TETRA TECH

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July 20, 2011

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Contract Task Order No. WE06

Subject: RAB meeting Minutes

MEMORANDUM

FOR THE MEMBERS OF THE RESTORATION ADVISORY BOARD (RAB) FOR THE INSTALLATION RESTORATION PROGRAM AT NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP) BETHPAGE, NEW YORK

Attached for your review are the minutes from the RAB meeting held on April 6, 2011. The Navy requests that you review the meeting minutes and provide comments that you have to the Remedial Project Manager, Ms. Lora Fly. These minutes will be discussed and approved at the next meeting in November of 2011. If you need additional information, please call Ms. Lora Fly at (757) 341-2012, or email, lora.fly@navy.mil.

Sincerely,

David D. Brayack
Project Manager

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RESTORATION ADVISORY BOARD MEETING
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP), BETHPAGE
BETHPAGE COMMUNITY CENTER
103 GRUMMAN ROAD WEST, BETHPAGE, NEW YORK
WEDNESDAY, APRIL 6, 2011

The twenty-seventh meeting of the Restoration Advisory Board (RAB) was held at the Bethpage Community Center in Bethpage, New York. Meeting attendees included representatives from the Navy (Lora Fly), New York State Department of Environmental Conservation (NYSDEC) (Steven Scharf), New York State Department of Health (NYSDOH) (Steve Karpinski), Nassau County Department of Health (John Lovejoy), Bethpage Water District (Anthony Sabino), Town of Oyster Bay (Richard Pfaender), RAB Community Members (Charles Bevilacqua, Eugena Mazzara, Brian Nugent, Rosemary Styne, and Rose Walker), Tetra Tech (David Brayack, Debbie Cohen, and Robert Sok), ECOR Solutions, Inc. (Al Taormina and Will Torres), H&S Environmental (Patrick Schauble), and ARCADIS (David Stern). There were two guests at the meeting, including two Bethpage residents. The meeting sign-in sheet is provided as Attachment 1.

WELCOME AND AGENDA REVIEW

The Navy representative, Ms. Lora Fly, welcomed everyone to the RAB meeting and introduced the meeting agenda. The agenda for the meeting is included as Attachment 2. The presentations for the meeting are included in Attachment 3.

COMMUNITY UPDATE AND REVIEW AND APPROVAL OF MEETING MINUTES

Ms. Fly asked whether the RAB members received the November 2010 minutes, which were distributed in March 2011, and asked whether there were questions or comments on the minutes. There were no questions or comments. The November 2010 RAB minutes were approved.

TECHNICAL PROGRESS – SITE 1 ACTIVITIES UPDATE

Mr. Robert Sok (Tetra Tech) provided a presentation on the status update of the Site 1 activities, including soil vapor investigation, containment system, and polychlorinated biphenyl (PCB) investigation. The presentation is included in Attachment 3.

Mr. Sok began with an overview on the soil vapor activities. Treatment of volatile organic compound (VOC) contamination in soil and groundwater at Site 1 was conducted from 1998 to 2002. Based on the 2006 NYSDOH vapor intrusion guidelines, the Navy evaluated onsite soil gas concentrations and the

potential migration of VOCs. From 2008 to 2010, the Navy conducted soil gas sampling on site and in the adjacent residential neighborhood. The Navy also conducted indoor air and sub-slab sampling in homes along 10th and 11th streets from 2009 to 2011. The sampling results indicated VOCs above NYSDOH guidelines in some samples. The Navy installed portable air purification units (APUs) as a temporary mitigation measure, and in several homes, sealed utility access sumps in basements and installed Sub-Slab Depressurization (SSD) systems. In January 2010, a soil vapor extraction (SVE) containment system began operation to prevent soil gas from continuing to move off Site 1. Sampling results from March and November 2010 indicated that all indoor air levels were below NYSDOH air guidelines. Based on the November results, no further action is recommended at these homes using NYSDOH evaluation criteria. Preliminary evaluation of the SVE containment system shows the system is operating effectively. The Navy, NYSDEC, and NYSDOH met on January 19, 2011 to discuss the 2010 results and determine sampling and data collection needs for 2011.

