



**TETRA TECH**

NOR-00428

May 19, 2009

Project Number 112G2019

Reference: CLEAN Contract No. N62470-08-D-1001  
Contract Task Order WE06

**MEMORANDUM**

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

On behalf of the U.S. Navy, Tetra Tech NUS, Inc. is pleased to provide the draft minutes from the March 11, 2009 Restoration Advisory Board meeting for your review and comment.

Comments are requested by August 15, 2009. You may provide your comments to Lora Fly at (757) 444-0781 or [lora.fly@navy.mil](mailto:lora.fly@navy.mil) or the RAB Community Co-Chair, Mr. Jim McBride.

Sincerely

David D. Brayack, P.E.  
Project Manager

**Distribution:**

NAVAIR, Richard Smith  
NYSDEC (Albany), Steve Scharf  
NYSDEC (Albany), Henry Wilkie  
NYSDEC (Stony Brook), Walter Parish  
NYSDOH, Jacquelyn Nealon  
NYSDOH, Joseph DeFranco  
USEPA Region II, Carol Stein  
USEPA Region II, Carla Struble  
Town of Oyster Bay, Hon. John Venditto  
Town of Oyster Bay, Richard Pfaender  
Town of Oyster Bay DPW, Matt Russo  
Tetra Tech NUS, Dave Brayack  
ECOR Solutions, Al Taormina



**TETRA TECH**

Northrop Grumman, John Cofman  
ARCADIS, David E. Stern  
Community Co-Chair, Jim McBride  
Community RAB Member, Mike Grello  
Community RAB Member, Hon. Ed Mangano  
Community RAB Member, Linda Mangano  
Community RAB Member, Ed Resch  
Community RAB Member, Charles Bevilacqua  
Community RAB Member, Roy Tringali  
Community RAB Member, Rosemary Styne  
Community RAB Member, Eugenia Mazzara

Non-RAB Member Mailing List  
Residence in Attendance

**RESTORATION ADVISORY BOARD MEETING  
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP), BETHPAGE  
999 SOUTH OYSTER BAY ROAD, BETHPAGE, NEW YORK  
WEDNESDAY, MARCH 11, 2009**

The twenty-third meeting of the Restoration Advisory Board (RAB) was held at NWIRP, Bethpage. 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) (Jacquelyn Nealon), Nassau County Department of Health (Joseph DeFranco), Town of Oyster Bay (Rich Pfaender), RAB Community Members (Charles Bevilacqua, Eugenia Mazzara, Ed Mangano, and Rosemary Styne), Tetra Tech Inc. (David Brayack, Debbie Cohen, Stavros Patselas, Vince Shickora, and Robert Sok), ECOR Solutions, Inc. (Al Taormina), and ARCADIS (David Stern). Seventeen Bethpage residents also attended the meeting. 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 as Attachment 3.

**COMMUNITY UPDATE AND REVIEW AND APPROVAL OF MEETING MINUTES**

Ms. Fly asked whether the RAB members received the November 2008 minutes, which were distributed in December 2008, and asked whether there were questions or comments on the minutes. There were no questions or comments. Ms. Fly then asked whether the RAB members could approve the November 2008 meeting minutes. The RAB motioned to approve these meeting minutes, the motion was seconded, and the November 2008 meeting minutes were approved.

**SITE 1 SOIL VAPOR INVESTIGATION AND INFORMATIONAL SESSION**

Mr. Robert Sok (Tetra Tech Inc.) provided a presentation on the status of the Site 1 soil vapor investigation and indoor air testing. The presentation is the same one that was provided at the March 3, 2009 informational session. The presentation is included in Attachment 3. Mr. Sok indicated that approximately 70 people attended the informational session and that the series of poster stations explaining the history of Site 1 environmental activities and ongoing and future

actions for the site provided at the information session were available for review after the RAB presentations. Representatives of the Navy, NYSDEC, and NYSDOH were present at the informational session to answer community questions. In addition, NYSDOH provided fact sheets and other informational sheets related to soil vapor intrusion.

