RESTORATION ADVISORY BOARD MEETING
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP), BETHPAGE
TOWN OF OYSTER BAY ICE SKATING CENTER COMMUNITY ROOM
1001 STEWART AVENUE, BETHPAGE, NEW YORK
WEDNESDAY, NOVEMBER 2, 2011

The twenty-eighth meeting of the Restoration Advisory Board (RAB) was held at the Community Room in the Town of Oyster Bay Ice Skating Center in Bethpage, New York. Meeting attendees included representatives from the Navy (Lora Fly), United States Environmental Protection Agency (USEPA) Region 2 (Robert Alvey), New York State Department of Environmental Conservation (NYSDEC) (Steven Scharf and Walter Parish), New York State Department of Health (NYSDOH) (Steve Karpinski), Nassau County Department of Health (Joseph DeFranco), Bethpage Water District (Anthony Sabino), Town of Oyster Bay (Richard Pfaender and John Ellsworth), RAB Community Members (Charles Bevilacqua, Eugena Mazzara, Brian Nugent, Rosemary Styne, Roy Tringali, and Rose Walker), Tetra Tech (David Brayack, Debbie Cohen, and Robert Sok), Sustainable Resource Group (Al Taormina), H&S Environmental (Jen Good), ARCADIS (David Stern), Massapequa Water District (Stan Carey and John Caruso), and South Farmingdale Water District (Ralph Atoria, Len Constantinopoli, John Hirt, and Gary Brosnan), and Aqua NY (Joe Trotta). There were several guests at the meeting, including five 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 April 2011 minutes, which were distributed in July 2011, and asked whether there were questions or comments on the minutes. There were no questions or comments. The April 2011 RAB minutes were approved.

TECHNICAL PROGRESS – SITE 1 ACTIVITIES UPDATE FOR THE ONSITE DRILLING ACTIVITIES

Mr. Robert Sok (Tetra Tech) presented the status of the Site 1 polychlorinated biphenyl (PCB) investigation. The presentation is included in Attachment 3.

The PCB investigation is being conducted at Site 1 to determine the depth of PCB contamination in soil and the presence/extent of PCB-impacted groundwater. In addition, the Navy is evaluating whether PCB-

impacted groundwater is migrating off site and whether solvents could have facilitated PCB migration into the groundwater. Also, as discussed at the April 2011 RAB meeting, chromium concentrations in groundwater are also elevated and will be investigated further.

Mr. Sok indicated that the vertical extent of PCBs in soil extends to approximately 70 feet below ground surface (bgs). PCBs and chromium were detected in groundwater. The data do not indicate that solvents have facilitated the transport of PCBs into the groundwater. Mr. Sok reviewed the investigation area and groundwater results for shallow, intermediate, and deep groundwater. Based on detections of PCBs and chromium in groundwater, additional data are needed to delineate the extent of this groundwater contamination. The results suggest that there is a potential upgradient source of PCBs (based on northern-most PCB detections) upgradient of Site 1 that needs to be investigated. Potential upgradient sources are recharge basins and sludge drying beds at Site 2. The Navy is installing additional wells and will sample the wells in early 2012. In answer to a question of whether the data from investigation of the Bethpage Community Park were included in the Navy's data evaluation for Site 1, Mr. Scharf (NYSDEC) indicated that the data are not included and that another entity is investigating the park.

TECHNICAL PROGRESS - GM-38 AREA OPERATION AND SOIL VAPOR EXTRACTION CONTAINMENT SYSTEM PERFORMANCE AND MODIFICATIONS

Ms. Jen Good provided a presentation on the status of the GM-38 groundwater treatment plant (GWTP) operations and the Site 1 soil vapor extraction (SVE) containment system operation. The presentation is included in Attachment 3.

The GM-38 GWTP is being operated to remove volatile organic compounds (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. Ms. Good reviewed the results of VOC concentrations in groundwater, which includes the results of the June 2011 quarterly monitoring event. The results show a decreasing concentration trend in groundwater. It was noted that these graphs reflect groundwater concentrations in the extraction wells. The treated water meets the discharge requirements. Ms. Good explained that there was a malfunction in the pump in one of the two recovery wells and the normal maintenance activities were also conducted. In addition, there was power outage because of Hurricane Irene, but there was no damage to the treatment system. Ms. Good mentioned that in September 2011, carbon treatment unit was added to a tank vent to improve the efficiency of the treatment system. The Navy will continue to monitor the performance of the system, including collection of monthly air and water compliance samples and

quarterly groundwater samples. In answer to a question of whether the Navy plans to use an additional recovery well for groundwater extraction (RW2), Mr. Brayack indicated that there was no plan to do add RW2 at this time. The Navy will evaluate the capture zone of the treatment system, and if the capture zone is adequate, then the additional recovery well would not be used.