A sampling event was conducted in February 2011 that included soil gas, indoor air, sub-slab, and outdoor air sampling and collection of vacuum readings from sub-slabs of homes and monitoring points in the neighborhood. Mr. Sok noted that the SSD and APU systems were turned off three weeks prior to this sampling. The preliminary results (non-validated data) show that concentrations are less than NYSDOH air guidelines; the SVE Containment System is establishing a good capture zone in neighborhood; and there are continued downward trend of VOC concentrations. Mr. Sok reviewed a figure showing the time trend of indoor air concentrations before the APUs were installed; after the APUs were installed; after the SSD were installed; and after the SVE Containment System was installed. The results show drastic decreases in concentrations, especially after the SVE Containment System started operation. Mr. Sok reviewed another figure showing the time trend of sub-slab/SSD stack concentrations before the SSDs were installed and after the SVE Containment System was installed. The trend also shows significant decreases in concentrations. Mr. Sok indicated that the Navy will evaluate the data from all sampling events to determine the need to continue operating systems in homes and will report the findings to NYSDEC and NYSDOH. The Navy will continue to operate the SVE Containment System. Further information on the Site 1 SVE Containment System is provided in the next presentation.

In answer to a question of whether outside agencies review the reports from these investigations and data evaluations, the Navy indicated that both NYSDEC and NYSDOH review the reports and make sure that the Navy is complying with their requirements. In answer to a question of how much longer the systems will need to be in the homes, the Navy indicated that it is not known at this time. The data are being evaluated and then the Navy will present the results to NYSDEC and NYSDOH. NYSDEC and NYSDOH concurrence will be necessary before the systems could be removed from the homes. The

current timeline is to have a draft report on the results and discussion with NYSDEC and NYSDOH in May 2011, and then a final report to the residents by the end of the summer.

Mr. Sok then provided an update on the PCB Investigation at Site 1 that is being conducted to determine the depth of PCB contamination in soil and to assist in locating additional monitoring wells. Fifteen new monitoring wells were installed to a depth of up to 220 feet below ground surface, and sampling was conducted in early December 2010 and March 2011. The data are being evaluated and then a meeting will be held with NYSDEC to discuss the results and the next steps for addressing this contamination. Mr. Sok reviewed a figure showing the PCB investigation area.

TECHNICAL PROGRESS - GM-38 AREA REMEDIAL ACTION AND SOIL VAPOR EXTRACTION CONTAINMENT SYSTEM OPERATION

Mr. Dave Brayack provided a presentation on the status of the GM-38 Area remedial action and SVE Containment System operation. The presentation is included in Attachment 3.

The treatment system is being operated to remove VOCs from groundwater. Operation of the system began in October 2009 and will continue for approximately 5 years (until 2014). The primary treatment process is air stripping followed by carbon polishing. The extracted water is being treated to meet NYSDEC treatment standards before discharge into either an injection well or into a county recharge basin. Vapor from the air stripping process is being treated with carbon prior to venting to the atmosphere. Mr. Brayack explained that optimization activities are ongoing to improve the system performance, to evaluate the capture zone, and to reduce operating costs. The Navy is collecting data to support the evaluation of the effectiveness of the system to capture the targeted contaminated area.

Questions regarding the GM-38 remedial action include the following:

- Was the system supposed to operate for 15 years? No, modeling projected 3 to 4 years of operation for treatment goals to be met. However, it was noted that the access agreements may be longer than the projected system operation to make sure that there would be no access concerns in the future.
- How often does the Navy report the data? Quarterly reports are prepared. It was noted that these reports are provided to the Bethpage Water District (Rich Human is on the distribution list).
- How are the vinyl chloride and VOC concentration trends? The concentrations have been decreasing significantly.
- Has the system been shut down for maintenance recently? Yes, the week before the RAB meeting the system was shut down for maintenance on one of the pumps. The system was

operating again as of noon on April 6, 2011. It was noted that there are also some shut downs for regular maintenance or if power outages occur. These shut downs are discussed in the annual report.