Treatment of volatile organic compound (VOC) contamination in soil and groundwater at Site 1 was conducted from 1998 to 2002. However, based on recent New York State Department of Health (NYSDOH) vapor intrusion guidelines, the Navy is evaluating offsite migration of VOCs through the soil gas. In addition, the Navy is evaluating indoor air quality in offsite residential housing. As discussed at the April and July 2008 RAB meetings, the first step in the evaluation showed there was a potential for offsite migration of contaminated soil gas. The extent of contaminated offsite soil gas was uncertain. In September 2008, the Navy submitted a work plan for investigation of offsite soil gas and conducted the investigation in October 2008. The October 2008 investigation included soil gas sampling in the neighborhood adjacent to Site 1 along 10<sup>th</sup> and 11<sup>th</sup> Streets and Sycamore and Maple Avenues. Additional soil gas sampling, on 9<sup>th</sup> and 11<sup>th</sup> Streets, was conducted to determine the boundary of the offsite soil gas contamination. In January 2009, the Navy also conducted a soil vapor extraction pilot test for soil gas containment along the property. The pilot test results will support the design of a full-size treatment system.

Mr. Sok showed a map with the soil gas sampling locations that had soil gas concentrations exceeding NYSDOH guidelines. The exceedances were found on 11<sup>th</sup> Street between Maple and Sycamore Streets. Based on the October 2008 soil gas sampling results, in January 2009 the Navy began indoor air and sub-slab sampling in homes along 11<sup>th</sup> street. Results for trichloroethene (TCE) were above NYSDOH guidelines in some indoor air and sub-slab samples. The Navy installed portable carbon air filtration units as temporary mitigation measure and sealed utility access sumps in basements, as needed.

Based on the January 2009 results, additional homes within the boundary of contamination were identified for sampling and sampling of these homes began in February 2009. Indoor air sampling needs to be conducted during the heating season, which generally extends to the end of March. The Navy established a website specific to the Site 1 soil gas activities. The residents can check this website for results for the soil gas testing and the status of activities.

Mr. Sok explained that indoor air sampling results can only be provided to the home owners; the Navy cannot provide this information to the general public.

Future work the Navy will conduct includes:

- Continue indoor air sampling in targeted homes and identify additional homes based on sampling results.
- Continue air monitoring in homes to monitor vapor levels and effectiveness of the portable carbon air filtration units. If needed, the Navy will install sub-slab depressurization system in homes where sub-slab vapor levels indicate the need for this type of mitigation.
- Complete soil vapor extraction design and complete construction of system.
- Conduct future soil gas and indoor air sampling to monitor the effectiveness of short-term and long-term mitigation measures.

Community RAB member, Ed Mangano, explained that the RAB is a forum for the community to provide their input and express their concerns to the Navy. Mr. Mangano further explained that based on the informational session, he wrote a letter to Congressman King requesting the Congressman's assistance in asking the Navy to take additional action related to the soil gas contamination. The additional actions presented in the letter are:

- Free testing of homeowners residing south of NWIRP Bethpage
- Expediting home remediation and onsite remediation system installation
- Designation of funding to compensate affected homeowners
- Expanding the radius of neighborhood testing and continuing testing until non-detected results are confirmed.

In addition, Mr. Mangano provided a letter to NYSDOH requesting that a cancer survey of the area be conducted. Mr. Mangano made a motion that the RAB consider his request. The motion was seconded and the Community RAB members indicated support for Mr. Mangano's letter. Mr. Pfaender (representative of the Town of Oyster Bay) also indicated support for Mr. Mangano's letter. Mr. Mangano requested that the status of the requested items be added to the agenda for future RAB meetings.

Questions and discussion regarding the Navy's presentation include the following:

- Several questions were asked regarding home testing. In answer to a question of whether NYSDOH could recommend a company to conduct home testing, Ms. Nealon explained that any testing would need to be conducted by a certified company and would need to follow NYSDOH guidelines. She further explained that the Navy is sampling the required areas and the Navy will extend the area of investigation as needed based on the results of the sampling. NYSDOH, Nassau County, and NYSDEC are overseeing the Navy investigation and testing. Mr. Scharf added that the Navy is under agreement with NYSDEC to conduct testing and remediation of Site 1, and that the Navy has been doing everything that NYSDEC has asked them to do in a manner consistent with standard soil gas investigations. A concern was raised that people may not have been home when the Navy did a community survey for home testing. Ms. Fly explained that the Navy sent out mailers by Federal Express and made follow-up phone calls requesting to conduct home testing, so that the Navy was able to contact everyone in the area of concern. A question was asked whether a home outside, but near the boundary of the contaminated area, could be tested to provide confidence to the homeowner or future buyer that the house was not contaminated. Ms. Fly indicated that the Navy will discuss the community concern further. Ms. Fly and Mr. Scharf indicated that the Navy will continue to sample homes identified in the contaminated area and make sure that the homes and soil gas are clean in the area. If the results show any other areas of concern, the Navy will need to address these areas.
- There was discussion regarding what Mr. Mangano meant by “compensation” in his letter. Mr. Mangano explained that damage compensation would depend on the damage incurred by the homeowner, and it could include funding to address testing, health issues, and loss in home values. Ms. Fly indicated that in 2009 the Navy will be installing a treatment system to remediate the soil gas contamination. The Navy expects it to take from 2 to 4 years to treat the soil gas contamination, so that the measures provided to homes to address indoor air quality concerns will only be needed in the short term.
- There was discussion regarding a cancer incidence survey for the area. Mr. Mangano requested NYSDOH to conduct a cancer incidence survey. Ms. Nealon explained that NYSDOH has received Mr. Mangano's request and is determining how to address the request.

