



# **FORMER NCBC DAVISVILLE**

## **74<sup>th</sup> Restoration Advisory Board (RAB) Meeting Minutes**

### **April 30, 2009**

The 74<sup>th</sup> Restoration Advisory Board (RAB) meeting was held at the Quonset Development Corporation (QDC) Conference Center at 95 Cripe Street in North Kingstown, Rhode Island on 30 April 2009. The meeting agenda for the 74<sup>th</sup> RAB is included as Attachment A. The attendance list for the 74<sup>th</sup> RAB is included as Attachment B.

David Barney, the Navy's BRAC Environmental Coordinator, convened the meeting at approximately 7:05 PM on 30 April 2009. Mr. Barney pointed out the new format of the agenda, which is part of an effort to standardize the appearance of certain Navy documents since they will now be posted to a BRAC website. The URL for the BRAC Program Management Office website is as follows:

<http://www.bracpmo.navy.mil/basepage.aspx?baseid=86&state=Rhode%20Island&name=davisville>

Additionally, the Navy has recently updated the electronic administrative record for NCBC Davisville. All public documents completed prior to the Record of Decision for each Installation Restoration Site are included on the updated Administrative Record DVD. Historical RAB meeting notes are also included on the DVD. The DVD will be provided to the North Kingstown Free Library so that it may be viewed by the public. QDC will also have a copy of the DVD in their document library.

#### **NEXT RESTORATION ADVISORY BOARD MEETING**

The next RAB meeting will be held on 1 October 2009 at 7:00 PM at the QDC Conference Center. The Navy will send out postcards prior to the next RAB meeting reminding the public of the date, time, and location of the next meeting.

#### **LONG-TERM MONITORING UPDATES**

Steve Vetere gave a brief update on long-term monitoring schedules:

The Navy completed the 28th quarterly monitoring event at Allen Harbor Landfill during the month of March. Since the last RAB meeting, the Navy provided a draft data report to the BCT for the 27th event, completed in December 2008. The next sampling round is planned for late June or early July. Discussions are ongoing between the Navy, EPA, and RIDEM regarding modifications to the monitoring program.

The Navy completed the 12th monitoring event for Calf Pasture Point during the month of April. Since the last RAB meeting, the Navy provided a draft data report to the BCT for the 11th monitoring event, which was completed in October 2008. The next sampling round is scheduled for the fall. Recently, the Navy provided a work plan for a revised Long-Term Monitoring Program for Calf Pasture Point to EPA and RIDEM for review. The Navy has received comments from EPA on this proposal and is working on responses in an attempt to finalize the program so that it can be implemented by the fall sampling round.

Mr. Barney handed out a "draft final" fact sheet for Calf Pasture Point which had been updated based on comments received by EPA, RIDEM, and the Town of North Kingstown. A copy of the fact sheet is provided as Attachment C of these notes. A similar fact sheet for Allen Harbor Landfill is currently under development.

At EBS 21, the Navy collected two rounds of samples (December 2008 and January 2009) in an effort to achieve compliance with RIDEM regulations for the closure of this site. RIDEM requires three consecutive sampling rounds with concentrations below state standards to demonstrate compliance with their regulations (one round of sampling had been completed in March 2008). One of the samples collected during the January round exceeded a RIDEM standard, therefore RIDEM is not able to issue a letter of compliance to the Navy for EBS 21. Discussions are ongoing regarding a strategy for further actions at EBS 21.

## **OUTFALL SOIL REMOVAL**

Mr. Vetere gave a brief update on the outfall soil removal project that was initiated in December 2008 and is currently in the planning stages of the second phase. During the last RAB meeting, the Navy described a removal project where QDC has encountered some petroleum-impacted soils at the outfall of a storm drain that formerly received drainage from the recently demolished Building 224. QDC removed these soils from the outfall area and stockpiled them adjacent to the headwall. The Navy characterized this material and transported it off-site for disposal at a non-hazardous waste landfill. Currently, the Navy is preparing a work plan to guide additional investigations of soils and residual material present in and around the outfall pipe. Pending work plan approval, the field work for this project is scheduled for the fall of 2009.

Peter Elleman, North Kingstown resident, asked whether the outfall was located behind the fence line of the new parking lot. Steve King confirmed that the outfall was located behind the fence line.