- Will the Navy evaluate well RW2 as part of the capture zone evaluation? One of the outcomes of the capture zone evaluation may be the addition of wells to the treatment system to make the system more effective. After the evaluation is conducted, further discussion between the Navy and regulators will be needed regarding RW2. The Navy indicated that two years of data were necessary to have the appropriate dataset to conduct the evaluation and that the capture zone analysis will be completed 2012.

Mr. Brayack reviewed the Site 1 SVE containment system, and indicated that the purpose of the system is to prevent offsite migration of Site 1 VOC-impacted soil gas and cleanup offsite soil gas. Operation of the system began in January 2010. Mr. Brayack indicated that the system is operating well but some condensation in the system will need to be addressed. Mr. Brayack reviewed photographs of the building and equipment in the building that supports the treatment system. The system is anticipated to operate until 2015. Mr. Brayack indicated that optimization activities are ongoing to improve performance, evaluate capture zone, and reduce operating costs. The Navy is collecting data to evaluate the capture zone.

TECHNICAL PROGRESS - OPERABLE UNIT (OU) 2 OFFSITE GROUNDWATER INVESTIGATION & PUBLIC WATER SUPPLY DESIGN

Mr. Brayack discussed the progress of the offsite groundwater investigation (GM-75 area), which is part of OU2, and the public water supply design. The presentation is included in Attachment 3.

The purpose of the OU2 groundwater investigation is to delineate the area of groundwater contamination south of NWIRP Bethpage. Contamination in this area is deep. The investigation includes installation of vertical profile borings to quickly screen areas for the presence, depth, and concentration of contamination. Permanent monitoring wells are being installed to confirm the presence or absence of contamination and to develop contamination concentration trends. The vertical profile borings are approximately 12-inch diameter holes drilled into the ground. Drilling of each boring takes 4 to 6 weeks to complete. Samples of groundwater are collected during drilling at various depths and the borings extend to the Raritan Clay layer at a depth of up to 840 feet bgs. Approximately 36 groundwater samples per boring are collected and analyzed for VOCs. Based on the results of the analysis, permanent monitoring wells may be installed. Six vertical profile borings were completed in 2009, and based on the results additional profile borings and permanent monitoring wells were located. The additional borings and monitoring wells are being installed (started in October 2010), and the work is expected to continue

through summer 2011. In an area southeast of NWIRP Bethpage, one boring was completed and three monitoring wells are in progress. In an area south of NWIRP Bethpage and one boring and two monitoring wells were completed. Mr. Brayack showed figures of the 2009 borings and the 2010 to 2011 borings and monitoring wells. Mr. Brayack showed a photograph of the January 2011 boring activities. Because a house is located near the boring location the Navy installed a temporary wooden sound barrier.

Mr. Brayack provided an update on the planned treatment system for an offsite public water supply well. The Navy will install a treatment system on the public supply well as a precaution to be able to treat groundwater if VOC concentrations begin to increase. The design includes a granular activated carbon treatment system. The design will be completed in early 2011 and construction is anticipated to begin in late 2011 or early 2012.

Questions regarding the presentation include the following:

- In what water district is the public supply well? Aqua New York.
- How many more monitoring wells are planned for installation in the Town of Oyster Bay? This is difficult to determine at this time because some of the planned monitoring wells straddle the boundary between Hempstead and Town of Oyster Bay.
- Are there any plans for a pump and treat system for GM-75? There are no current plans to install a treatment system, because a stable high concentration plume that warrants a pump and treat system has not been identified in this area.
- Have there been any difficulties with access arrangements? No.

CLOSING REMARKS

Ms. Fly asked whether there were any other questions or comments. With no questions or comments, Ms. Fly proposed the next RAB meeting be held on November 2, 2011. Technical meetings between the Navy and regulators are planned for the spring and summer and the November meeting will provide an update on these meetings. Ms. Fly thanked everyone for coming to the meeting and the meeting was adjourned.