- In answer to a question on what the concentrations of contamination were at the time the contamination was released, the Navy indicated that it does not have records from Grumman on the volume of contamination released, and that there are too many unknown variables for the Navy to determine a reliable estimate. Mr. Scharf explained that the contaminated soil was remediated 10 years ago as part of a source removal action. The soil gas contamination is residual contamination that was found when the Navy recently conducted sampling along the site fence line. It was further discussed that environmental practices by individuals and industries were different in the past and these also contributed to contamination that may be present, further confounding estimation of potential past releases.
- In answer to a question on what was the status of ownership of Site 1, the Navy indicated that the Navy is in the process of transfer the property with deed restrictions to restrict development of the site for non-residential use only. Residential use of the site would not be allowed because there is residual contamination that would be a concern if the property were developed for residential use.

## **SITE 1 SOIL VAPOR CONTAINMENT SYSTEM DESIGN**

Mr. David Brayack (Tetra Tech) described the soil vapor containment system design. The Navy will install the system to treat the soil vapor outside the homes so that soil vapor intrusion will no longer be a continued concern for homes.

Mr. Brayack explained the history of Site 1 (Former Drum Marshalling Area) and indicated that TCE, tetrachloroethene (PCE), and 1,1,1, trichloroethane (TCA) were identified as primary solvents in soil and groundwater. In 1991, groundwater was found to be contaminated with these chemicals and a full-scale Air Sparging (AS)/Soil Vapor Extraction (SVE) remediation system was operated from 1998 to 2002. By 2002, the remediation system removed 4,500 pounds of chlorinated solvents, and the groundwater remediation goal [chlorinated solvent concentrations 20 micrograms per liter ( $\mu\text{g/L}$ ) or less] was achieved. No rebound in contaminant concentrations has been observed.

As Mr. Sok presented, soil gas contamination was found off site. Therefore, the Navy is designing an onsite soil vapor extraction system to prevent further offsite migration of contaminated soil gas and capture contaminated soil gas that migrated off site to the extent practical. The goal is to reduce soil gas concentrations to meet indoor air standards to ensure that soil gas will not be a concern to any of the residences in the area. Mr. Brayack explained that the design considers the effects of precipitation infiltration, winter operation, sub-slab depressurization units, and groundwater level fluctuations on system operation and effectiveness. In January 2009, the Navy conducted a pilot-scale test to provide information to support the full-scale design. The pilot-scale test provided data to identify the appropriate extraction rates that would address the targeted capture zone for the treatment system. Mr. Brayack reviewed the preliminary treatment system design, showing figures with soil vapor extraction well locations, design contaminant capture zone, and a conceptual cross section of the capture zone. Mr. Brayack indicated that the piping for the system will be below ground and treatment equipment will be housed in a building that is already present at Site 1.

Mr. Brayack explained that the design will be completed in the spring and construction of the system will begin in October 2009. The Navy anticipates that construction will be complete so that operation of the system can begin by the end of 2009.

#### **OFFSITE GROUNDWATER INVESTIGATION – GM-75 WORK PLAN**

Mr. Brayack discussed the progress on the offsite groundwater investigation in the GM-75 area. The presentation is included in Attachment 3.

As discussed at the July and November 2008 RAB meeting, the GM-75 program is being conducted to delineate an area of VOC contamination in groundwater beyond the capture zone of the onsite groundwater containment system. Contamination in this area is deep. An investigation in the GM-75 area will be conducted to delineate the area with TCE concentrations greater than 1,000 µg/L in groundwater. Investigation of lower concentrations of VOC contamination in groundwater that may impact public water supplies is also being conducted as part of the program. Vertical profile borings are being installed as part of the investigation. The 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 will extend to the Raritan Clay layer at a depth of up to 840 feet bgs. Approximately 36 groundwater samples per boring will be collected and analyzed for VOCs.



