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PROPOSED PLAN FOR OPERABLE UNIT 9 (OU 9) SITE 59 NAS CECIL FIELD FL  
5/1/2007  
TETRA TECH NUS INC



# INSTALLATION RESTORATION PROGRAM

May 2007



## Proposed Plan for Operable Unit 9, Site 59

### Naval Air Station Cecil Field

### Jacksonville, Florida

#### Facility Description

Naval Air Station (NAS) Cecil Field [United States Environmental Protection Agency (U.S. EPA) ID FL5 170 022 474] (see Figure 1) was established in 1941 and provided facilities, services, and material support for naval operations. It was added to the **National Priorities List (NPL)** in 1989. In July 1993, the Base Realignment and Closure (BRAC) Commission recommended the closure of the Air Station. On September 30, 1999, the Base was closed, and the majority of the flightline was transferred to the Jacksonville Port Authority (now the Jacksonville Aviation Authority). In September 2000, most of the remainder of NAS Cecil Field was transferred to the City of Jacksonville. The Navy is scheduled to transfer the Site 59 property to the Jacksonville Aviation Authority in 2007.

OU 9, Site 59 is part of a comprehensive environmental investigation and cleanup currently being performed at NAS Cecil Field under the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** authority pursuant to the Federal Facility Agreement (FFA) for the former NAS Cecil Field dated October 23, 1990.

#### Site Description

**Operable Unit (OU) 9**, Site 59 is located in the Main Base area of NAS Cecil Field, near the end of the north-south runways. The site is predominantly paved, with isolated small grassy and wooded areas. Buildings associated with the site include Building 324, previously used for engine maintenance activities, Buildings 334, 339, and 811 and oil-water separator 334-OW, associated with the Jet Engine Test Cell (JETC) facility, Building 885, previously used as a flammable storage locker, and Hangars 815 and 1845 (see Figures 1 and 2). Buildings 324 and 885 and JETC are currently inactive, and Buildings 815 and 1845 continue to be used as aircraft hangars.

Activities at Site 59 have resulted in contamination of groundwater from 30 feet below ground surface (bgs) to approximately 80 feet bgs with the **volatile organic compound (VOC)** trichloroethene (TCE) (see Figures 3 through 6). In addition, a small area of petroleum-related contamination [naphthalene and **total recoverable petroleum hydrocarbons (TRPH)**] associated with the Building 815 aircraft wash rack area has been included as part of Site 59 (see Figure 7). At 30 feet bgs, two TCE groundwater plumes were identified, including a northern plume covering approximately 82,000 square feet and a southern plume covering approximately 42,000 square feet (see Figure 3). Two TCE plumes were also identified at

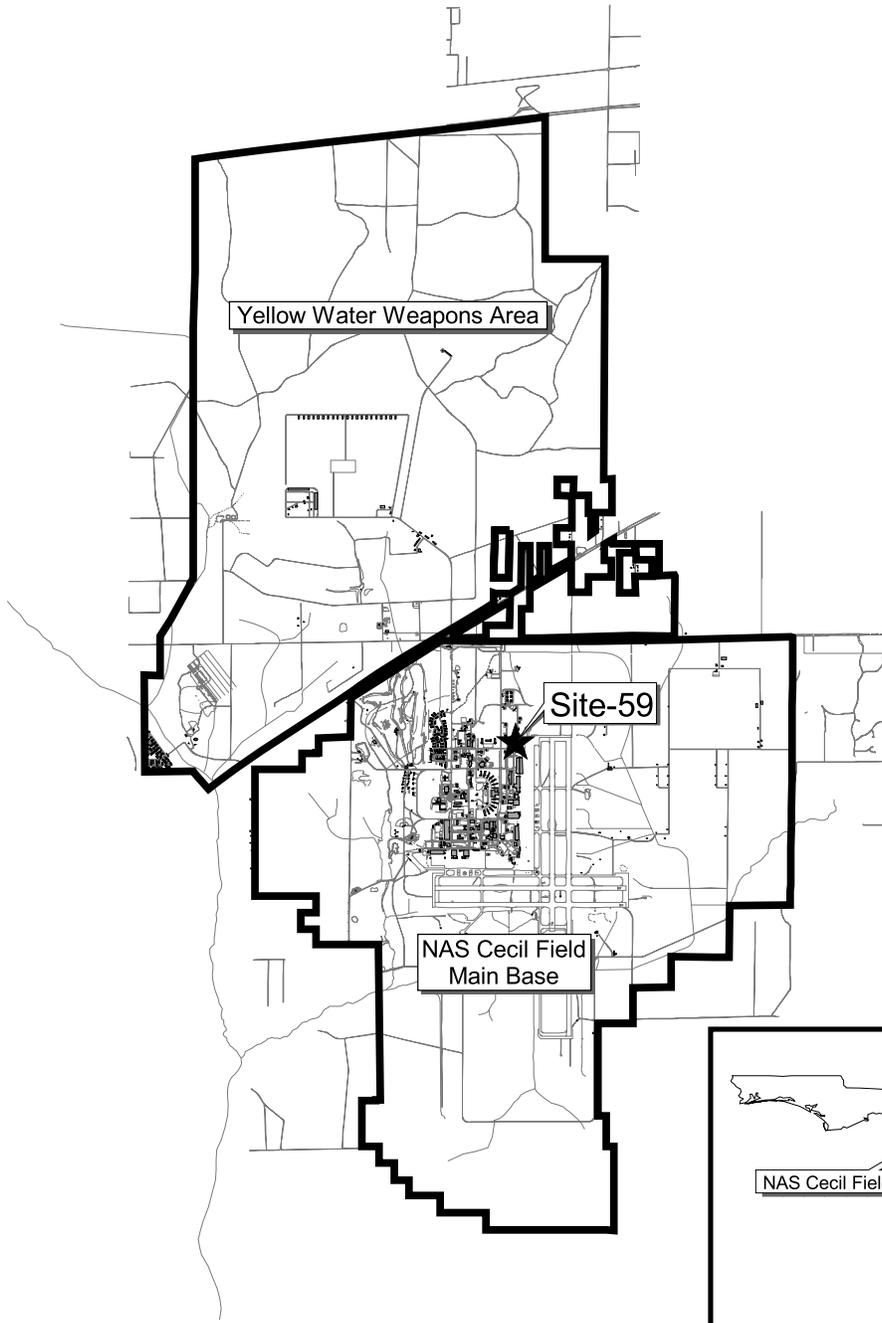
#### The Proposed Cleanup Plan

To address contaminated groundwater at Site 59, the Navy and U.S. EPA, in consultation with the Florida Department of Environmental Protection (FDEP), propose Alternative 4A, which includes the following:

- In-situ biological treatment of TCE Hot Spots and the Petroleum Plume.
- Natural attenuation of the remaining portions of the TCE Plumes.
- Implementation of **land use controls (LUCs)** to prevent use of groundwater from the site. Continued implementation of LUCs would be insured by regular site inspections.
- Groundwater monitoring to assess the progress of biological treatment and natural attenuation and to verify that plume migration is not occurring.

