Operable Unit 6 are presented in Table 2-1 of the Feasibility Study (FS) for Operable Unit 6 dated January 1998.

Clean-Up Alternatives for Operable Unit 6, Site 11

The Operable Unit 6, Site 11 Feasibility Study report reviews all the options the BCT considered for clean-up and identifies the proposed clean-up plan. The options, referred to as “clean-up alternatives,” are different combinations of plans to restrict access to, contain, remove, or treat contamination in order to protect public health and the environment.

During the upcoming comment period, the BCT welcomes your comments on the proposed clean-up plan, as well as the other technical approaches that the team evaluated. These alternatives are summarized below. Please consult the Operable Unit 6, Site 11 Feasibility Study for more detailed information.

Soil Clean-up Alternatives



No Action

Alternative S-1: No Action

No remedial action would occur under this alternative. Evaluation of this alternative as a baseline for comparison against the other alternatives is a regulatory requirement. Under this alternative, soil would remain in place, allowing natural processes to reduce the concentration of site contaminants. No controls or monitoring would be implemented under this alternative to reduce the risks to human receptors. This alternative does not comply with the RAOs or the ARARs.

Limited Action

Alternative S-2: Limited Action

Under this alternative, limited action would be taken to reduce the risk to human receptors posed by direct contact with soil at Site 11. Limited action would include installation of fencing to prevent unauthorized persons from entering the site, site monitoring to evaluate whether site contaminant levels are decreasing, land use restrictions to prevent use of the site in ways that may expose individuals to site contaminants, and 5-year site reviews to determine whether continued implementation of this alternative is appropriate. This alternative complies with the identified ARARs and RAOs for soil.

Excavation and Disposal

Alternative S-3: Excavation and Disposal

Under this alternative, contaminated soil would be excavated and transported to an off-site landfill. Depending on testing conducted during excavation, removed soil would be sent to either a solid waste or hazardous waste landfill. Excavated areas would be backfilled with clean soil. This alternative complies with the identified ARARs and RAOs for soil.

Groundwater Clean-up Alternatives



No Action

Alternative GW-1: No Action

No remedial activity would occur under this alternative to address risks posed by groundwater contamination. Evaluation of this alternative as a baseline for comparison against the other alternatives is a regulatory requirement. No controls or monitoring would be implemented under this alternative to reduce risks to human receptors. This alternative does not comply with the groundwater RAOs or the identified ARARs.

Limited Action

Alternative GW-2: Limited Action

Under this alternative, limited action would be taken to reduce the risk from groundwater contaminants to human receptors. Limited action would include long-term sampling and monitoring to evaluate whether or not concentrations of contaminants are decreasing via natural processes, land use restrictions to prevent the use of groundwater, and 5-year site reviews to determine whether continued implementation of this alternative is appropriate. This alternative would achieve the established RAO for groundwater and eventually comply with the ARARs. The RAOs are met through exposure control, and monitoring provides a means to identify when action levels are met as a result of natural processes.

Treatment Following Groundwater Extraction

Alternative GW-3: Groundwater Extraction and Treatment

This alternative involves the extraction of contaminated groundwater from the shallow aquifer, treatment to remove the contaminants from the groundwater, and discharge of the treated water. Organic chemicals of concern would be removed via an air stripper (volatilization) followed by adsorption onto activated carbon. The treatment process would also include a filtration system to remove inorganic contaminants from the groundwater. The treated water would be discharged to a man-made basin that would allow the treated water to infiltrate back into the aquifer. This alternative complies with the identified ARARs and will achieve the established RAOs.

Treatment Without Groundwater Extraction

Alternative GW-4: Enhanced Biological Treatment

This alternative relies on the naturally occurring microorganisms in the groundwater to breakdown the organic contaminants. This alternative would manipulate these naturally occurring microorganisms by introducing added nutrients to increase the efficiency of their degradation of contaminants. Once action levels are achieved, this alternative would comply the RAOs and ARARs as identified in the FS.

Alternative GW-5: Air Sparging

This alternative involves the injection of air into the contaminated groundwater. While rising through the groundwater, the air bubbles will strip (volatilize) the organic chemicals of concern from the groundwater. Trenches would be installed above the groundwater table to collect the stripped organic vapors. Vapors would be extracted from the trench and treated. Once action levels are achieved, this alternative would comply with RAOs and ARAR as identified in the FS.

Alternative GW-6: Recirculation Well

Under Alternative GW-6, air would be injected into a well, lifting contaminated groundwater in the well. Once inside the well, some of the organics in the contaminated groundwater are transferred from the water to air bubbles, which rise and are collected at the top of the well by a vapor collection system. The contaminated vapors can then be treated. The treated groundwater is never brought to the surface. Once action levels are achieved, this alternative would comply with the RAOs and ARAR as identified in the FS.