Based on the results of the analysis, permanent monitoring wells may be installed. The Navy has selected six initial locations for vertical profile borings. The work started in January 2009 and the first boring (VPB-125) was completed in February 2009. The Navy started installation of the second boring (VPB-124). The Navy is reviewing the results from each boring as they are received to determine where additional borings are needed. As the data become available, the Navy has been providing the results to NYSDEC and NYSDOH. Mr. Brayack indicated that the results from the first boring installed showed the location was not contaminated. An update on the results will be provided at the next RAB meeting, and once the investigation is complete, the Navy will prepare a report and make the report available to the public.

### **GM-38 CONSTRUCTION STATUS**

Mr. Stavros Patselas (Tetra Tech Inc.) provided an update on the status of construction of the GM-38 Area Groundwater Remediation Project since the November 2008 RAB presentation. The presentation is included in Attachment 3.

The presentation included a summary of the treatment system design and well installations and an update on construction activities and schedule. The purpose of the treatment system is to remove VOCs from groundwater. The primary treatment process will be air stripping followed by carbon polishing. The Navy will split the discharge of treated water between injection wells and a county recharge basin. For discharge to either injection wells or recharge basin, treated water needs to meet NYSDEC treatment standards before discharge. Vapor from the air stripping process will be treated with carbon prior to venting to the atmosphere. Mr. Patselas mentioned some of the esthetic considerations for the treatment system, including a silencer on the air stripper.

Mr. Patselas explained that construction is underway for the building that will house the treatment system. All equipment for the treatment system has been ordered and delivered; equipment can be seen in the construction area. The Navy is using various local subcontractors for construction of the building and treatment system. Since the end of October 2008, the Navy began providing overnight security at the construction site to prevent trespassers from entering the area. After construction is complete, fencing will be installed to prevent trespassers from entering the area. Mr. Patselas indicated that all major treatment system equipment is set into place on equipment pads inside the building, and construction of the steel building around the equipment is complete. Upcoming construction includes installation of recovery wells and

associated piping, installation and calibration of instrumentation, testing and balancing of all systems, and site restoration.

Construction of the treatment system will be complete in May 2009. Plant start-up, calibration, and testing are scheduled for May and June 2009, and operations are expected to continue for 10 years, until VOC concentrations in groundwater are less than acceptable levels. After construction is complete, Tetra Tech will operate the system for 6 months and then transfer operations to the Navy Operation and Maintenance (O&M) contractor. The system operation will be conducted in accordance with an O&M plan that a Navy contractor will prepare.

In answer to a question of whether contaminated materials from the site are being removed and disposed at another site, Mr. Patselas explained that only treated water from the system will be discharged. The treatment system will be operated in accordance with state permits.

#### **CLOSING REMARKS**

Mr. Mangano indicated that community participation on the RAB was a means to provide community input to the Navy and said that if anyone is interested in being a community member on the RAB they could contact him or Ms. Fly. A community attendee indicated that he would like to be a community member on the RAB and said he would be interested in being RAB co-chair. The Navy will provide notification of the next RAB meeting and will have the community RAB members conduct a vote to include him as a community RAB member.

Ms. Fly thanked everyone for coming to the meeting and asked whether there any other questions or comments. With no questions or comments, Ms. Fly proposed that the next RAB meeting be held on September 16, 2009 based on the availability of the RAB members. The next RAB date was agreed upon and the meeting was adjourned.

**ATTACHMENT 1**


**MARCH 11, 2009 RAB MEETING SIGN-IN SHEET**

# 23rd RAB Meeting for NWIRP Bethpage

March 11, 2009

## Sign-In List

Name	Address (if interested in being on mailing list)	Organization	How Did You Hear of Meeting?
Pam Scanlon	247 Tenth St. Bethpage		Last mtg.
Rich Pfaender	Town of Oyster Bay		
CHARLES BEVILACQUA		RAB	
Rosemary Styne		RAB	
Gene Mazzeo		RAB	
DAVID STERN		NGC	
Kristine Benasutti	242 11th St. Bethpage		
Louise Profita	185 9th St MAIL TO: 229 N. Linden St. N. MASSP 11758	"	
Kathleen Forrest-Lavalley	108 15th St Bethpage		
Michelle & Jose Iglesias	Bethpage		Mailing
Melissa Morrone	245 No. Second St Bethpage, 11714		