## **SITE 16 REMEDIAL INVESTIGATION/FEASIBILITY STUDY**

Lee Ann Sinagoga of Tetra Tech notified the group that, since the last RAB meeting, the Navy has completed the Draft Final Remedial Investigation and the Draft Feasibility Study for Site 16. The Navy is preparing to address EPA and RIDEM comments on the Draft Feasibility Study. Ms. Sinagoga introduced Joe Logan, a Tetra Tech engineer, who gave a presentation describing the CERCLA Feasibility Study process and the content of the Site 16 Feasibility Study Report. Slides from this presentation are provided in Attachment D.

## **PRESENTATION: SITE 16 FEASIBILITY STUDY**

J. Logan opened the presentation with a description of the general CERCLA site remediation process. The objective of the Remedial Investigation is to determine whether there are human health or ecological risks associated with potential exposures to contamination present in environmental media. The Feasibility Study uses this information to identify which media at which location(s) warrant some type of remedial action in order to mitigate potential risks, then develops and evaluates potential remedial actions. The Feasibility Study does not select a remedial action. The Proposed Remedial Action Plan is the document that selects the remedial strategy based upon the information provided in the Feasibility Study. The Record of Decision is the formal description of the selected site remedy that is developed by the Navy in collaboration with EPA, RIDEM, and the public.

The format of the Feasibility Study is prescribed by an EPA guidance document (OSWER Directive 9355.3-01, October 1988), and generally consists of the following steps:

- Development of remedial action objectives (RAOs): RAOs specify the contaminants-of-concern, the impacted environmental media, and exposure pathways that will be addressed by the remedial action.
- Identification of Applicable or Relevant and Appropriate Requirements (ARARs): The Feasibility Study identifies federal and state environmental regulations with which the remedial action must comply. The remedial action must comply with federal requirements unless state requirements are more stringent.

- Development of Preliminary Remediation Goals (PRGs): PRGs are an acceptable contaminant level or range of contaminant levels that are provided for each exposure route as a cleanup goal for remedial actions.
- Screening of technologies and process options: The Feasibility Study starts by identifying the universe of potentially applicable technologies and process options for the contaminants of concern in the media of concern. These options are screened based on their effectiveness, implementability, and cost with one representative process option being selected for each technology type.
- Assembly of remedial alternatives: The process options selected from the screening steps are next assembled into remedial alternatives to develop a set of comprehensive site-wide remedial strategies that will be evaluated based on their effectiveness, implementability, and cost relative to their ability to address all of the risks that were identified for the site.
- Detailed analysis of alternatives: The remaining alternatives are next evaluated against the 9 CERCLA Feasibility Study criteria in the detailed analysis. In order to be considered as a site-wide remedy, each alternative must meet the first two criteria: a) Protection of human health and the environment and b) Compliance with ARARs.
- Comparative analysis of alternatives: After the detailed analysis criteria are applied to each alternative individually, the remaining alternatives are compared to each other using the same 9 criteria to complete the Feasibility Study evaluation.

Next, the presentation addressed the specifics of the Site 16 Remedial Investigation/Feasibility Study. The Phase III Remedial Investigation for Site 16 identified potential risks to:

- Recreational users, hypothetical future residents, and typical industrial workers from soil
- Hypothetical future residents from groundwater, and
- Industrial workers and hypothetical future residents to VOCs in groundwater through vapor intrusion into buildings.

The contaminants-of-concern in soils at Site 16 are polycyclic aromatic hydrocarbons (PAHs), arsenic, and lead. In one limited area (called the BTEX hotspot), benzene is also a contaminant-of-concern in soil. The contaminants-of-concern in groundwater at Site 16 are chlorinated solvents and benzene.

The RAOs for soil were developed to prevent exposure of industrial worker or hypothetical residents to contaminants in soil and to prevent the migration of contaminants from soils to groundwater. The RAOs for groundwater at Site 16 were developed to prevent human exposure to contaminated groundwater, prevent human exposure to volatile organic compounds in groundwater through vapor intrusion, and to verify that groundwater discharges to surface water continue to pose no risk.

Next, Mr. Logan showed a series of site plans depicting the nature and extent of contamination that was identified during field investigations at Site 16. Refer to Attachment D for these maps.