Ms. Good reviewed the status of 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 to cleanup offsite soil gas. Operation of the system began in January 2010 and is anticipated to continue until 2015. Ms. Good indicated that optimization activities are ongoing to improve performance, evaluate capture zone, and reduce operating costs. Based on the evaluation of the system operation, five additional SVE wells were installed in October 2011. Ms. Good indicated that the system has been performing well and that there has been minimal downtime because of power outages. The Navy will continue to operate the system and collect the necessary monthly air compliance samples and quarterly air samples.

Ms. Fly provided an update on the operation of the in-home treatment systems. As discussed at previous RAB meetings, based on in-door air sampling results in several homes near Site 1, the Navy had previously 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. Since startup of the SVE containment system, all indoor air levels have been less than NYSDOH air guidelines. The Navy, NYSDEC, and NYSDOH discussed the 2011 results, and NYSDEC and NYSDOH have provided notification to the Navy that the Navy can remove all of the in-home treatment systems. The Navy recently notified the residents and will begin working with the residents to remove the systems. The Navy will continue to sample in the neighborhood in right-of-ways to make sure the SVE containment system continues to operate effectively. Sampling results will continue to be provided to NYSDEC and NYSDOH.

TECHNICAL PROGRESS - OPERABLE UNIT (OU) 2 OFFSITE GROUNDWATER INVESTIGATION AND 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 the installation of vertical profile borings to quickly screen areas for the presence, depth, and concentration of contamination. Permanent monitoring wells are then 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. Mr. Brayack showed figures of the 2009 borings and the 2010 to 2012 borings and monitoring wells. In addition, Mr. Brayack provided a photograph of the January 2011 boring activities and the preventive measures (temporary wooden sound barrier) taken to mitigate noise in the surrounding area.

Mr. Brayack reviewed a figure showing NWIRP and Northrop Grumman properties, groundwater flow direction, and locations of completed wells and borings and planned wells and borings. Mr. Brayack indicated where the planned treatment system will be located and provided an update on the public water supply treatment system design. Specifically, the Navy is designing and installing a granular activated carbon treatment system on the public supply well as a precaution to treat groundwater if VOC concentrations continue to increase. The design will be completed in 2011 and construction is anticipated to begin in early 2012.

There was discussion over the extent of contamination and whether the contamination was migrating along the top of the Raritan clay layer. Massapequa Water District indicated concern that the contamination has spread and that the Navy may need to accelerate the timing for installation of monitoring and treatment wells to make sure that the leading edge of the plume is adequately delineated. The Navy and NYSDEC are working together to resolve the concerns and get the necessary access agreements; however, the Navy as a public entity, must follow certain procedural requirements to install wells and treatment systems in the community. Comments on Navy documents come from various agencies including USEPA, NYSDEC, and United States Geology Service (USGS). The Navy and NYSDEC are working to move the process forward in a timely manner. Ms. Fly indicated that the Navy will continue to work with the regulators and the potentially impacted water districts to provide the necessary investigations and protective measures.

Questions regarding the presentation include the following:

- Who is responsible for issuing requests for bids to construction contractors? The Navy procures contractors for construction of the system through various contracts.
- If the Navy continues to find contamination, how does this affect the original costs in the Record of Decision (ROD)? The OU2 ROD was completed in 2001 and at that time there were many unknowns regarding the extent of the groundwater plume, which does affect the actual costs of the remedy. However, the difference in costs does not affect whether or not the remedy is effective. If the remedy is found not to be effective, then the Navy would re-evaluate additional or

alternative remedies and may need to revise the ROD. It was noted that as part of evaluation of the remedy, the Navy does evaluate how actual cost compared with estimated costs in the ROD.