 Steven Dack 195 Sycamore Ave Bethpage 11714  
 (c/o Susan B - is moving to other)  
 wants to be on RAB

# 23rd RAB Meeting for NWIRP Bethpage

March 11, 2009

## Sign-In List

Name	Address (if interested in being on mailing list)	Organization	How Did You Hear of Meeting?
Steven Scharf	NYSDEC 625 Bldg Albany NY 12233-7015		
Joyce MARINACCIO - FOR - Joanne Perico	248 11th St		
Jacelynn Noonan	NYS DOH	Troy	
FRANK BURFEIND	202 MAPLE AVE. BETHPAGE, N.Y.		
MARY BURFEIND	202 MAPLE AVE BETHPAGE		
Claude Mass	33 Raspberry Lane Levittown		
Jerome Oertling	Bethpage, NY		
Robert Peters	232 11th St Bethpage		
Doreen Pennic	1550 Franklin Ave Mineola		
Ed Mangano	1550 Franklin Ave Mineola		
Susan Bestany	195 Sycamore Bethpage		
JERRY SCHERER	99 Thomas Ave Bethpage		

# 23rd RAB Meeting for NWIRP Bethpage

March 11, 2009

## Sign-In List

Name	Address (if interested in being on mailing list)	Organization	How Did You Hear of Meeting?
AK TAORMINA		ECOR	
Stavros Patselas		TEEC	
ED MANGANO			
Rob Sok		TENUS	
Debbie Cohen		TENUS	
LORA FLY		NAVFAC Midlant	
Joseph DeFranco		Nassau Co Dept of Health	

### How Did You Hear of Meeting?

**ATTACHMENT 2**

**MARCH 11, 2009 RAB MEETING AGENDA**



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## **Agenda**

**Restoration Advisory Board  
Naval Weapons Industrial Reserve Plant Bethpage**

**March 11, 2009  
NWIRP Bethpage, NY  
7:00 p.m.**

**Welcome and Agenda Review**  
Lora Fly, NAVFAC Mid-Atlantic

**Meeting Minutes**  
All Members

### **Technical Progress**

**Site 1 Soil Vapor Investigation and Informational Session**  
Rob Sok, Tetra Tech

**Site 1 Soil Vapor Containment System Design**  
David Brayack, Tetra Tech

**Offsite Groundwater Investigation – GM-75 Work Plan**  
David Brayack, Tetra Tech

**GM-38 Construction Status**  
Stavros Patselas, Tetra Tech

**Closing Remarks**  
Lora Fly

*Presenters will be available after the program for questions.*

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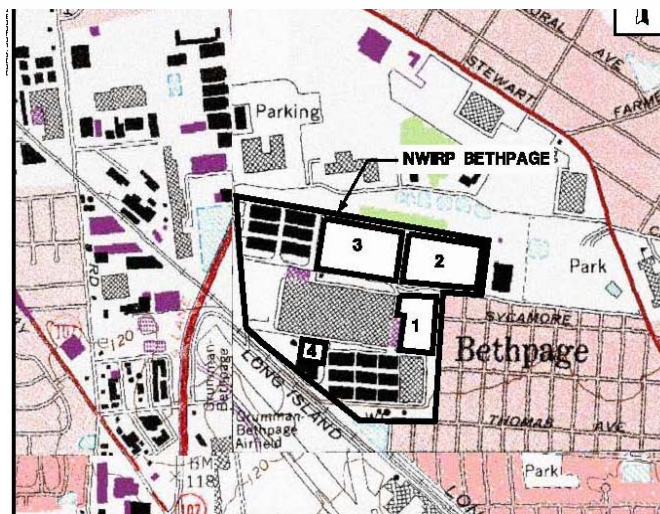
**ATTACHMENT 3**

**NAVY AND TETRA TECH PRESENTATIONS**

## Restoration Advisory Board (RAB) Meeting

**Site 1 – Soil Gas Testing and Indoor Air  
Sampling Update  
Naval Weapons Industrial Reserve  
Plant (NWIRP) Bethpage  
March 11, 2009**