There was a question about how deep below the ground surface the contamination extends. Mr. Logan answered that the Feasibility Study evaluates alternatives that include excavation to a depth of approximately 8 to 10 feet below ground surface. Christine Williams of EPA Region I asked if the Navy was planning to excavate below the water table. Curt Frye of the Navy replied that excavation below the water table will be considered if it would help eliminate the need for land-use restrictions or other follow-up remedial actions without much additional cost. Mr. Frye added that excavation below the water table is often technically challenging and costly.

The soil alternatives that were developed for Site 16 after screening technologies and process options were:

Alternative S-1: No Action

Alternative S-2: Soil Cover and/or Cap, Monitoring, and Land Use Controls (LUCs)

Alternative S-3: Excavation, Off-site Treatment and Disposal, and LUCs

Alternative S-4: Soil Cover, Selected Excavation and Disposal, and LUCs

CERCLA requires the evaluation of the No Action alternative as a baseline against which to compare the performance of the other alternatives. Mr. Logan showed a slide providing a summary of one of the soil remedial alternatives including the location and depth of soil contamination and the specific actions that would be taken under this alternative should it be selected as the remedy.

The approach proposed by the Navy to address groundwater contamination was to treat the areas with the highest contaminant concentrations and rely on monitored natural attenuation (MNA) to remediate the rest of the plume. Active treatment of the entire plume was considered cost prohibitive given the size of the impacted area. Additionally, different process options were selected to address contamination in different areas of the plume to optimize the effectiveness and implementability of the whole-site groundwater remedy.

The groundwater alternatives that were developed for Site 16 were:

Alternative G-1: No Action

Alternative G-2: MNA and LUCs

Alternative G-3: In-Situ Chemical Oxidation (High-Concentration Areas), MNA, and LUCs

Alternative G-4: Enhanced Bioremediation (High-Concentration Areas), MNA, and LUCs

Alternative G-5: PRBs (Overburden High-Concentration Areas), In-Situ Enhanced Bioremediation (Bedrock and Remote High Concentration Areas), MNA, and LUCs

Alternative G-6: Groundwater Extraction and Treatment (High-Concentration Areas), MNA, and LUCs

The next steps in the process are for the Navy to respond to the regulator comments on the Draft Feasibility Study. After the regulator comments have been resolved, the Feasibility Study will be revised and resubmitted as Draft Final. The Navy is anticipating the Draft Final Feasibility Study to have been submitted by the next RAB meeting.

#### **FORMER PR-58 NIKE SITE**

Casey Haskell of the Army Corps of Engineers gave an update on the progress of the Remedial Investigation at the Former PR-58 Nike Site. The Army Corps recently completed another round of field investigations including a drinking water well survey, borehole geophysics, and a bedrock study using aerial photography. The information collected during this investigation is being used to develop a work plan addendum to support the installation of additional wells that will help delineate the nature and extent of contamination in groundwater. The work plan addendum is due to RIDEM at the end of May. Well installations are planned for the summer and sample collection is planned for the fall.

**Tonight's meeting concluded at approximately 8:30 P.M.**

**ATTACHMENT A**

**30 APRIL 2009 RAB MEETING AGENDA**



# **AGENDA**

## **FORMER NCBC DAVISVILLE**

### **74<sup>th</sup> Restoration Advisory Board (RAB) Meeting**

**Date: April 30, 2009**

**Time: 7:00 P.M.**

**Location: 95 Cripe Street, North Kingstown, Rhode Island**

#### **RAB Meetings – Next Meeting Date**

#### **Long-Term Monitoring Program Updates**

- Site 09: Allen Harbor Landfill
- Site 07: Calf Pasture Point
- EBS 21: Former Aboveground Storage Tank DC-133

#### **Outfall Soil Removal**

**Presentation: Site 16 Feasibility Study**

**Army Corps of Engineers: PR-58 Nike Site Update**

**ATTACHMENT B**

**30 APRIL 2009 RAB MEETING ATTENDANCE LIST**

**FORMER NCBC DAVISVILLE  
RAB MEETING ATTENDANCE LIST  
30 APRIL 2009, 7:00 PM  
95 CRIPE STREET - QDC CONFERENCE CENTER**