Comparative Analysis

The alternatives were compared to each other and their relative advantages and disadvantages were evaluated using the criteria stipulated under CERCLA. Additional information is provided in the Operable Unit 6, Site 11 Feasibility Study. The table provided on page 8 (Comparison of Soil and Groundwater Clean-up Alternatives), summarizes this comparative analysis.

What impacts would the clean-up options have on the local community?

- ◆ Any option that involves extraction of groundwater, excavation of soil, or volatilization of contaminants would pose a potential risk to workers and nearby communities; however, measures would be taken to minimize and control such exposure.
- ◆ All alternatives include institutional controls to limit the use of and exposure to contaminated groundwater and soil and would limit the future use of the site. Currently, the site is industrially zoned, and development for residential use is restricted.
- ◆ All on-site treatment options would use the site to construct and operate a treatment system and associated facilities. This would limit future use and/or development of the site by property owners during the clean-up.
- ◆ The No Action alternative would not limit access to site contaminants, resulting in inadequate protection to humans and the environment.



Comparison of Soil and Groundwater Clean-up Alternatives

Nine Criteria ⁽¹⁾	Soil			Groundwater					
	S-1 No Action	S-2 Limited Action	S-3* Excavation and Disposal	GW-1 No Action	GW-2* Limited Action	GW-3 Groundwater Extraction and Treatment	GW-4 Enhanced Biological Treatment	GW-5 Air Sparging	GW-6 Recirculation Well
Protects human health and environment	x	✓	✓	x	✓	✓	✓	✓	✓
Meets Federal and State Requirements	x	✓	✓	x	✓	✓	✓	✓	✓
Provides long-term protection	x	✓	✓	x	✓	✓	✓	✓	✓
Reduces toxicity, mobility or volume	☑	☑	✓	☑	☑	✓	✓	✓	✓
Provides short-term protection	x	✓	✓	x	✓	✓	✓	✓	✓
Implementability	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cost (Present Worth)	\$0	\$408,000	\$155,000 ⁽²⁾ \$320,000 ⁽³⁾	\$0	\$252,000 ⁽⁴⁾	\$435,000	\$699,000	\$449,000	\$459,000
State agency acceptance	TO BE DETERMINED AFTER PUBLIC COMMENT PERIOD AND DISCUSSED IN THE RECORD OF DECISION								
Community acceptance	TO BE DETERMINED AFTER PUBLIC COMMENT PERIOD AND DISCUSSED IN THE RECORD OF DECISION								
Time to reach cleanup goal	30+ yr.	30+ yr.	1 yr.	30+ yr.	10 yr.	14 yr.	10 yr.	2.5 yr.	2 yr.

x: Does NOT meet criterion ✓: Meets criterion ☑: Partially meets criterion *: Components of Navy's preferred alternative

- 1 Remedial alternatives are examined with respect to nine criteria set forth by CERCLA and factors described in the U.S. EPA RI/FS Guidance Manual (U.S. EPA, 1988).
- 2 If a Subtitle D landfill is used (solid waste landfill).
- 3 If a Subtitle C landfill is used (hazardous waste landfill).
- 4 The cost presented is based on the results of groundwater modeling, which indicates that the action level for DBCP will be achieved in approximately 10 years.

Why Does the BRAC Clean-up Team Recommend this Proposed Plan

After evaluation of the alternatives provided in the Feasibility Study and consideration of the evaluation criteria, the BCT team recommends a clean-up plan that consists of Alternative S-3: Excavation and Disposal for clean-up of contaminated soil and Alternative GW-2: Limited Action for addressing contaminated groundwater. This combination of alternatives is recommended for the following reasons.