### SITE MAP



## SITE 1 HISTORY – SOIL GAS

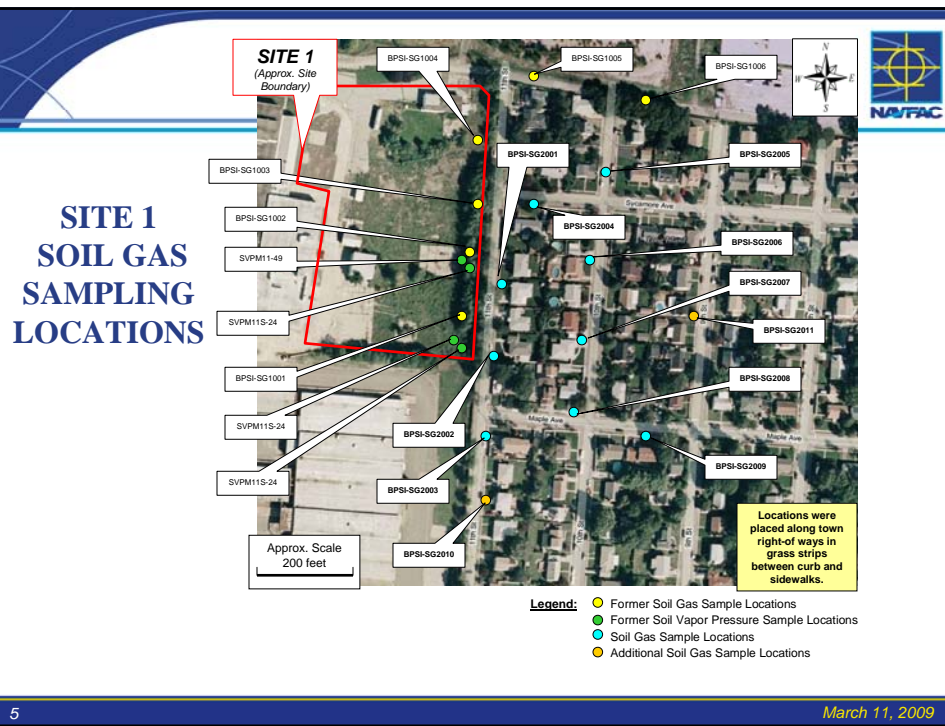


- October 2006 New York State Department of Health issued soil vapor intrusion guidelines – identifies soil vapor migration and potential intrusion into buildings as a potential concern.
- January 2008, Navy conducted a soil gas investigation at the eastern fence line of Site 1. Investigation was conducted to determine whether there was a potential for off site migration.
- Soil gas sampling results indicated elevated levels at the fence line.
- October 2008 soil gas testing conducted in the adjacent neighborhood along 10<sup>th</sup> and 11<sup>th</sup> Streets, and Sycamore/Maple Avenue.

## SITE 1 HISTORY – SOIL GAS



- Additional soil gas sampling was conducted at two locations, on 9<sup>th</sup> Street and further south on 11<sup>th</sup> Street in early January 2009.
- Soil Vapor Extraction Pilot Test conducted in early January to obtain site specific data for full scale design.



## Soil Gas Sampling Photos



## Soil Gas Sampling Photos



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March 11, 2009

## Soil Gas Sampling Photos



8

March 11, 2009



## SOIL VAPOR INTRUSION/INDOOR AIR SAMPLING



- January 2009, Navy conducted initial indoor air and sub-slab sampling in homes targeted along 11<sup>th</sup> Street.
- Sampling results indicated TCE levels above NYSDOH guidelines in some indoor air and sub-slab samples.
- February 2009 (and ongoing), indoor air and sub-slab sampling being conducted in additional homes.
- Portable carbon air filtration units installed as temporary mitigation measure and utility access sumps sealed (as needed) in basements.
- March 3, 2009 – Public Informational Meeting regarding the soil vapor investigation, indoor air sampling, future monitoring and mitigation measures.

## SOIL GAS SAMPLE LOCATIONS AND NYSDOH SUB-SLAB GUIDELINES



## Indoor Air Sampling Photos



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March 11, 2009

## Indoor Air Sampling Photos



12

March 11, 2009



## FUTURE ACTIONS



- Continue indoor air sampling in targeted homes. Additional homes will be selected based on sampling results.
- Continue air monitoring in homes to monitor vapor levels and effectiveness of portable carbon air filtration units.
- Sub-Slab Depressurization System – will be installed in homes where sub-slab vapor levels indicate the need for this type of mitigation (NYSDOH - Mitigation Matrix).
- Full scale SVE System design (construction anticipated in Sept. 2009).
- Future soil gas and indoor air sampling to monitor effectiveness of short-term and long-term mitigation measures.