*This document summarizes the cleanup plan proposed by the Navy and U.S. EPA in consultation with FDEP. For detailed information on the options evaluated for **OU 9, Site 59**, consult the documents contained within the **Administrative Record**, which is available for review at the Information Repository located at the Former Memorial Chapel, 6112 New World Avenue, Cecil Commerce Center, Jacksonville, Florida, 32221, Telephone (904) 777-1900.*

Bolded terms throughout this Proposed Plan are explained in the Glossary of Terms presented on pages 15 through 16.



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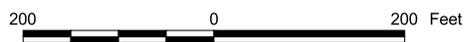
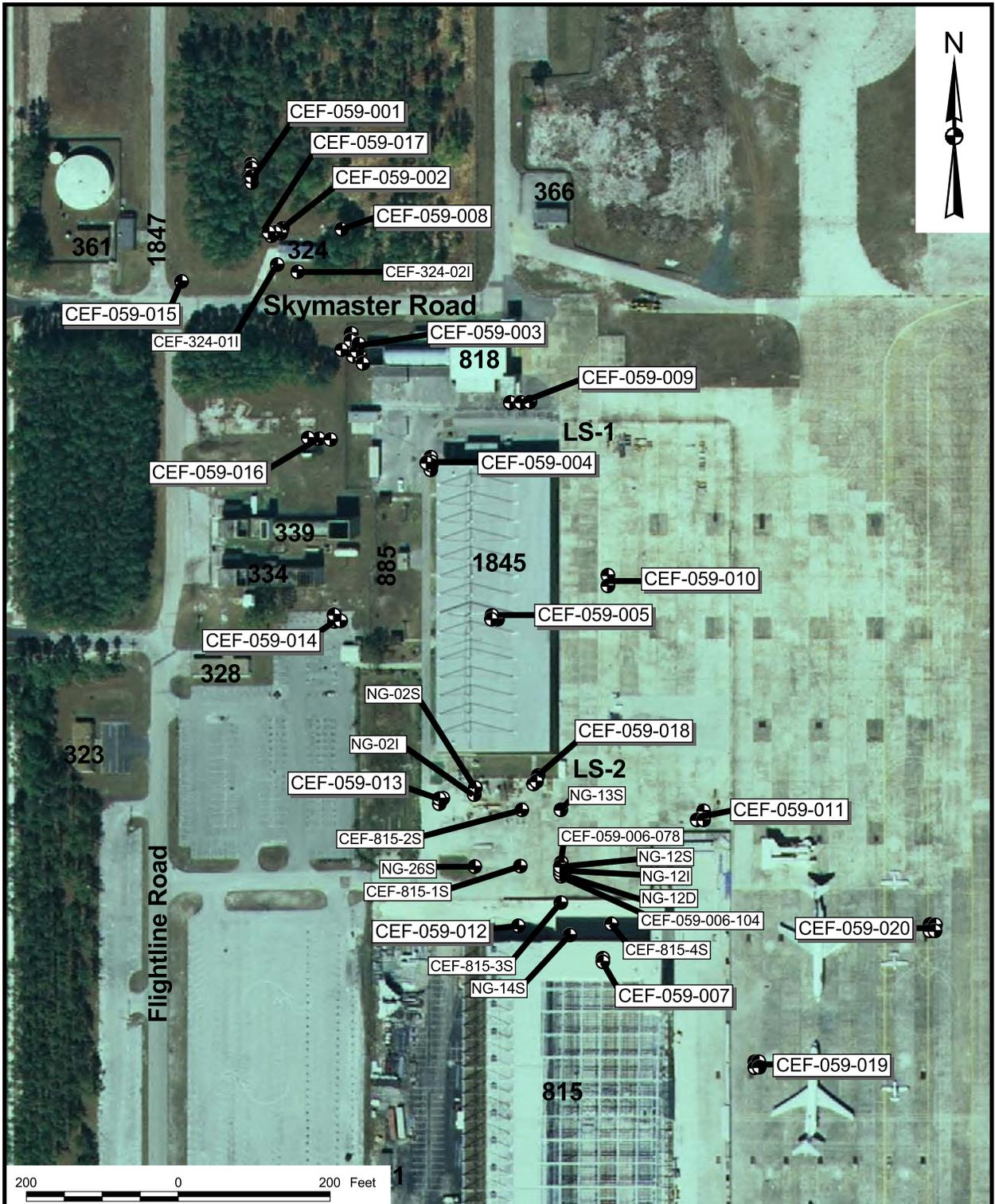
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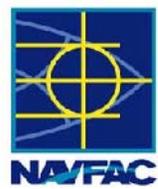
GENERAL LOCATION MAP  
OU 9, SITE 59  
PROPOSED PLAN  
NAVAL AIR STATION CECIL FIELD  
JACKSONVILLE, FLORIDA

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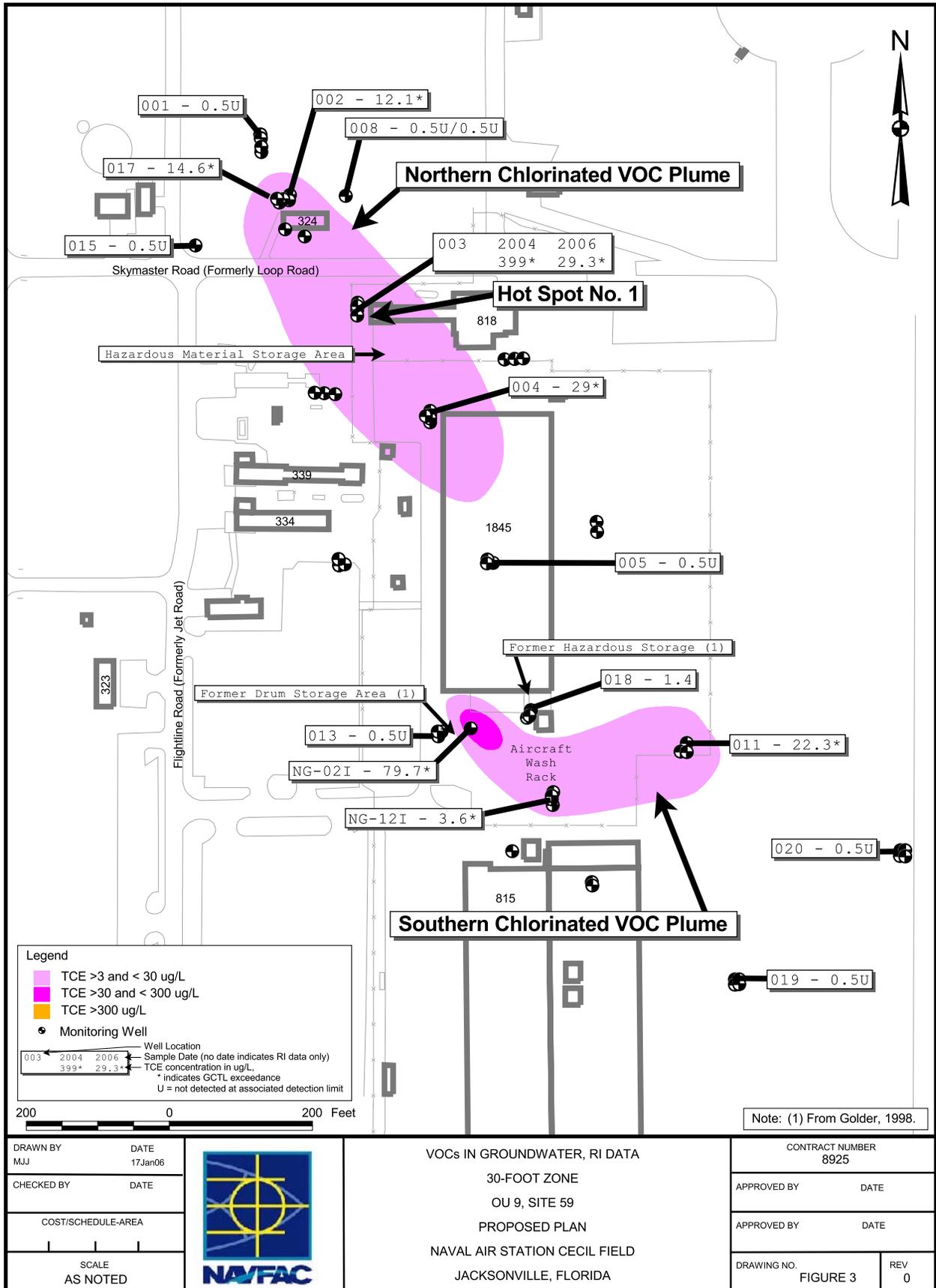
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SITE LAYOUT AND MONITORING WELL LOCATIONS  
 OU 9, SITE 59  
 PROPOSED PLAN  
 NAVAL AIR STATION CECIL FIELD  
 JACKSONVILLE, FLORIDA