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**ATTACHMENT C**  
**CALF PASTURE POINT FACT SHEET**



**FACT SHEET**  
**FORMER NAVAL CONSTRUCTION BATTALION CENTER**  
**(NCBC) AT DAVISVILLE, RI**  
**CALF PASTURE POINT - UPDATE ON ENVIRONMENTAL STATUS**

Volume #, Issue #

April 2009

*Individuals using Calf Pasture Point as a recreation area are not at risk from the contamination underneath the property.*

**Environmental Investigations**

Multiple environmental investigations required by EPA's Superfund Program and conducted by the Navy were undertaken prior to Calf Pasture Point being transferred to the Town of North Kingstown, RI for recreational use. Environmental investigations included:

- Metal detection surveys to identify the location of buried containers.
- Soil boring analysis to study the site's geology and determine subsurface contamination levels.

- Numerous monitoring well installations to determine the groundwater contamination plume size and characteristics (Figure 1).

The investigations, conducted between 1991 and 1998, found solvents such as trichloroethene or "TCE" several feet below the ground surface of Calf Pasture Point. Concentrations found at the ground surface and along the Calf Pasture Point shoreline are below action levels and do not pose a risk to recreational users. More information about TCE can be found on-line through the Agency for Toxic Substances & Disease Registry (ATSDR), a federal agency under the U.S. Department of Health & Human Services (TCE fact sheet link: <http://www.atsdr.cdc.gov/tfacts19.html#bookmark08>).



**Photo 1: Calf Pasture Point Shoreline**

*As you visit Calf Pasture Point you will likely see groundwater monitoring wells throughout the property and may occasionally see workers collecting environmental samples. Workers may be outfitted in white suits simply to see ticks more readily.*



**Figure 1: Calf Pasture Point Monitoring Wells**



**Photo 2: Shoreline Sampling of Groundwater Using Piezometers**

## Long-Term Risk Monitoring Program

To verify the contamination underneath the property continues to be below levels which could pose a human health risk, the Navy frequently collects groundwater, surface water, and sediment samples from Calf Pasture Point as part of its long-term risk monitoring program. The Navy also conducts annual inspections to ensure no water supply wells are installed and no permanent buildings are constructed on the property without approval from the Navy, the EPA, and the State of Rhode Island.

The long-term monitoring effort is dynamic and is adjusted based on sampling results as a means of ensuring maximum protection of human health and the environment. To that end, currently additional subsurface investigations are being planned in order to optimize the monitoring effort.

## Five-Year Review Reports

Although the data collected as a part of the long-term risk monitoring program are continually reviewed, to further ensure continued protection of human health and the environment and to comply with Federal and State hazardous cleanup laws and the cleanup plan, the data undergoes a formal review by the Navy, EPA, and RIDEM every five years. These findings are documented in a Five-Year Review report and are publicly available. The most recent 2008 Five-Year Review, the second one completed for Calf Pasture Point, found that the remedy effectively assures the area is suitable for use as a public recreation area. The review can be found online at: [www.epa.gov/region1/superfund/sites/ncbc](http://www.epa.gov/region1/superfund/sites/ncbc) and at the local repository:

North Kingstown Free Library  
100 Boone Street  
North Kingstown, RI 02852



**Photo 3: Environmental Sampling of Monitoring Wells**

## History

*Calf Pasture Point was part of the Former Naval Construction Battalion Center (NCBC) at Davisville, RI. NCBC Davisville provided mobilization support to the Naval Construction Battalion, also known as the "Seabees." Calf Pasture Point was primarily used for Navy Seabees' training in the use of heavy construction equipment. The NCBC Davisville facility began operations in 1939 and closed in 1994. In 2001, the Town of North Kingstown received the land through the National Park Service from the Navy for public recreational use.*

## Contamination Sources

*The Navy used industrial solvents at NCBC to help clean and maintain construction equipment used in training exercises. Some of these solvents were spilled and released to the environment through inappropriate disposal practices, thereby causing groundwater contamination. Based on Navy investigation reports, it is suspected that cans of a decontaminating agent containing solvents were buried at Calf Pasture Point in the late 1960s/early 1970s, and are believed to be the main source of the groundwater contamination in the aquifer underlying Calf Pasture Point.*