## QUESTIONS ?





## **Restoration Advisory Board (RAB) Meeting**

**GM-75 Groundwater Investigation  
Naval Weapons Industrial Reserve  
Plant (NWIRP) Bethpage  
March 11, 2009**

### **GM-75 PROGRAM PURPOSE**



- **Purpose: The GM-75 Program is being conducted to delineate an area of groundwater contamination that has TCE at a concentration greater than 1000 ug/l and is beyond the capture zone of the On-Site Groundwater Containment System.**
- **Program is also being used to investigate lower concentrations in groundwater that may impact water supplies.**
- **Vertical profile borings are used to quickly screen areas for the presence, depth, and concentration of contamination.**

## GM-75 VERTICAL PROFILE BORING PROGRAM



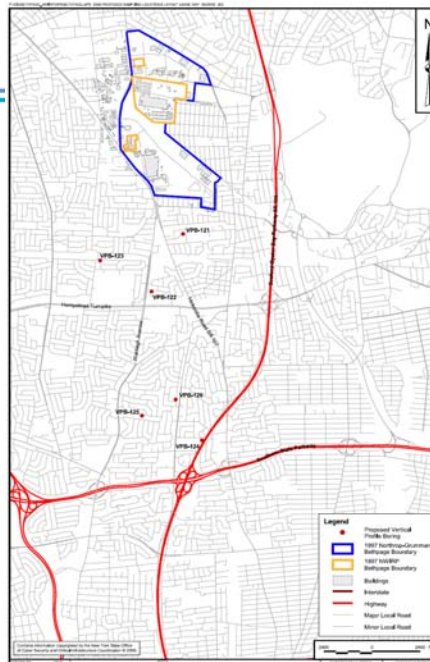
- A vertical profile boring is a 12-inch diameter hole drilled into the ground. At select depths, the drilling is stopped and a sampling device is lowered to the depth, and a sample of the water encountered is collected.
- The borings will extend to the Raritan Clay Layer at a depth up to 840 feet below ground surface.
- At 840 feet, the sampler is exposed to a pressure of 340 pounds per square inch (PSI).
- 36 groundwater samples will be collected per boring and analyzed for VOCs.

## GM-75 VERTICAL PROFILE BORING PROGRAM (CONTINUED)



- Each boring requires 4 to 6 weeks to complete and costs \$150,000 to \$200,000.
- Based on results, permanent monitoring wells may be installed.
- Six locations have been selected, additional borings are planned.
- Work started in January 2009.
- VPB-125 was completed in February 2009.
- VPB-124 is in progress.