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50 feet bgs, a northern plume covering approximately 84,000 square feet and a southern plume covering approximately 115,000 square feet (see Figure 4). At the 70-to 80-foot depth, the two plumes coalesce into a single plume covering approximately 150,000 square feet (see Figure 5). Most recent sampling in the top-of-rock (TOR) zone did not identify any detectable VOC contamination (see Figure 6). The Building 815 Wash Rack Area plume is limited to the shallow portion of the **surficial aquifer** (to 15 feet bgs) and covers approximately 6,000 square feet (see Figure 7). Soil contamination has not been detected at Site 59.

## About This Document

In accordance with Section 117(a) of the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)**, and Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), this document summarizes the Navy's proposal for site cleanup to help the public understand and comment on the proposed alternatives. This Proposed Plan has been developed by the Navy and U.S. EPA in consultation with FDEP. These agencies, in consultation with the **Restoration Advisory Board (RAB)**, will select a final remedy for **OU 9, Site 59** after public comments have been addressed. One of the purposes of this Proposed Plan is to solicit the public's views and comments on the alternatives described. The Navy and U.S. EPA, in consultation with FDEP, may modify the preferred

alternative that constitutes the proposed cleanup plan or select another response action presented in this Proposed Plan based on new information or public comments. Therefore, the public is encouraged to review and comment on all alternatives presented in this Proposed Plan. This plan highlights the key information from the **Remedial Investigation (RI)** and **Feasibility Study (FS)** Reports, but is not a substitute for these documents. More complete information can be found in the **RI** and **FS** reports and other documents within the **Administrative Record** located at the Information Repository (see page 17 for details).

## What do you think?

The Navy, as the lead agency, is accepting formal public comments on this Proposed Plan from **TBD, 2007** to **TBD, 2007**. You don't have to be a technical expert to comment. If you have a concern or preference, the Navy, U.S. EPA, and FDEP want to hear it before making a final decision on how to protect your community. To comment formally:

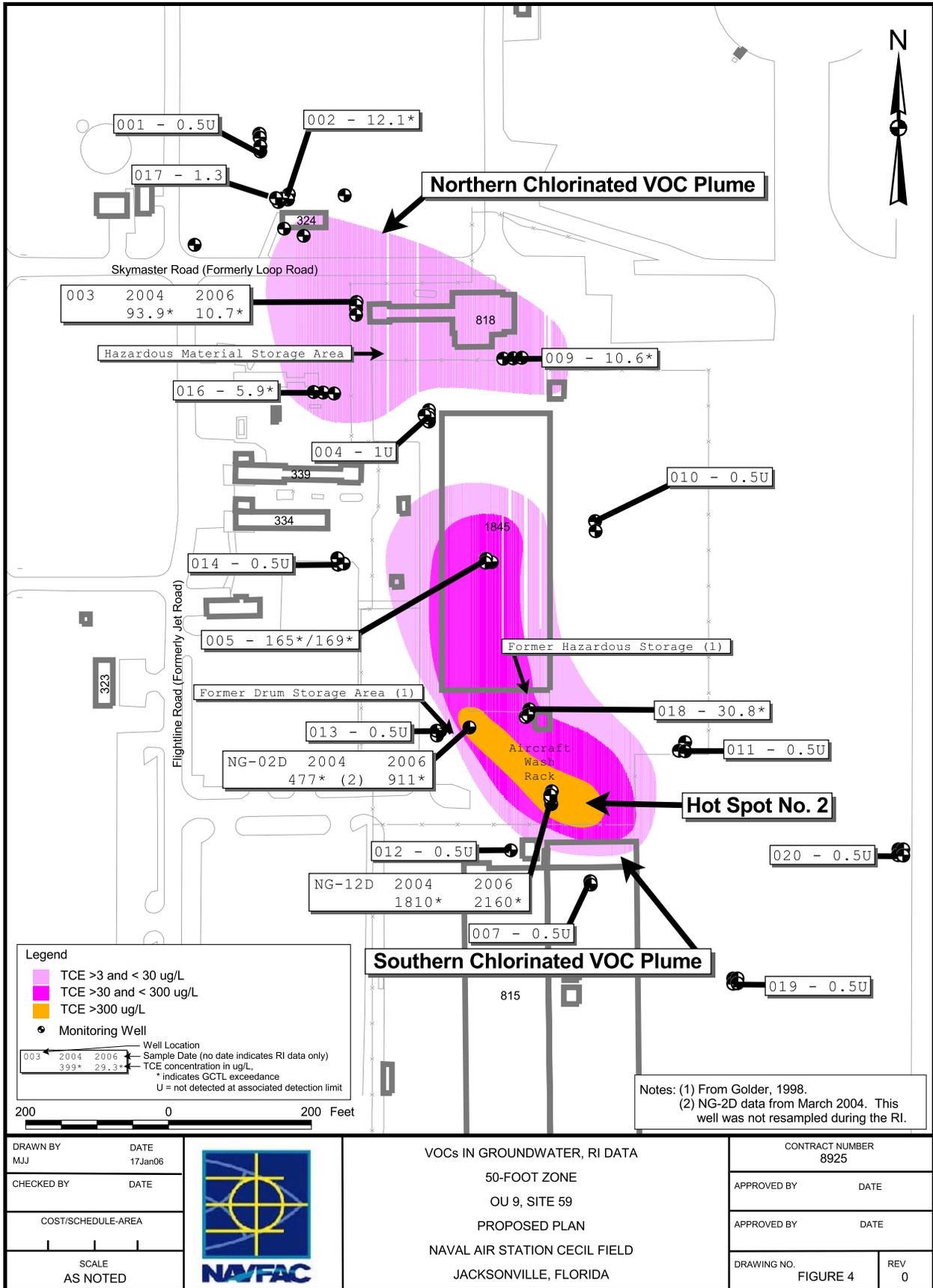
**Offer oral comments** during the comment portion of the public hearing, if such a hearing is requested (see page 17 for details).