## For More Information

If you have any questions or concerns, please contact:

Curt Frye, Navy Project Manager, 215-897-4917, [curtis.frye@navy.mil](mailto:curtis.frye@navy.mil)

Dave Barney, BRAC Environmental Coordinator, 616-753-4656, [david.a.barney@navy.mil](mailto:david.a.barney@navy.mil)

Christine Williams, EPA Project Manager, 617-918-1384, [Williams.christine@epa.gov](mailto:Williams.christine@epa.gov)

Stacy Greendlinger, EPA Community Involvement, 617-918-1403, [greendlinger.stacy@epa.gov](mailto:greendlinger.stacy@epa.gov)

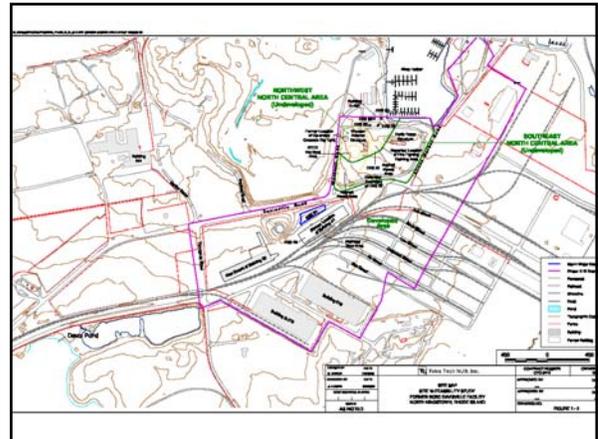
Richard Gottlieb, RIDEM Project Manager, 401-222-2792 ext. 7138, [Richard.gottlieb@dem.ri.gov](mailto:Richard.gottlieb@dem.ri.gov)

**ATTACHMENT D**

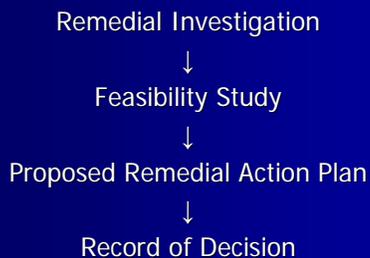
**PRESENTATION SLIDES FROM 30 APRIL 2009 RAB MEETING**

## Former NCBC Davisville Site 16

- Overview of Feasibility Study
  - General Feasibility Study Process
  - Draft Site 16 Feasibility Study



## Typical Steps in CERCLA Site Remediation Process



## Objectives of a Feasibility Study

- Develop and evaluate potential remedies that permanently and significantly reduce the threat to public health, welfare, and the environment.
- Provide a basis for the selection of a cost-effective remedial action alternative that mitigates the threats.
- Achieve consensus among agencies regarding the selection of the response action.

## Results from a Remedial Investigation

- Identify contaminated media.
- Identify chemicals of concern (COCs).
- Identify level of risks and groups at risk (for example, residential users or industrial workers).

## Steps in Feasibility Study Process

- Identify Remedial Action Objectives (RAOs).
- Identify Applicable or Relevant and Appropriate Requirements (ARARs).
- Develop and select Preliminary Remediation Goals (PRGs).

### *Steps in Feasibility Study Process (Continued)*

- Screening of processes and technologies
  - Considers each medium and COC
  - General evaluation
    - Effectiveness
    - Implementability
    - Cost (Qualitative)

### *Steps in Feasibility Study Process (Continued)*

- Assembly of Alternatives
  - Processes and technologies retained from screening step are combined into alternatives.
  - Separate set of alternatives for each medium.
  - A manageable number of alternatives are considered for each medium.

### *Steps in Feasibility Study Process (Continued)*

- Evaluation of Alternatives
- Each alternative is compared to Nine Criteria established in the regulations.
- Threshold Criteria:
  - Overall Protection of Human Health and the Environment
  - Compliance with ARARs

### *Steps in Feasibility Study Process (Continued)*

- Nine Criteria (continued)
- Balancing Criteria:
  - Long-Term Effectiveness and Permanence
  - Reduction of Toxicity, Mobility, or Volume through Treatment
  - Short-Term Effectiveness
  - Implementability
  - Cost

### *Steps in Feasibility Study Process (Continued)*

- Nine Criteria (continued)
- Modifying Criteria:
  - State Acceptance
  - Community Acceptance

### *Steps in Feasibility Study Process (Continued)*

- Comparative Analysis: The Alternatives are compared to each other according to the Nine Criteria.
- Although a particular alternative may stand out after the Comparative Analysis, a preferred alternative is not identified in the Feasibility Study.