ATTACHMENT 1

APRIL 6, 2011 RAB MEETING SIGN-IN SHEET

27th RAB Meeting for NWIRP Bethpage
April 6, 2011
Sign-In List

Name	Address (if interested in being on mailing list)	Organization	How Did You Hear of Meeting?
Will Torres		LZIOR FEDERAL Services	
Joyce MARINACCIO	FOR Joanne Perico 248 11TH St.		EMAIL JRACP248@AOL
Steven Scharf	NYSDEC 625 Bdwy Albany NY 12233		
Steve Karpinski	NYSDOH 547 River St. Troy NY 12218.		
Patrick Schauble	HBS Environmental, Westborough MA.		
DAVID STERN	AECOM	NUC	
Anthony SABINO	BWD		
John Lovejoy	Nassau Co. Dept. of Health	106 Charles Lindbergh Blvd Uniondale, NY.	
Rich Pfaender	TOB		
Dan Grindstaff	230 11th St Bethpage		
Brian Nugent		NASSAU County	
Rose Walker	Nassau County Legislature		

27th RAB Meeting for NWIRP Bethpage
April 6, 2011
Sign-In List

Name	Address (if interested in being on mailing list)	Organization	How Did You Hear of Meeting?
Rosemary Styre		RAB	member
Eugenia Mazzara		RAB	Member
Charles Berlasga		RAB	MEMBER
David Brayack		TetraTech	
Robert Sok		Tetra Tech	
Debbie Cohen		Tetra Tech	
Lora Fly		NAVY	
Al Taormina		ECOR	

5/20/11 DK

ATTACHMENT 2

APRIL 6, 2011 RAB MEETING AGENDA

Agenda

Restoration Advisory Board
Naval Weapons Industrial Reserve Plant Bethpage

April 6, 2011
Bethpage Community Center
Bethpage, New York
7:00 p.m.

Welcome and Agenda Review
Lora Fly, NAVFAC Mid-Atlantic

Meeting Minutes
All Members

Technical Progress

Site 1 Activities - Update
Rob Sok, Tetra Tech

GM-38 Operation
David Brayack, Tetra Tech

Soil Vapor Extraction Containment System
David Brayack, Tetra Tech

OU 2 - Offsite Groundwater Investigation & Public Water Supply Design
David Brayack, Tetra Tech

Closing Remarks
Lora Fly

Presenters will be available after the program for questions.

ATTACHMENT 3

NAVY AND TETRA TECH PRESENTATIONS

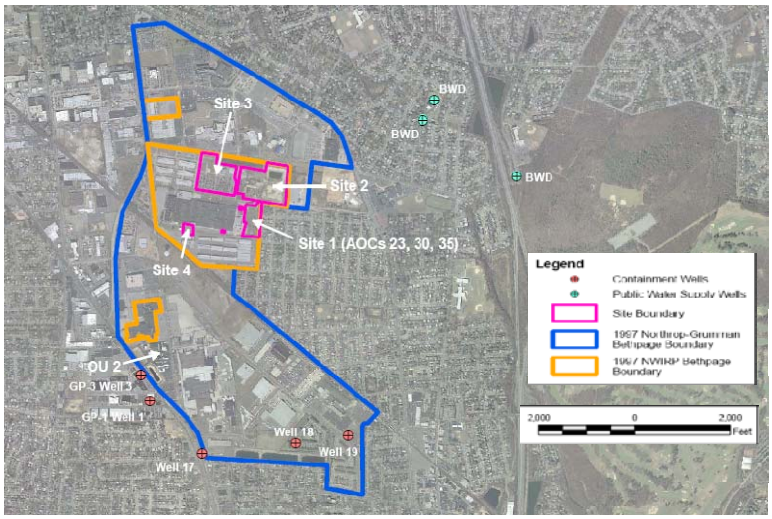
NAVFAC
Naval Facilities Engineering Command
NAVFAC MID-ATLANTIC