**Send written comments** postmarked no later than **TBD, 2007** to:

## Summary of Investigations

Following is a brief history of environmental investigations at Site 59:

- November 2003 – A Due Diligence Investigation in the Building 324 area was conducted by Golder Associates, and TCE was detected in groundwater at concentrations greater than the FDEP Groundwater Cleanup Target Level (GCTL).
- November 2003 – CDM conducted an investigation in the Building 324 area to assess potential soil sources based on the Golder groundwater data. No VOCs were detected.
- December 2003 – TtNUS resampled two temporary wells installed by Golder and confirmed the previous TCE results, and permanent wells were installed at the locations of the resampled wells.
- January 2004 – TtNUS conducted Phase I of a groundwater investigation that included the collection of 37 groundwater samples from temporary wells installed at 26 locations. Four soil samples were also collected, and no VOCs were detected.
- February and March 2004 – The Phase II groundwater investigation was conducted that included the collection of 151 groundwater samples from temporary wells at 42 locations and the collection of groundwater samples from six existing permanent wells.
- 2004 to 2006 – Site 59 **RI**. Groundwater samples were collected from 57 new wells installed at 20 locations and from three previously installed wells to delineate the nature and horizontal and vertical extent of groundwater contamination at Site 59. A **Preliminary Risk Evaluation (PRE)** was conducted to assess human health risks.
- 2007 – Site 59 **FS**. Based on the results of the **RI**, **chemicals of concern (COCs)** were identified and **cleanup goals** were established. Groundwater remedial technologies were screened, and remedial alternatives were assembled, analyzed, and compared against each other.



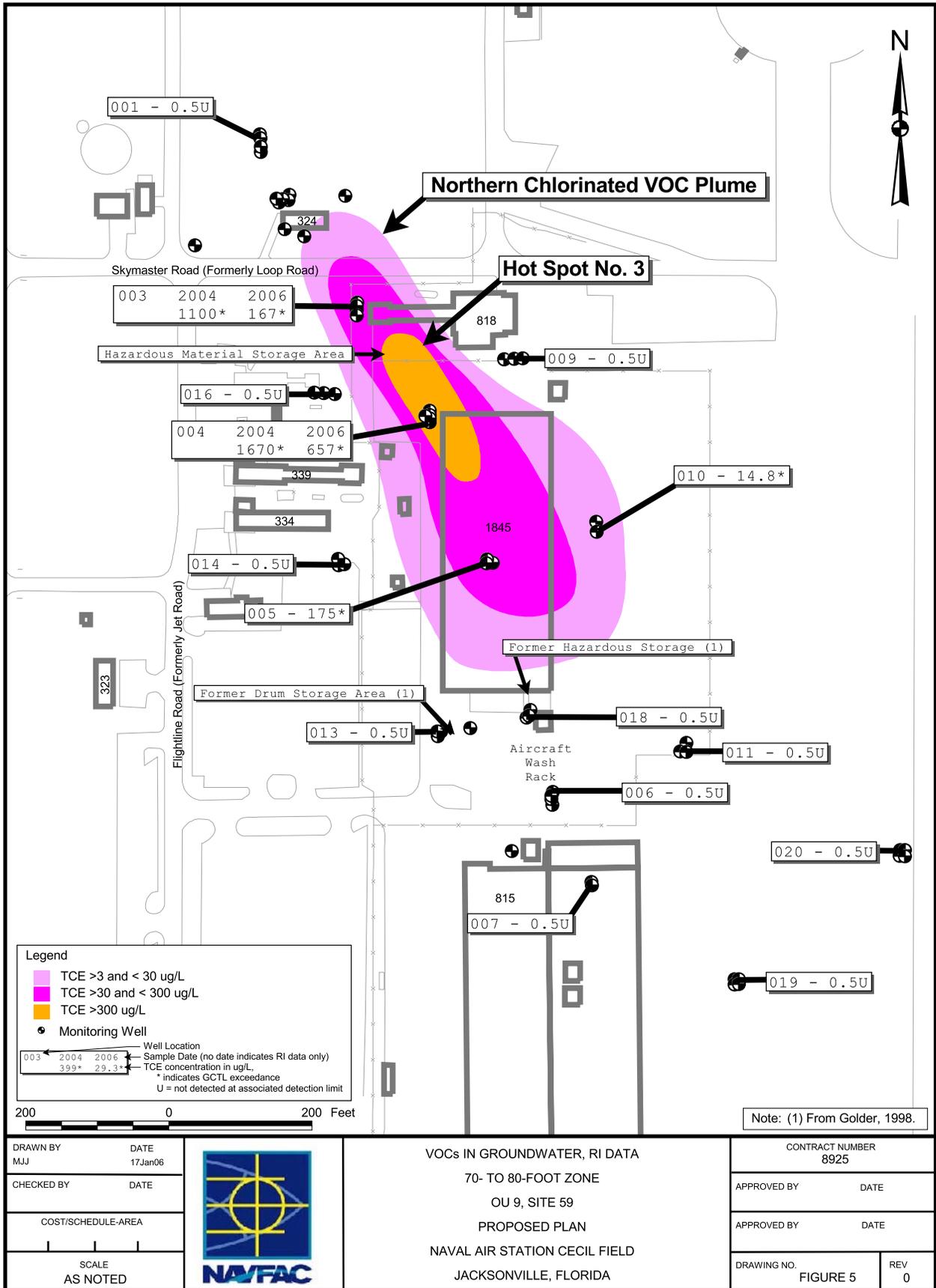
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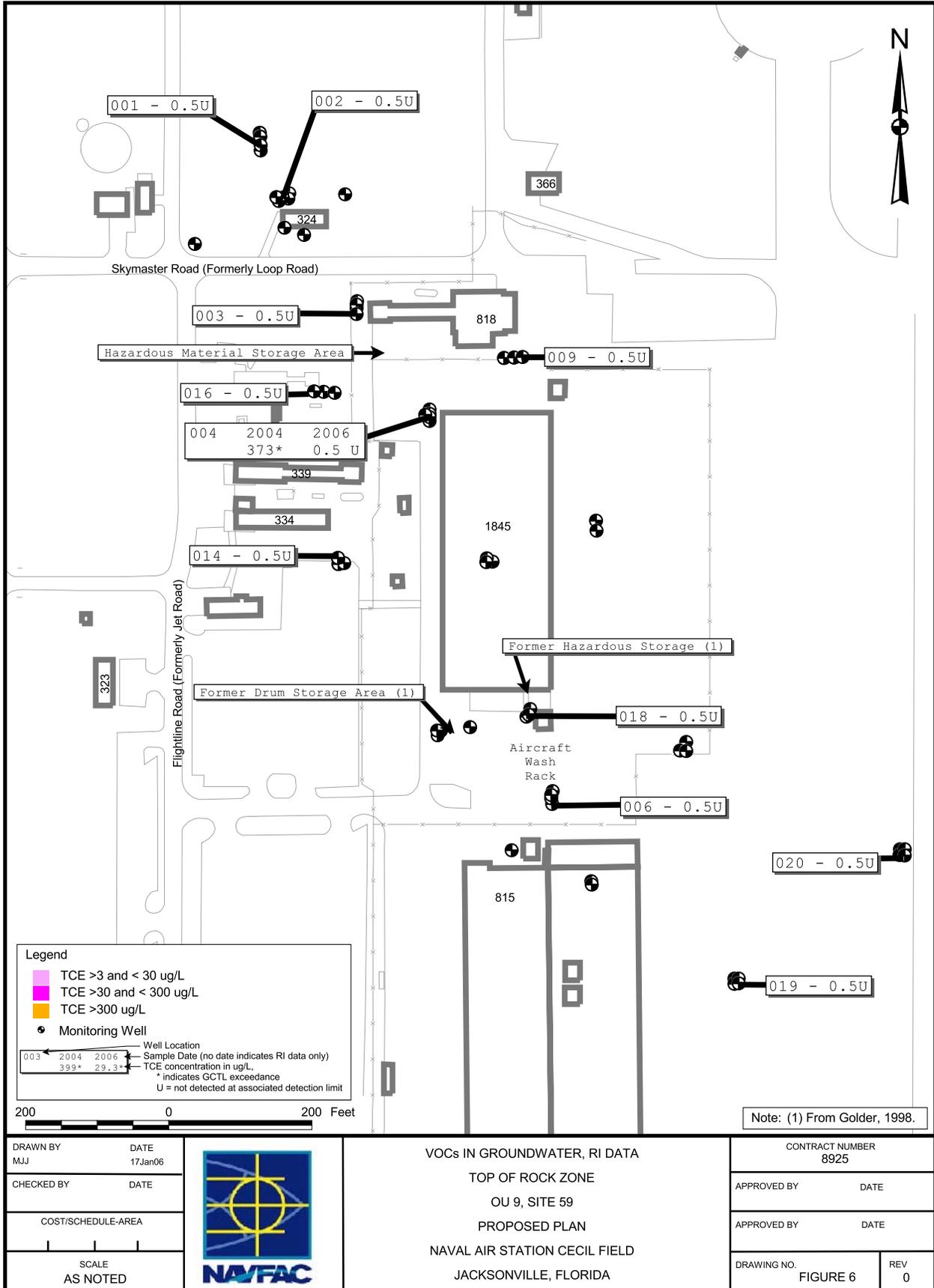