### *Draft Site 16 Feasibility Study*

- The Phase III RI identified risks to recreational users, hypothetical future residents, and typical industrial workers from soil, to hypothetical future residents from groundwater, and to industrial workers and hypothetical future residents to VOCs in groundwater through vapor intrusion into buildings.

### *Draft Site 16 Feasibility Study (continued)*

- Evaluation of Alternatives in the Feasibility Study considered future site use as an industrial operation.

### *Draft Site 16 Feasibility Study (continued)*

- Soil COCs:
  - Northwestern area of the North Central Area (NWNCA) (excluding BTEX Hot Spot Area)
    - cPAHs
    - Arsenic
  - BTEX Hot Spot Area
    - cPAHs
    - Arsenic
    - Lead
    - Benzene
  - TPH was also be considered in the NWNCA and the BTEX Hot Spot Area.

### *Draft Site 16 Feasibility Study (continued)*

- Groundwater COCs:
  - Undeveloped Area
    - Tetrachloroethene (PCE)
    - Trichloroethene (TCE)
    - cis-1,2-Dichloroethene (DCE)
    - Vinyl chloride
  - Developed Area
    - PCE
    - TCE
    - cis-1,2-DCE
    - Vinyl chloride
    - Benzene

### *Draft Site 16 Feasibility Study (continued)*

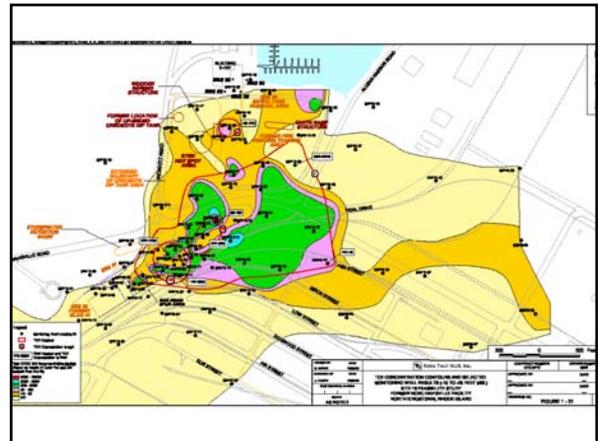
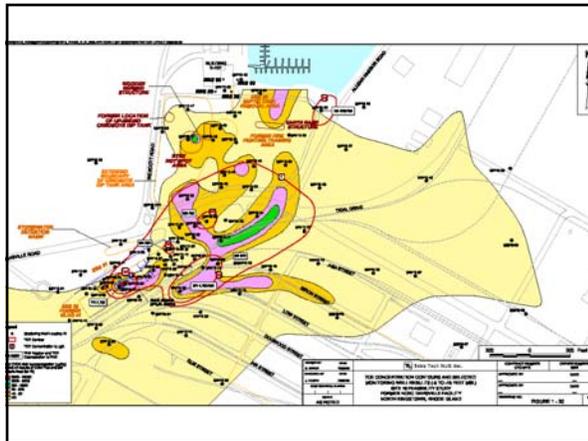
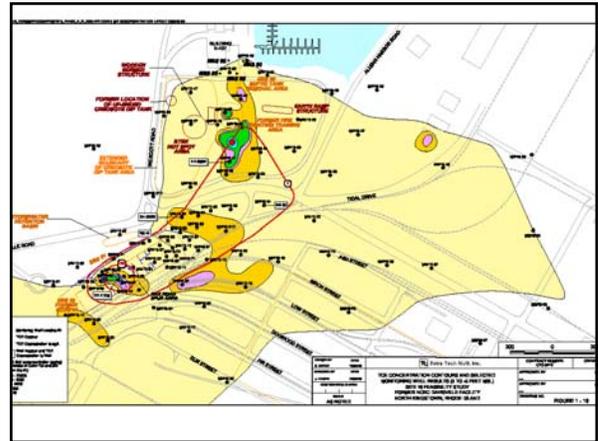
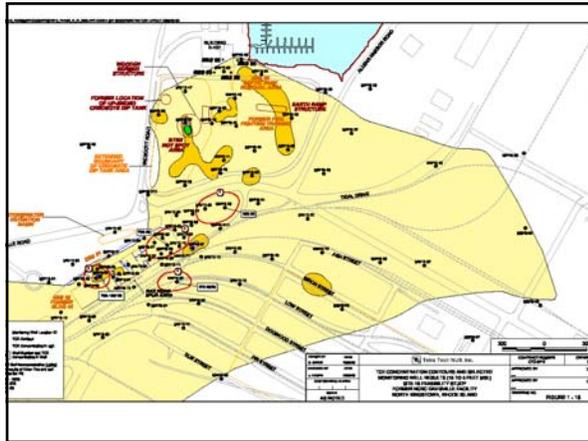
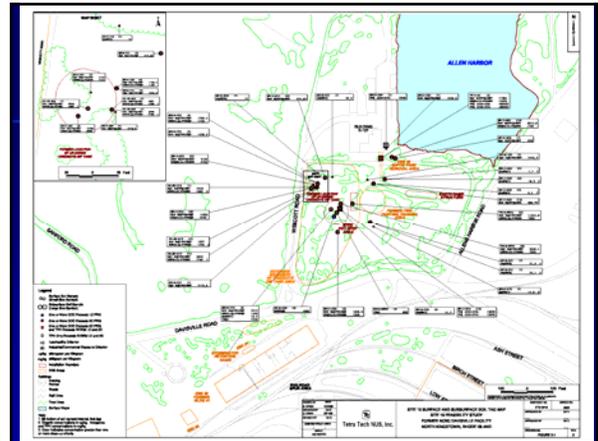
- Soil RAOs were developed to prevent exposure of industrial workers and hypothetical residents to contaminants in the soil and to prevent migration of contaminants from the soil to the groundwater.