Restoration Advisory Board
(RAB) Meeting

Site 1 Activities - Update

Naval Weapons Industrial Reserve
Plant (NWIRP) Bethpage
April 6, 2011

FACILITY MAP



SOIL VAPOR OVERVIEW

- October 2006 New York State Department of Health issued soil vapor intrusion guidelines
- 2008 to 2011 - Navy conducted soil gas sampling onsite and in adjacent residential neighborhood
- 2009 to 2011 - Navy conducted sampling and monitoring in homes
- Initial indoor air sampling results indicated VOCs above NYSDOH air guidelines in some samples
- Portable carbon air filtration units (APUs) and sub-slab depressurization (SSD) systems installed as temporary mitigation measures
- January 2010 – Soil Vapor Extraction (SVE) Containment System began operation

APU AND SSD SYSTEM PHOTO

SVE CONTAINMENT SYSTEM PHOTO

SOIL VAPOR INTRUSION

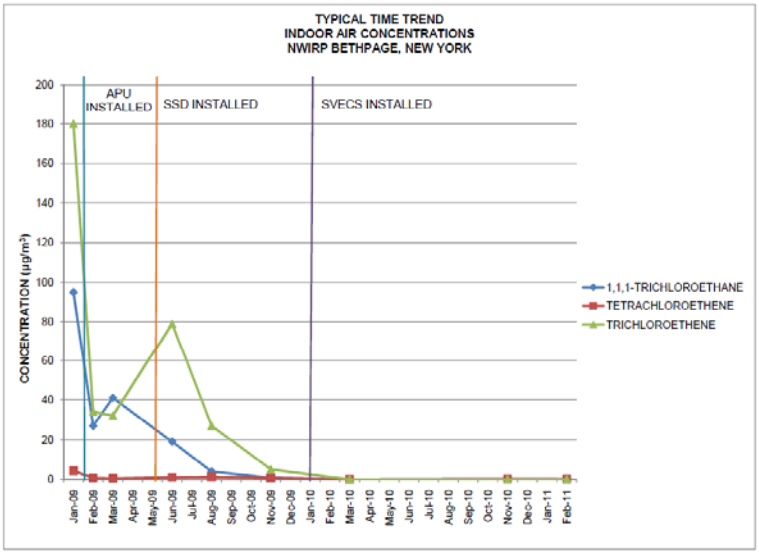
- Sampling events conducted in March 2010 and November 2010
- March 2010 Sampling Event - All indoor air results were less than NYSDOH air guidelines
- November 2010 Sampling Event - All indoor air results were below NYSDOH air guidelines and NFA is recommended based on NYSDOH matrix evaluation
- Preliminary evaluations of SVE system operation through 2010 were good
- Navy, NYSDEC, and NYSDOH meeting was held on January 19, 2011 to discuss 2010 results and future sampling and data collection needs in 2011

SOIL VAPOR INTRUSION

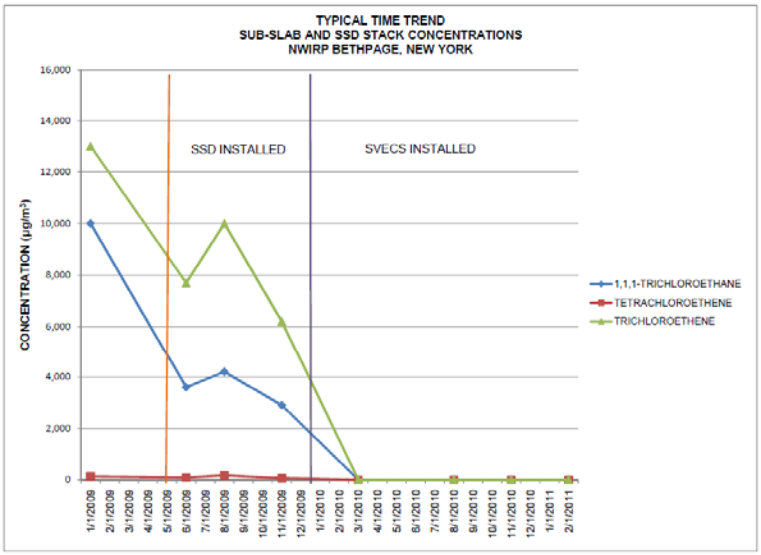
- February 2011 Sampling Event
  - SSD systems turned off 3 weeks prior to sampling
  - Collected soil gas, indoor air, sub-slab, and outdoor air samples
  - Collected vacuum readings from sub-slab of homes and monitoring points in the neighborhood