VOCs IN GROUNDWATER, RI DATA  
50-FOOT ZONE  
OU 9, SITE 59  
PROPOSED PLAN  
NAVAL AIR STATION CECIL FIELD  
JACKSONVILLE, FLORIDA

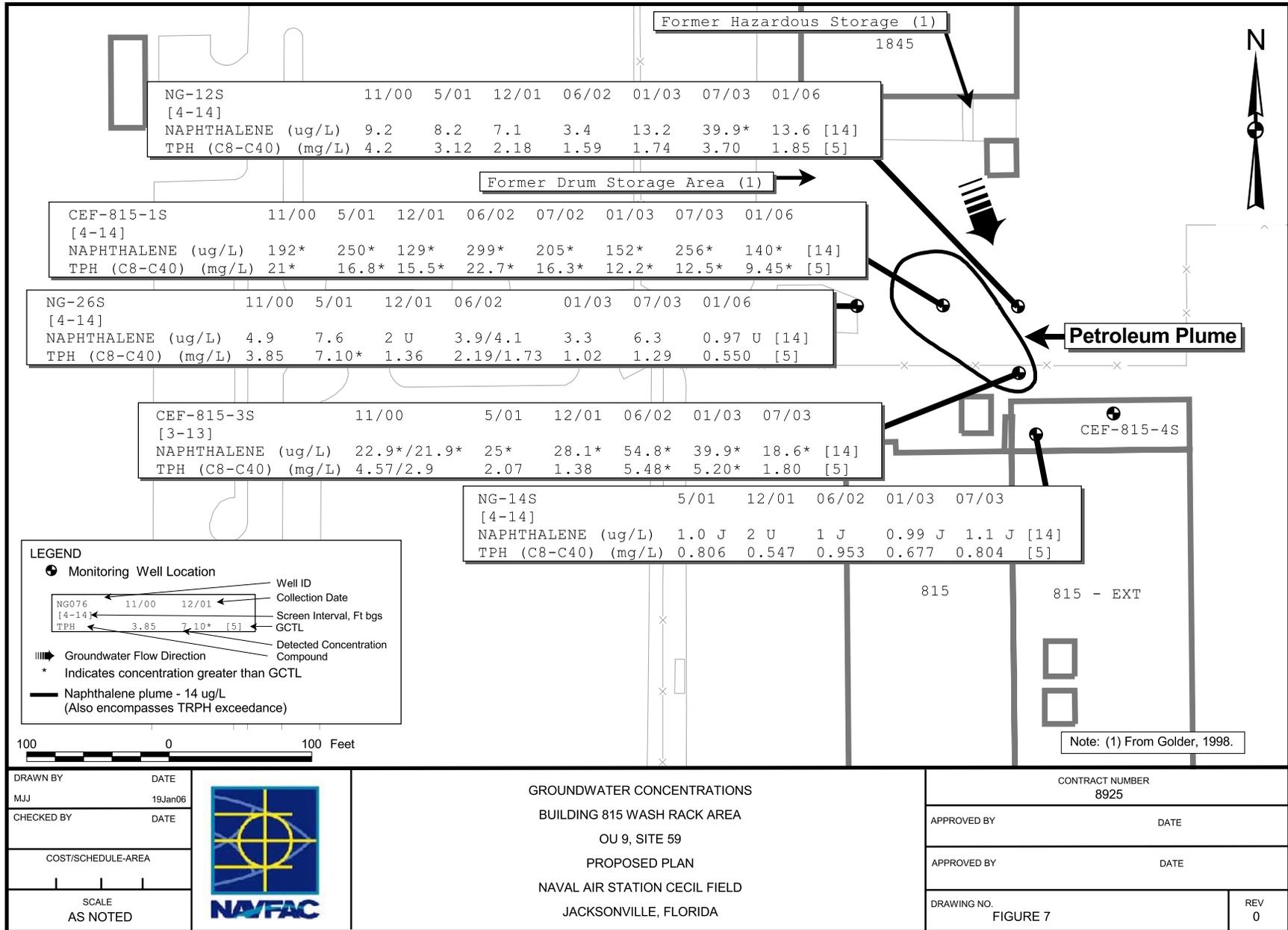
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BRAC PMO SE  
 Attention: Mark Davidson  
 4130 Faber Place Drive, Suite 202  
 North Charleston, SC 29405  
 Telephone: (843) 743-2135

E-mail comments by **TBD**, 2007 to:

mark.e.davidson@navy.mil

## Summary of Site Risks

The **PRE** for Site 59 indicated that exposure to groundwater could potentially result in adverse human health effects based on concentrations of TCE and vinyl chloride. Ecological risks were not further evaluated because the site consists primarily of buildings, parking lots, and the flight apron, which provide limited terrestrial habitat of marginal quality and results in little use of the site by terrestrial wildlife.