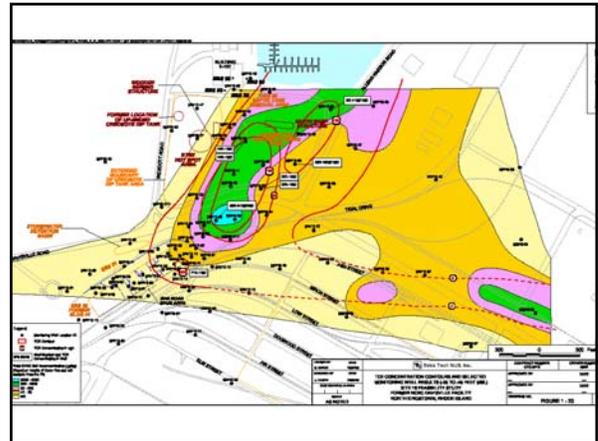
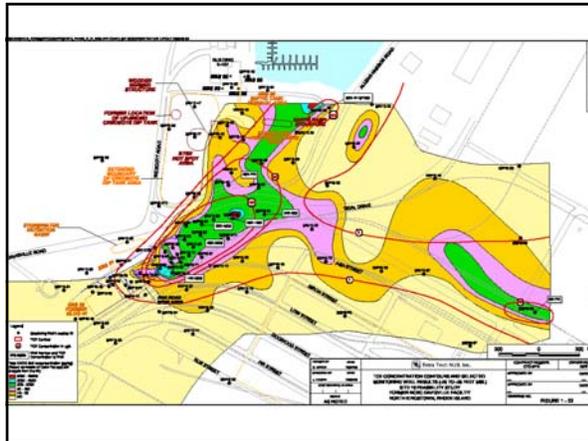
### *Draft Site 16 Feasibility Study (continued)*

- Groundwater RAOs were developed to prevent human exposure to contaminated groundwater, prevent human exposure to VOCs in the groundwater through vapor intrusion, and to verify that groundwater discharge to surface water continues to pose no risk.