CLOSING REMARKS

Ms. Fly asked whether there were any other questions or comments. There was one question on whether there was anyone from the local townships who could address the protectiveness to people living over the groundwater contaminant plume. Town of Oyster Bay representatives were at the meeting, and they indicated that the concern for the OU2 offsite groundwater contamination is not similar to that near Site 1. The OU2 groundwater contamination is deep and would not impact people living over the groundwater plume.

There was some discussion over the process for investigation and remediation of the OU2 groundwater contamination and regulatory control over the remediation process. Nassau County Department of Health has been involved in discussions with the Navy, NYSDEC, and NYSDOH, and treatment systems have been put in place as soon as a potential need for one has been identified. The need for treatment systems at the public supply wells versus plume contaminant will be discussed further among the Navy and regulators. A Massapequa Water District representative indicated that they prefer plume containment instead of treatment at the public supply wells.

Ms. Fly indicated that the Navy will determine a date for the next RAB meeting and notify the people on their RAB email list. Ms. Fly requested meeting attendees not on the list to provide their email addresses. Ms. Fly thanked everyone for coming to the meeting and the meeting was adjourned.

ATTACHMENT 1

NOVEMBER 2, 2011 RAB MEETING SIGN-IN SHEET

28th RAB Meeting for NWIRP Bethpage
November 2, 2011
Sign-In List

Name	Address (if interested in being on mailing list)	Organization	How Did You Hear of Meeting?
AL TAORMINA	999 S. Oyster Bay Rd Bethpage	SRG	
Stan Carey		Massapequa Water Dist	E-mail
John F Caruso		" " " "	Caruso
Steve Karpinski		NYSDOH	
Jen Good		HTS Environmental	
Robert Sok		Tetra Tech	
Richard Pfaender		TOB	
Joe Rotta		Arcadis N.Y.	
Roy TRINGALI		RAB Grumman	
John Ellsworth jellsworth@oysterbay-ny.gov		Cashin Spinelli Ferretti Oyster Bay Environmental Department	
DAVID STERN		ARCADIS	
CHARLES BELLACOSA		RAB	
Steven Scharf		NYSDEC	From You

Newsday

28th RAB Meeting for NWIRP Bethpage
November 2, 2011
Sign-In List

Name	Address (if interested in being on mailing list)	Organization	How Did You Hear of Meeting?
ROBERT M. ALWAY, P.G.	ERRD/PSB/TST - 18th FL. 290 BROADWAY NY NY 10007	USEPA REGION 2	NAVY, NYSDEC & EPA RCRA -
Joanne Perico	11th St.	Resident	@aol.com
RALPH ATORIA		SFWD	E MAIL
Rose Walker		Nassau County Legislature	
Rosemary Stynes		Member – Resident	
Eugenia Nazzaro		"	
Brian Nugent		Office of the County Executive	
~~Joanne Perico~~		~~Res.~~	
Joyce MARINACCIO			@aol
Debbie Cohen		Tetra Tech	

28th RAB Meeting for NWIRP Bethpage
November 2, 2011
Sign-In List

Name	Address (if interested in being on mailing list)	Organization	How Did You Hear of Meeting?
Susan Schroeder	172 Maple Ave. Beth.		Bethpage Tribune
Tabitha Robbins		USNR	"
Len Constantinopoli	40 Langdon RD Bpage	SFWD	E-mail
Dan Grindstaff	230 11th st Bethpage		
Walter Parish.	NYSDEC 50 Circle Rd. Stony Brook NY 11790	NYSDEC	Notice
Joseph DeFranco	Nassau County Dept of Health	⟶	Lora
JOHN HART	40 LANGDON RD BPAGE	SFWD	
GARY BROWN	25 1/2 Delmar N. Mass	SFWD	
KEVIN LUMPE	700 HICKSVILLE ROAD BETHPAGE, NY		
Anthony Sabino	P.O. Box 400 Bethpage NY 11714		
Dave Brayack		TtNUS	
LORA FLY		NAVY	

ATTACHMENT 2

NOVEMBER 2, 2011 RAB MEETING AGENDA

Agenda

Restoration Advisory Board
Naval Weapons Industrial Reserve Plant Bethpage

November 2, 2011
Town of Oyster Bay Ice Skating Center Community Room
1001 Stewart Avenue, 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 – Onsite Drilling Activities
Rob Sok, Tetra Tech

GM-38 Operation
Jen Good, H&S

Soil Vapor Extraction Containment System Performance and Modifications
Jen Good, H&S