## Why is Cleanup Needed?

The Navy's studies of **OU 9**, Site 59, including the Building 815 Wash Rack Area, have resulted in the following conclusion:

- As a result of past activities, TCE, naphthalene, and TRPH are present in site groundwater at concentrations that could result in unacceptable human health risk in the case of a hypothetical use of the aquifer for drinking purposes.

It is the judgement of the Navy and U.S. EPA, in consultation with FDEP, that the preferred cleanup plan identified in this Proposed Plan is necessary to protect public health and welfare from actual or threatened releases of hazardous substances into the environment.

Final **Record of Decisions (RODs)** have been approved for **OU 1** through **OU 4**; **OU 5**, Sites 14 and 49; **OU 6** through **OU 8**; **OU 9**, Sites 36 and 37 and Sites 57 and 58; **OU 10**, Sites 21 and 25; **OU 11**, Site 45, and **OU 12**, Sites 32, 42, 44 and Old Golf Course. The **FS**, Proposed Plan, and **ROD** for **OU 5**, Site 15 are in regulatory review.

## What are the Cleanup Objectives and Levels?

Using the information gathered during the site investigations, the Navy and U.S. EPA, in consultation with FDEP, have identified the following **Remedial Action**

**Objectives (RAOs)** for **OU 9**, Site 59, including the Building 815 Wash Rack Area:

- Prevent unacceptable risk from exposure to groundwater with concentrations of chlorinated **VOCs** and petroleum-related constituents (naphthalene and **TRPH**) in excess of their respective FDEP GCTLs.
- Restore groundwater quality at Site 59 to meet drinking water standards based on the FDEP classification of the aquifer as a potential source of drinking water (Class G-II).

Table 1 shows the **COCs**, the ranges of concentrations detected, and the **cleanup goals**.

**TABLE 1**

GROUNDWATER COCs AND CLEANUP GOALS OPERABLE UNIT 9, SITE 59		
COCs	Range of Detections	Cleanup Goal <sup>(1)</sup>
<b>Site 59 TCE Plumes</b>		
TCE	1.3 – 1,810 µg/L <sup>(2)</sup>	3 µg/L
<b>Building 815 Wash Rack Area Petroleum Plume</b>		
Naphthalene	13.6 – 140 µg/L <sup>(2)</sup>	14 µg/L
<b>TRPH</b>	0.550 – 9.45 µg/L <sup>(2)</sup>	5,000 µg/L

1 - From Chapter 62-777, Florida Administrative Code (F.A.C.). For TCE, the FDEP GCTL (3 µg/L) was used because it is more stringent than the U.S. EPA Maximum Contaminant Level (MCL) (5 µg/L). For naphthalene and **TRPH**, FDEP GCTLs were used because there are no MCLs.

2 - Based on data from the **RI**.

## Cleanup Alternatives for OU 9 Site 59

The **OU 9**, Site 59 **FS** Report presents the options that the Navy and U.S. EPA, in consultation with FDEP, 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 4A: In-Situ Biological Treatment of TCE Hot Spots and Petroleum Plume, Natural Attenuation, **LUCs**, and Monitoring.

### No Action

#### Alternative 1: No Action

No remedial action would be taken to reduce risks to human health and the environment, and no restrictions would be imposed to prevent exposure to groundwater contamination. This alternative is required as a baseline for comparison to other alternatives.

## Limited Action

### Alternative 2: Natural Attenuation, LUCs, and Monitoring

Natural attenuation would consist of allowing concentrations of groundwater **COCs** to decrease through naturally occurring processes such as biodegradation, dilution, and dispersion. **LUCs** would be developed to prevent unacceptable risks from exposure to contaminated groundwater. Monitoring would consist of regularly collecting and analyzing groundwater samples to evaluate decreases in **COC** concentrations and to evaluate potential contaminant migration.

## In-Situ Treatment

### Alternative 3: In-Situ Chemical Oxidation of TCE Hot Spots and Petroleum Plume, Natural Attenuation, LUCs, and Monitoring

In-situ chemical oxidation would consist of using focused groundwater recirculation systems to inject a mild oxidant (complexed sodium percarbonate marketed as RegenOx™) within the TCE Hot Spots (areas with concentrations greater than 300 µg/L) to remove chlorinated **VOCs**. In-situ chemical oxidation would also include a grid of direct push technology (DPT) wells to inject the same mild oxidant in the Petroleum Plume to promote the removal of naphthalene and **TRPH**. Natural attenuation, **LUCs**, and monitoring would be similar to Alternative 2.

### Alternative 4A: In-Situ Biological Treatment of TCE Hot Spots and Petroleum Plume, Natural Attenuation, LUCs, and Monitoring

In-situ biological treatment would consist of using focused groundwater recirculation systems to inject an electron donor compound (sodium lactate), a pH buffer (sodium bicarbonate), and a bacterial culture [*Dehalococcoides* (DHC)] within the TCE Hot Spots to promote their anaerobic biodegradation. In-situ biological treatment would also consist of using a grid of DPT wells to inject an oxygen-releasing compound (ORC) in the Petroleum Plume to promote its aerobic biodegradation. Natural attenuation, **LUCs**, and monitoring would be similar to Alternative 2.

### Alternative 4B: In-Situ Biological Treatment of TCE Hot Spots and Fringes and Petroleum Plume, Natural Attenuation, LUCs, and Monitoring

In-situ biological treatment would consist of using focused groundwater recirculation systems to inject sodium lactate, sodium bicarbonate, and a DHC culture within the TCE Hot Spots and fringes to promote their anaerobic biodegradation. The focused groundwater recirculation systems would be similar to those of Alternative 4A, but larger. In-situ biological treatment would also consist of using a grid of DPT wells to inject an ORC in the Petroleum Plume to promote its aerobic biodegradation. Natural attenuation, **LUCs**, and monitoring would be similar to those of Alternative 2.

## Use of ARARs in the Evaluation Process

**Applicable or Relevant and Appropriate Requirements (ARARs)** are federal and state environmental requirements used to evaluate the appropriate extent of site cleanup, to scope and formulate remedial alternatives, and to control the implementation and operation of a selected cleanup action. Chemical-, location-, and action-specific **ARARs** that apply to **OU 9**, Site 59 are summarized in Section 2.0 of the **FS** Report. Each alternative has been evaluated to determine its compliance with **ARARs**.

## Detailed Analysis of Cleanup Alternatives

In accordance with **CERCLA**, a detailed analysis of each cleanup alternative must be performed using nine evaluation criteria. 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 on Table 2. Please consult the **OU 9**, Site 59 **FS** Report for more detailed information.

Based on information currently available, the preferred cleanup alternative, Alternative 4A, provides the best balance among alternatives with respect to the evaluation criteria.