## Draft Site 16 Feasibility Study (continued)

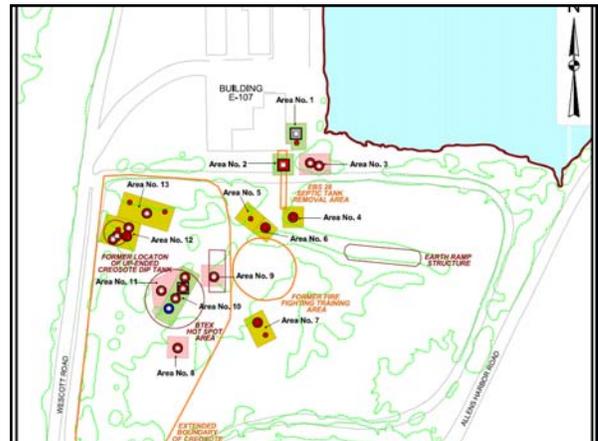
- Extent of soil and groundwater contamination.





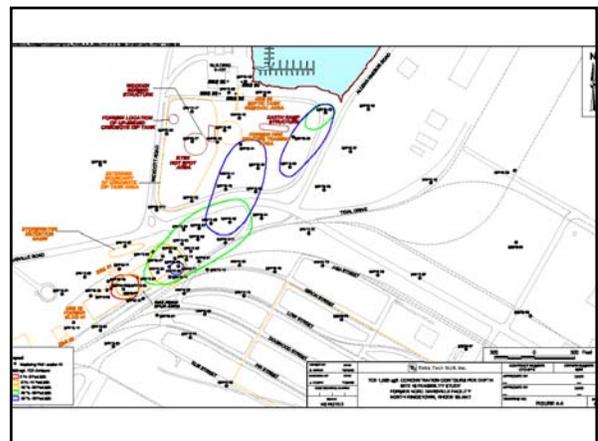
**Draft Site 16 Feasibility Study (continued)**

- Soil Alternatives
  - Alternative S-1: No Action
  - Alternative S-2: Soil Cover and/or Cap, Monitoring, and Land Use Controls (LUCs)
  - Alternative S-3: Excavation, Off-site Treatment and Disposal, and LUCs
  - Alternative S-4: Soil Cover, Selected Excavation and Disposal, and LUCs



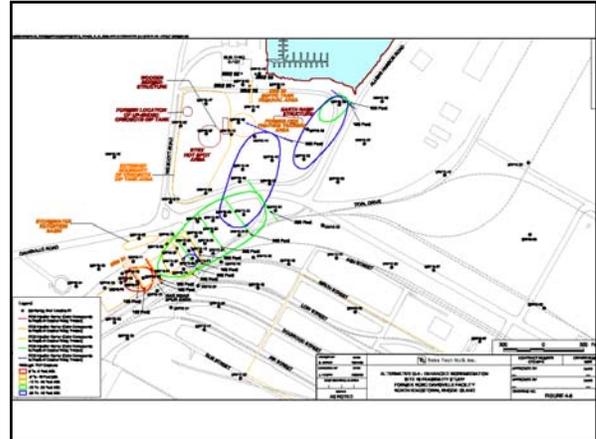
**Draft Site 16 Feasibility Study (continued)**

- Groundwater Alternatives
  - Because of excessive costs, active treatment of the entire plume was not considered. The basic approach was to treat the areas with the highest contaminant concentrations and rely on monitored natural attenuation (MNA) for the rest of the plume.



## Draft Site 16 Feasibility Study (continued)

- Groundwater Alternatives
  - Alternative G-1: No Action
  - Alternative G-2: MNA and LUCs
  - Alternative G-3: In-Situ Chemical Oxidation (High-Concentration Areas), MNA, and LUCs
  - Alternative G-4: Enhanced Bioremediation (High-Concentration Areas), MNA, and LUCs
  - Alternative G-5: PRBs (Overburden High-Concentration Areas), In-Situ Enhanced Bioremediation (Bedrock and Remote High Concentration Areas), MNA, and LUCs
  - Alternative G-6: Groundwater Extraction and Treatment (High-Concentration Areas), MNA, and LUCs



## Draft Site 16 Feasibility Study (continued)

- Path Forward
  - The Draft Feasibility Study is in Regulatory Review.
  - Navy will prepare a response to comments by the regulatory agencies.
  - After resolution of comments, the Feasibility Study will be revised and resubmitted.