- Both alternatives meet all federal and state environmental statutes, regulations, and requirements identified for this site.
- Both alternatives reduce concentrations of contaminants to levels that will be protective of human health.
- Alternative S-3 is preferred because it would eliminate the potential for exposure by removing the contaminated soil from the site. Additionally, this alternative is the most effective and permanent long-term remedy and does not require long-term operation and maintenance. Moreover, Alternative S-3 is less costly than other soil alternatives. Therefore, Alternative S-3 is the most cost effective alternative that meets not only the requirements stipulated by CERCLA but also provides a permanent solution.
- Alternative GW-2 (Limited Action) should be acceptable at this site because the primary site contaminant in the groundwater is below the level that would result in exceedance of the EPA acceptable risk range⁽¹⁾. The site risk levels are for a future resident scenario, which would be eliminated by the implementation of land use restrictions. Currently, there are no receptors at the site exposed to unacceptable risk from groundwater contaminants. The size of the plume is limited in extent (approximately 100 feet by 60 feet in area) and the thickness of the shallow groundwater is less than 20 feet, and does not pose an imminent threat to the environment. This alternative is also preferred because it provides a mechanism for monitoring the natural attenuation of site contaminants in the groundwater.
- The 5-year review of the annual monitoring program will be used to determine if the monitoring program should be continued. If the DBCP and phenol concentrations reach the clean-up goals through natural attenuation, then the program will be discontinued. If the concentrations are effectively being reduced, then the program will continue. However, if natural processes are not effective in reducing the contamination, then active remedial alternatives will be considered.
- While the no action alternative would cost the least, it would not evaluate the potential for the protection of human health and the environment since it would not monitor the concentration of contaminants over time. Long-term natural attenuation monitoring and analysis of groundwater will ensure that site remediation goals are being achieved and that there are no adverse human health or environmental impacts from the potential migration of contaminants.

⁽¹⁾ Human health Excess Lifetime Cancer Risks (ELCR) from ingestion of groundwater (future land use, total risk for adult and child resident) was 5×10^{-5} , which was within the USEPA acceptable risk range but exceeded the FDEP risk criterion of 1×10^{-6} .

Next Steps:

By June 1, 1998, the BCT expects to have reviewed all comments and signed the Record of Decision document describing the chosen clean-up plan. The Record of Decision, which includes a summary of responses to public comments, will then be made available to the public at the Charles D. Webb Wesconnett Public Library, Jacksonville, Florida. The BCT will announce its decision through the local news media and the community mailing list.

What's a Formal Comment?



Formal comments are used to improve the clean-up proposal. During the 30-day formal comment period, the BCT will accept formal written comments and hold a hearing, if requested, to accept formal verbal comments.

To make a formal comment, you need to present your views during the public hearing, or submit a written comment during the comment period. A request for a public hearing to present your formal comments must be made in writing. The request must be postmarked no later than May 1, 1998 and should be sent to:

Mr. Charles Underwood
Public Affairs Officer
NAS Cecil Field
P.O. Box 111
Jacksonville, Florida 32215-0111

Federal regulations require the BCT to distinguish between "formal" and "informal" comments. While the BCT uses both your comments and Restoration Advisory

Board (RAB) comments throughout site investigation and clean-up activities, the team is only required to respond to formal comments on the Proposed Plan in writing. If a public hearing is requested, there will be no verbal response to your comments during the formal hearing portion of the meeting. Once the formal hearing portion of the public meeting is closed, the BCT may respond to informal questions, if they choose.

The BCT will review the transcript of all formal comments received at the hearing and all written comments received during the formal comment period, before making a final clean-up decision. They will then prepare a written response to all formal comments.

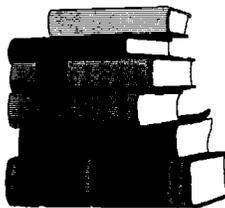
Your formal comment will become part of the official public record. The transcript of comments and the BCT team's written responses will be issued in a document called a Responsiveness Summary when the team releases the final Record of Decision (ROD).



For More Detailed Information

To help the public understand and comment on the proposal for the site, this publication summarizes a number of reports and studies. All of the technical and public information publications prepared to date for the site are available at the following information repository:

Charles D. Webb Wesconnett
Public Library
6887 103rd Street
Jacksonville, Florida 32210
Tel: (904) 778-7305



Additional information on NAS Cecil Field and its ongoing environmental programs can also be found on the Internet at <http://www.cecilfield.com>.

**Use This Space to Write Your Comments
or to be added to the mailing list**

The BCT wants your written comments on the options under consideration for dealing with the contamination at Operable Unit 6, Site 11. You can use the form below to send written comments. If you have questions about how to comment, please call Charles Underwood at (904) 778-6055. This form is provided for your convenience. Please mail this form or additional sheets of written comments, postmarked no later than May 1, 1998 to:

Mr. Charles Underwood
Public Affairs Officer
NAS, Cecil Field
P.O. Box 111
Jacksonville, Florida 32215-0111
or E-Mail to: pao@cecilfield.com

(Attach sheets as needed)

Comment submitted by: _____

Mailing list additions, deletions, or changes

If you did not receive this through the mail or would like to

- be added to the site mailing list**
- note a change of address**
- be deleted from the mailing list**
- obtain additional information concerning the RAB**

Name: _____

Address: _____

please check the appropriate box and fill in the correct address information above.