State acceptance was secured during the **FS** review. As part of the community acceptance process, the Navy, U.S. EPA, and FDEP briefed the **RAB** on June 6, 2006.

**TABLE 2**  
**SUMMARY OF COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES**  
**OPERABLE UNIT 9, SITE 59 PROPOSED PLAN**  
**PAGE 1 OF 2**

<b>Evaluation Criteria</b>	<b>Alternative 1: No Action</b>	<b>Alternative 2: Natural Attenuation, Institutional Controls and Monitoring</b>	<b>Alternative 3: In-Situ Chemical Oxidation of TCE Hot Spots and Petroleum Plume, Natural Attenuation, Institutional Controls, and Monitoring</b>	<b>Alternative 4A: In-Situ Biological Treatment of TCE Hot Spots and Petroleum Plume, Natural Attenuation, Institutional Controls, and Monitoring</b>	<b>Alternative 4B: In-Situ Biological Treatment of TCE Hot Spots and and Fringes and Petroleum Plume, Natural Attenuation, Institutional Controls, and Monitoring</b>
Overall Protection of Human Health and Environment	Not protective	Protective	More protective than Alternative 2	As protective as Alternative 3	More protective than Alternatives 3 and 4A
Compliance with <b>ARARs</b> and TBCs:					
Chemical-Specific	Would not comply	Would eventually comply	Would eventually comply	Would eventually comply	Would eventually comply
Location-Specific	Would not comply	Would comply	Would comply	Would comply	Would comply
Action-Specific	Not applicable	Would comply	Would comply	Would comply	Would comply
Long-Term Effectiveness and Permanence	Very limited	Effective	More effective than Alternative 2	As permanent but slightly more effective than Alternative 3	More effective and permanent than Alternatives 3 and 4A
Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment	None	None	Approximately 22.02 pounds of <b>COCs</b> removed through in-situ chemical oxidation	Approximately 23.84 pounds of <b>COCs</b> removed through in-situ biological treatment	Approximately 30.80 pounds of <b>COCs</b> removed through in-situ biological treatment.
Short-Term Effectiveness	No relevant issues to address	Would be effective. Minimum potential for short-term risks. Approximately 71 years to attain RAOs.	Would be effective. Greater potential for short-term risks than Alternative 2. Approximately 57 years to attain RAOs.	Would be effective. Greater potential for short-term risks than Alternative 2. Approximately 57 years to attain RAOs.	Would be effective. Greater potential for short-term risks than alternative 2. Approximately 29.5 years to attain RAOs.

**TABLE 2**  
**SUMMARY OF COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES**  
**OPERABLE UNIT 9, SITE 59 PROPOSED PLAN**  
**PAGE 2 OF 2**

<b>Evaluation Criteria</b>	<b>Alternative 1: No Action</b>	<b>Alternative 2: Natural Attenuation, Institutional Controls and Monitoring</b>	<b>Alternative 3: In-Situ Chemical Oxidation of TCE Hot Spots and Petroleum Plume, Natural Attenuation, Institutional Controls, and Monitoring</b>	<b>Alternative 4A: In-Situ Biological Treatment of TCE Hot Spots and Petroleum Plume, Natural Attenuation, Institutional Controls, and Monitoring</b>	<b>Alternative 4B: In-Situ Biological Treatment of TCE Hot Spots and and Fringes and Petroleum Plume, Natural Attenuation, Institutional Controls, and Monitoring</b>
Implementability	No action to implement	Simple to implement.	Simple to implement.	Simple to implement.	Slightly more complex than Alternative 4 due to increased size of systems. Pilot-scale treatability testing would be required.
Costs:					
Capital	\$0	\$79,000	\$1,631,000	\$1,697,000	\$4,546,000
NPW of O&M	\$0	\$1,025,000 (30-Year)	\$1,067,000 (30-Year)	\$1,371,000 (30-Year)	\$2,454,000 (30-Year)
NPW	\$0	\$1,104,000 (30-Year)	\$2,698,000 (30-Year)	\$3,068,000 (30-Year)	\$7,000,000 (30-Year)
State Acceptance	FDEP concurs with selection of Alternative 4A as the preferred alternative.				
Community Acceptance	Will be determined following public comment period.				

**ARARs** Applicable or Relevant and Appropriate Requirements.

**COCs** Chemicals of concern.

**NPW** Net present worth.

**O&M** Operation and maintenance.

**RAO** Remedial Action Objective.

**TBCs** To-be-considered (criteria).

**TCE** Trichloroethene.

During the upcoming public comment period, the Navy, U.S. EPA, and FDEP also welcome your comments on the proposed cleanup plan and on the other technical approaches that were evaluated.

## A Closer Look at the Navy's Proposed Cleanup Plan

### 1. In-Situ Treatment of TCE Hot Spots and Petroleum Plume

TCE Hot Spot No. 2 would be treated with a 30-gpm recirculation system including 10 pairs of recovery and injection wells and using 7,650 pounds of sodium lactate, 10,300 pounds of sodium bicarbonate, and 61 liters of DHC culture. TCE Hot Spot No. 3 would be treated with a 42-gallon per minute (gpm) recirculation system in the 70-to-80-foot zone that would include 14 pairs of recovery and injection wells and use 13,420 pounds of sodium lactate, 18,100 pounds of sodium bicarbonate, and 107 liters of DHC culture. The injection grid for the Petroleum Plume would consist of 60 DPT wells in which 5,400 pounds of ORC (magnesium peroxide) would be injected to a depth of 15 feet bgs.

### 2. Natural Attenuation

Natural attenuation would rely on naturally occurring processes within the aquifer to reduce the concentrations of **COCs**. Dispersion and dilution through aquifer movement and adsorption on soil particles would mainly be responsible for this. Aquifer conditions would be monitored to ensure that concentrations are being adequately reduced through natural processes. This component would apply only to the less concentrated areas of the TCE Plumes and would benefit from the source removal provided by Component 1.

### 3. Monitoring

Monitoring would consist of regularly collecting and analyzing groundwater samples from several monitoring wells located within the TCE Plumes, the TCE Hot Spots, and the Petroleum Plume to evaluate decreases in COC concentrations that may result from natural attenuation and/or in-situ biological treatment. As agreed to by the Navy and U.S. EPA, in consultation with FDEP, if the results of two consecutive sampling events indicate that the **cleanup goals** have been met, the site would be considered remediated.

Monitoring would also consist of collecting and analyzing groundwater samples from several monitoring wells located downgradient of the leading

edges of the plumes and one bedrock monitoring well located beneath the plumes to evaluate potential **COC** migration.

Based on the results of preliminary groundwater modeling, three downgradient wells would be designated as "sentinel" wells. If analysis of groundwater collected from these sentinel wells indicate that **cleanup goals** have been exceeded, the following step-by-step actions would be taken as agreed by the Navy, U.S. EPA, and FDEP:

- a. The sentinel well(s) where the exceedance(s) was(were) detected would be re-sampled to verify the exceedance(s).
- b. If the exceedance(s) is(are) verified, additional hydrogeological modeling would be performed to determine a revised predicted expansion of the **contaminant plume(s)** based on the new monitoring data.
- c. The additional modeling data would be used to develop and evaluate potential contingency remedies.