## GM-75 VERTICAL PROFILE BORING PROGRAM (CONTINUED)



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March 11, 2009

## GM-75 VERTICAL PROFILE BORING PROGRAM (CONTINUED)



6

March 11, 2009

## GM-75 VERTICAL PROFILE BORING PROGRAM (CONTINUED)



7

March 11, 2009

## GM-75 VERTICAL PROFILE BORING PROGRAM (CONTINUED)



8

March 11, 2009





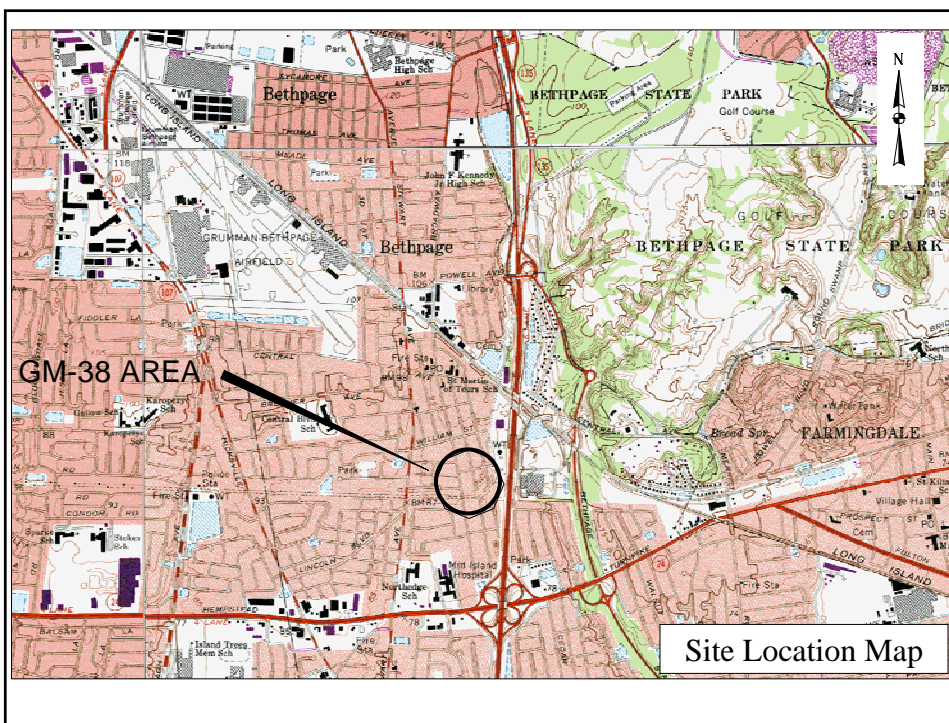
# Groundwater Remediation Project

Naval Weapons Industrial Reserve Plant  
Bethpage, NY  
GM-38 Area

Restoration Advisory Board Meeting  
March 11, 2009



TETRA TECH EC, INC.



## Treatment System Design

- Mass Removal of Volatile Organic Compounds (VOC's) from groundwater
- Process Flow Rate = 1,100 gallons per minute (gpm)
- Max. Design Flow Rate = 1,375 gpm
- Pumping from two recovery wells (one located on Route 135 western right of way and other to be located on west side of Broadway)



## Treatment System Design (cont'd)

- Primary treatment is Air Stripping
- Secondary treatment (polish) is Carbon Media
- Vapors from Air Stripping Treated w/ Carbon Media
- Split the discharge of treated water into one injection well and into a county recharge basin located west of Broadway



## Esthetic Considerations

- Maintain as many existing trees as possible
- 100 new trees to be planted
- Excavated soil to be used to construct berm
- Building exterior is a natural color, bronze
- Chain link fence with privacy screening
- Exterior building lights are motion activated
- No audible exterior alarms
- Silencer installed on air stripper blower



## Construction Status

- Construction Entrance is located at 100 Broadway between residences at 96 and 106 Broadway
- All major treatment equipment is set into place on equipment pads inside the building
- Construction of the steel building around the equipment is complete
- Process pipe install to Recovery and Injection Wells is near complete except for Broadway road crossing to RW-3
- Motor Control Center is on-site and set inside control room
- Program Controller (PLC) and Instrumentation is on-site
- The transformer pad is set and transformer on order
- Majority of local and state permits have been obtained





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## Construction Upcoming

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- Install RW-3 on western side of Broadway
- Complete trench and pipe install to RW-3
- Set pumps into RW-1 and RW-3
- Complete interior process piping and electric
- Install and calibrate instrumentation
- Complete installation of potable water line
- Install fire alarm and security systems
- Test and balance all systems
- Site Restoration



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## Local Subcontractors

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- Mechanical from East Setauket, NY
- Electrical from Medford, NY
- Site GC from Farmingdale, NY
- Building Rep. from Huntington, NY
- Surveyor from Brookhaven, NY
- Driller from Ronkonkoma, NY
- Site Security from Bohemia, NY



## Project Status

- Continue treatment system construction inside the building and remaining exterior process trenches
- Energize transformer for permanent power
- Submit potable water line connection application
- Update local right of way permits for spring work
- Mobilize and prepare RW-1 and IW-2 for use
- Drilling of RW-3 and monitoring wells (6)
- Submit air permit application to NYSDEC and update existing SPDES permit for basin



## Current Schedule

Milestones	Date
Mobilization & Start of Construction	June 2008
Set Large Treatment Equipment Into Place	November 2008
Building Complete	February 2009
Exterior Process Piping and Utilities	March – April 2009
Install of RW-3 and Monitoring Wells	Spring 2009
Treatment System Construction Complete	May 2009
Plant Start-Up, Calibration & Testing	May - June 2009



## Community

- A project goal is to minimize disturbance to the surrounding neighborhood to best extent possible during the construction.
- NYSDEC Citizen Participation Office  
**631-444-0350**
- Project Hotline cell phone number is  
**516-732-3393**
- Periodic project updates will be delivered to the surrounding residences (approx. 200).
- Overnight security is present 7 days per week and all day on weekends. Please report any problems.





**NAVFAC**  
Naval Facilities Engineering Command



**NAVFAC**  
Naval Facilities Engineering Command







**NAVFAC**  
Naval Facilities Engineering Command



**NAVFAC**  
Naval Facilities Engineering Command







Wrap-up

Questions?