- Preliminary results are good (non-validated data)
  - results less than NYSDOH air guidelines
  - vacuum readings indicate SVE is establishing capture zone in neighborhood
  - continued downward trend of VOC concentrations

TYPICAL TIME TREND – INDOOR AIR



TYPICAL TIME TREND – SUB-SLAB/SSD STACK



FUTURE ACTIONS – SOIL VAPOR

- Evaluate data from all sampling events to determine continuing need for operating systems in homes
- Report findings to NYSDEC and NYSDOH
- Continue operation of SVE system on Navy property (O&M, weekly inspections, and optimization)

PCB INVESTIGATION UPDATE

- Monitoring wells installed (15 new wells installed up to 220 ft bgs)
- Conducted groundwater sampling events in early December 2010 and March 2011
- Data evaluation is in progress
- Meeting with NYSDEC to discuss results and next steps

PCB INVESTIGATION UPDATE

QUESTIONS ?

NAVFAC
Naval Facilities Engineering Command
NAVFAC MID-ATLANTIC

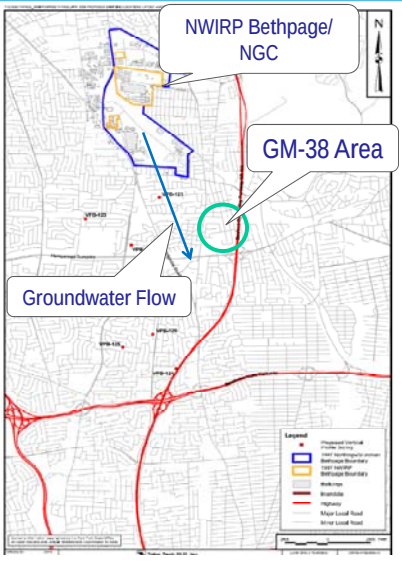
Restoration Advisory Board (RAB) Meeting

GM-38 Remedial Action and Soil Vapor Extraction Containment System Operation

Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage
April 6, 2011

GM-38 REMEDIAL ACTION

- Purpose: Treat an area of higher concentration volatile organic compound (VOC)-impacted groundwater
- System started operation in October 2009 and will continue to operate for approximately 5 years
- Extracts 46 million gallons of water and 200 pounds of VOCs per month



GM-38 REMEDIAL ACTION

- System started operation in October 2009
- Extracts 46 million gallons of water and 200 pounds of VOCs per month

GM-38 REMEDIAL ACTION

GM-38 REMEDIAL ACTION

GM-38 REMEDIAL ACTION

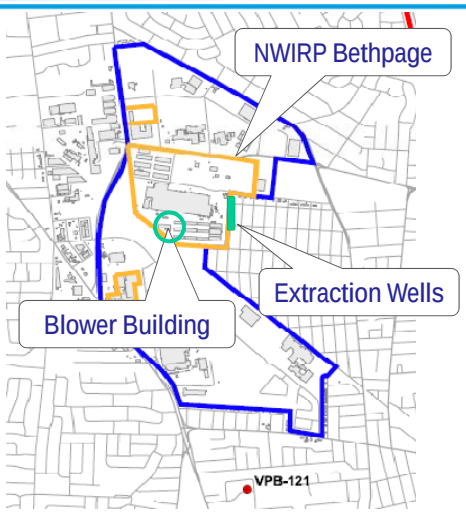
- System is expected to operate until approximately 2014
- Optimization activities are ongoing
  - Improve performance
  - Evaluate capture zone
  - Reduce operating cost