### 4. Land Use Controls

**LUCs** such as deed restrictions and notices to local government agencies would be implemented to prevent use of contaminated groundwater from Site 59. The Navy would provide written notice of the contamination to the St. Johns River Water Management District along with a request that they not issue permits for the installation of groundwater wells into the **surficial aquifer** at Site 59. In addition, annual site inspections would be conducted to verify the continued implementation of and compliance with the **LUCs**, in particular the deed restrictions. The Navy would be responsible for maintaining, reporting on, and enforcing all of the **LUCs** as part of the remedial action.

Because groundwater contamination remains at the site at levels that do not allow for unlimited exposure and unrestricted use, the Navy will review the remedial action every 5 years to evaluate its continued adequacy. If the results of any five-year reviews show that the selected remedial action has failed to provide proper protection of human health, additional active cleanup measures would be evaluated and might be implemented. Potential additional actions could include in-situ chemical treatment or in-situ biological treatment of larger areas of the plumes.

Based on the information currently available, the Navy, U.S. EPA, and FDEP believe that the above-proposed cleanup plan meets the threshold criteria and provides for the best balance of tradeoffs with respect to the

balancing and modifying criteria. The Navy, U.S. EPA, and FDEP expect the proposed cleanup plan to satisfy the following statutory requirements of **CERCLA** Section 121(b): (1) be protective of human health and the environment; (2) comply with **ARARs**; (3) be cost effective; (4) utilize permanent solutions to the maximum extent practical; and (5) satisfy the preference for treatment as a principal element.

## What impacts would the cleanup have on the local community?

- Alternatives that do not immediately achieve **cleanup goals** (Alternatives 2, 3, 4A, and 4B) include administrative action to restrict groundwater use until these **cleanup goals** have been reached.
- Alternatives that involve on-site treatment and/or site construction activities (Alternatives 3, 4A, and 4B) 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 if groundwater from the site is used.

## Why Does the Navy and U.S. EPA Recommend this Cleanup Plan?

This proposed cleanup plan is recommended for the following reasons

- Although concentrations of **VOCs** exceed FDEP GCTLs in groundwater at Site 59, detected concentrations of these **COCs** do not present an unacceptable threat to human health or the environment under the current and foreseeable future site use scenarios.
- This cleanup plan will achieve risk reduction through active treatment, mobility reduction, and imposing restrictions on access to contaminated groundwater until **cleanup goals** are met.
- Alternative 4A is expected to be slightly more effective than Alternative 3 because biological treatment is likely to remove the TCE Hot Spots more completely and provide a post-treatment environment much more favorable to continued natural attenuation.

## Next Steps:

By **TBD**, 2007, the Navy and U.S. EPA, in consultation with FDEP, expect to have reviewed comments and signed the **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 the Information Repository at the Former Memorial Chapel, 3112 New World Avenue, Cecil Commerce Center, Jacksonville, Florida 32221. The Navy and U.S. EPA, in consultation with FDEP, will also announce its decision through the local news media and the community mailing list.

To provide comments on this Proposed Plan, follow the directions on page 17 and use the form on pages 18 and 19.

## Glossary of Terms

This glossary defines the bolded 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.

**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**.

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

**Cleanup goal:** A numerical concentration agreed upon by the Navy and U.S. EPA, in consultation with FDEP, as having to be reached for a certain **COC** in order to meet one or more of the **RAOs**. A **cleanup goal** may be a regulatory-based criterion, a risk-based concentration, or even a background value.

**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.

**Contaminant plume:** An area of groundwater with concentrations of one or more **COCs** greater than **cleanup goals**.

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

**Land use controls (LUCs):** Administrative measures formulated and enforced to regulate current and future land use options. **LUCs** most often consist of property deed restrictions that prohibit residential development of an environmental site.

**National Priorities List (NPL):** The list of national Superfund sites.

**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.

**Operable Unit (OU):** A discrete entity that comprises an incremental step toward the comprehensive cleanup of one or more environmental sites. An **OU** may address a specific medium within a site (e.g., soil or groundwater), a geographical portion of the site, a specific site environmental concern, or the initial phases of an action. At NAS Cecil Field, **OUs** have often been organized to group multiple sites with similar characteristics and environmental concerns.

**Preliminary Risk Evaluation:** A streamlined evaluation of current and future potential for adverse human health or environmental effects from exposure to site contaminants. This evaluation typically uses standard conservative criteria rather than site-specific evaluation parameters.

**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 and U.S. EPA following the public comment period.

**Remedial Action Objective (RAO):** A cleanup objective agreed upon by the Navy and U.S. EPA, in consultation with FDEP. One or more **RAOs** are typically formulated for each environmental site.

**Remedial Investigation (RI):** A report that describes the site, documents the type and distribution of environmental contaminants detected, and present the results of the risk assessment.

**Restoration Advisory Board (RAB):** A body of representatives from the general public that meets on a regular basis to be briefed by the Navy and their contractors on the progress of environmental investigations and cleanup activities for a given facility. The **RAB** provides the opportunity for the community to give input into the cleanup program before final decisions are made.

**Surficial aquifer:** A layer of groundwater that is separated from deeper groundwater by a confining formation. At NAS Cecil Field, the **surficial aquifer** typically extends from approximately 5 to 90 feet below ground surface.

**Total recoverable petroleum hydrocarbons (TRPH):** A measurement of petroleum contamination in soil and water as defined by the State of Florida environmental regulations. This method measures the amount of petroleum compounds that have 8 to 40 carbon atoms.

**Volatile organic compounds:** Organic compounds that evaporate readily at normal ambient temperatures. Typical VOCs include light-fraction components of gasoline, such as benzene, toluene, ethylbenzene, and xylenes, and low molecular weight chlorinated solvents such as dichloroethane (DCA), dichloroethene (DCE), and TCE.



## What's a Formal Comment?

Formal comments are used to improve the cleanup plan. During the 30-day formal comment period, the Navy and U.S. EPA, in consultation with FDEP 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 **TBD**, 2007. Written comments and requests for a public hearing should be sent to

BRAC PMO SE  
Attention: Mr. Mark Davidson  
4130 Faber Place Drive, Suite 202  
North Charleston, SC 29405  
(843) 743-2135



Federal regulations require the Navy and U.S. EPA to distinguish between “formal” and “informal” comments. Although the Navy and U.S. EPA, in consultation with FDEP, use both your comments and RAB comments throughout site investigation and cleanup activities, they are only required to respond in writing to formal comments on the Proposed Plan. 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 Navy and U.S. EPA may respond to informal questions in consultation with FDEP.

The Navy and U.S. EPA, in consultation with FDEP, 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 cleanup decision. They will then prepare a written response to all formal comments. The transcript of formal comments and the written responses of the Navy and U.S. EPA will then be issued in the Responsiveness Summary included in the final 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 the technical and public information publications prepared to date for the site are available at the following Information Repository:

The Former Memorial Chapel  
6112 New World Avenue  
Cecil Commerce Center  
Jacksonville, Florida 32252