GM-38 REMEDIAL ACTION

Questions

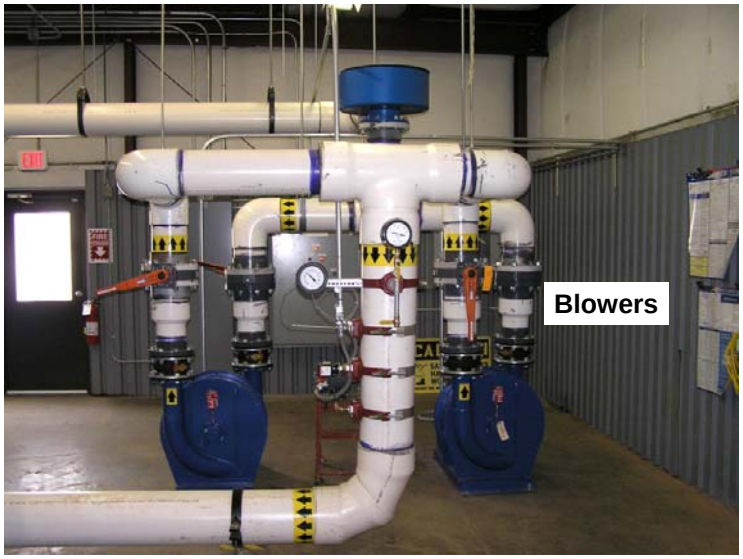
SITE 1 SOIL VAPOR EXTRACTION CONTAINMENT SYSTEM

- Purpose: Prevent offsite migration of Site 1 VOC-impacted soil gas and cleanup offsite soil gas
- System started operation in January 2010 and continues to operate
- Extracts approximately 500 cubic feet per minute of soil gas from 12 wells located along Site 1 fence line



SITE 1 SOIL VAPOR EXTRACTION CONTAINMENT SYSTEM

SITE 1 SOIL VAPOR EXTRACTION CONTAINMENT SYSTEM



SITE 1 SOIL VAPOR EXTRACTION CONTAINMENT SYSTEM

- System is expected to operate until approximately 2015
- Optimization activities are ongoing
  - Improve performance
  - Evaluate capture zone
  - Reduce operating cost

SITE 1 SOIL VAPOR EXTRACTION CONTAINMENT SYSTEM

Questions

Naval Facilities Engineering Command
NAVFAC MID-ATLANTIC

Restoration Advisory Board (RAB) Meeting

OU2 - Offsite Groundwater Investigation and Public Water Supply Design

Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage
April 6, 2011

OU2 GROUNDWATER INVESTIGATION - PURPOSE

- Delineate area of groundwater contamination in areas south of NWIRP Bethpage
- Program consists of:
  - Vertical profile borings - used to quickly screen areas for the presence, depth, and concentration of contamination
  - Permanent monitoring wells - to confirm presence/absence of contamination and develop trends

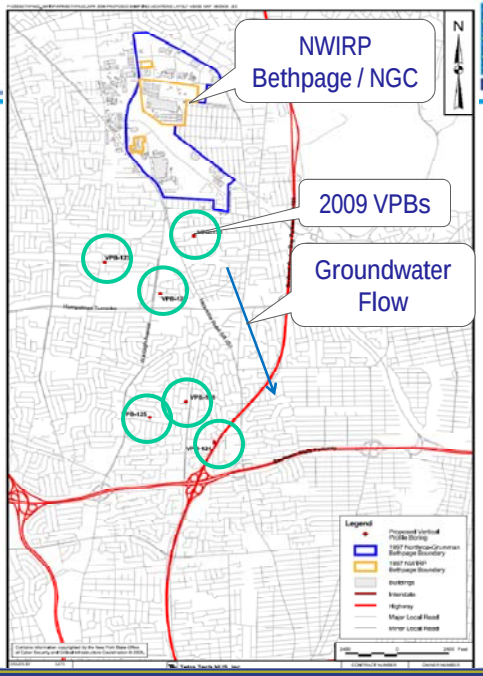
OU2 INVESTIGATION - VERTICAL PROFILE BORING PROGRAM

- A vertical profile boring is a 12-inch diameter hole drilled into the ground. At select depths, the drilling is stopped, a device is lowered to depth, and a sample of the water is collected
- The borings will extend to the Raritan Clay Layer at a depth up to 840 feet below ground surface
- 36 groundwater samples will be collected per boring and analyzed for VOCs

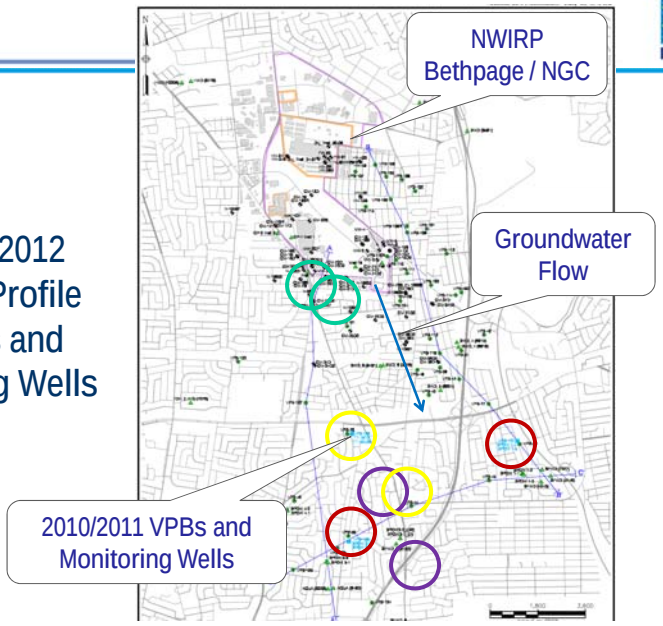
OU2 INVESTIGATION - VERTICAL PROFILE BORING PROGRAM (Cont.)

- Each boring requires 4 to 6 weeks to complete
- Six locations were completed in 2009
- Addition borings and monitoring wells are currently being installed through 2011
  - One boring (completed) and three wells (in progress) will address a well field south east of NWIRP Bethpage
  - One boring and two wells (completed in Mar 11) will address a well field south of NWIRP Bethpage
- Navy currently designing a treatment system, installation planned for 2012

2009 Vertical Profile Borings



2010 to 2012 Vertical Profile Borings and Monitoring Wells



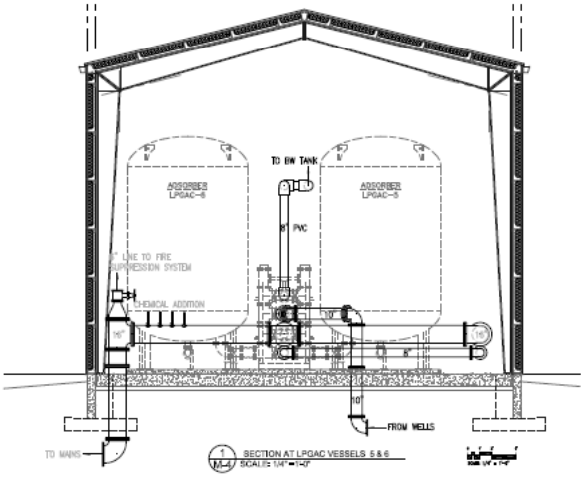
OU2 INVESTIGATION - VERTICAL PROFILE BORING PROGRAM

OU 2 PUBLIC WATER SUPPLY DESIGN

- Navy is currently designing a Granular Activated Carbon treatment system for an offsite Public Water Supply
- Design started in 2009 and will be completed in 2011
- Construction is anticipated to start in late 2011 or early 2012

OU 2 PUBLIC WATER SUPPLY DESIGN

Liquid Phase Granular Activated Carbon System - Profile



OU2 ACTIVITIES

Questions