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

PRESENTATIONS

NAVFAC
Naval Facilities Engineering Command
NAVFAC MID-ATLANTIC

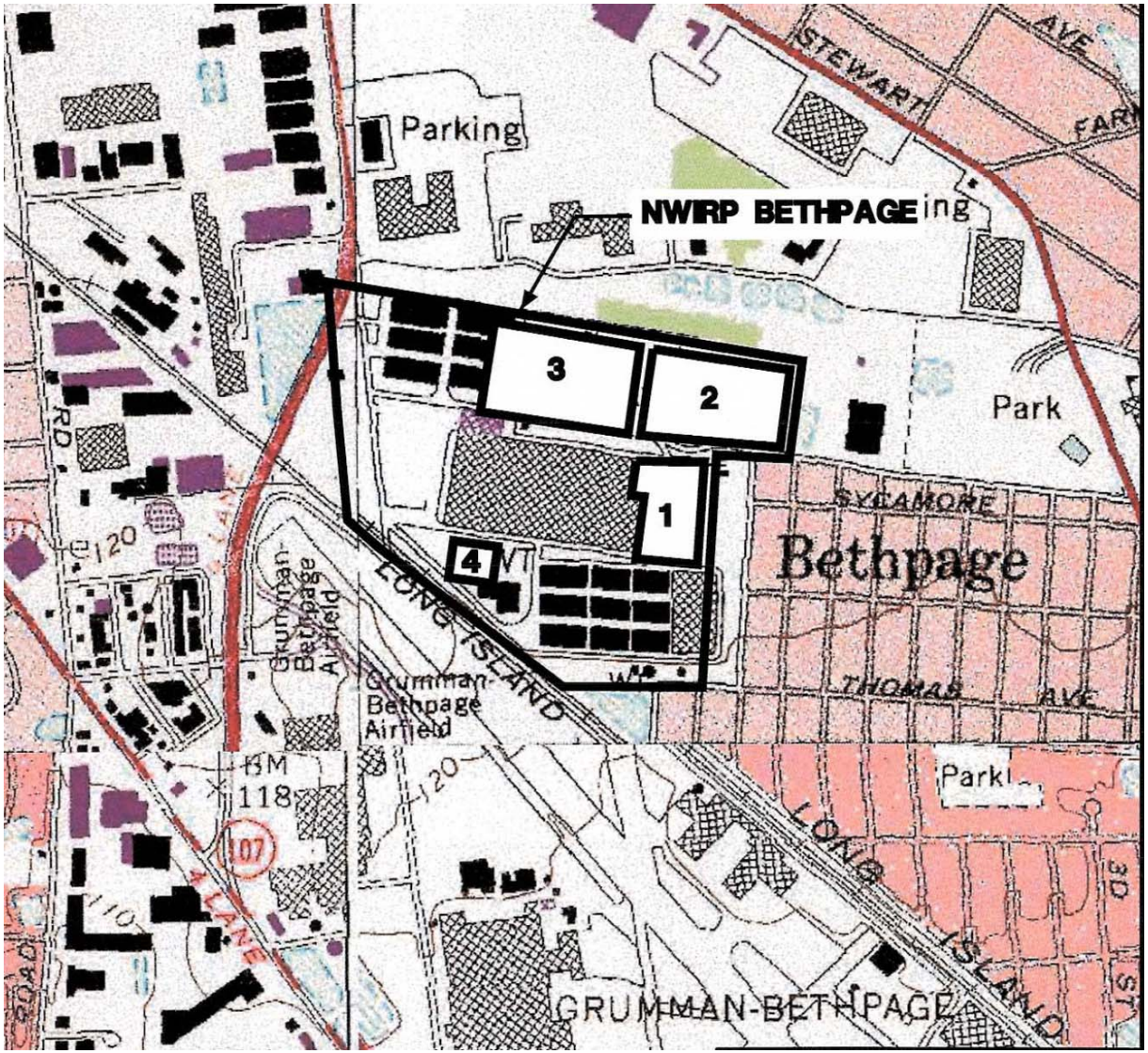
Restoration Advisory Board (RAB) Meeting

Site 1 PCB Investigation - Update

Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage

November 2, 2011

FACILITY MAP



PCB INVESTIGATION UPDATE

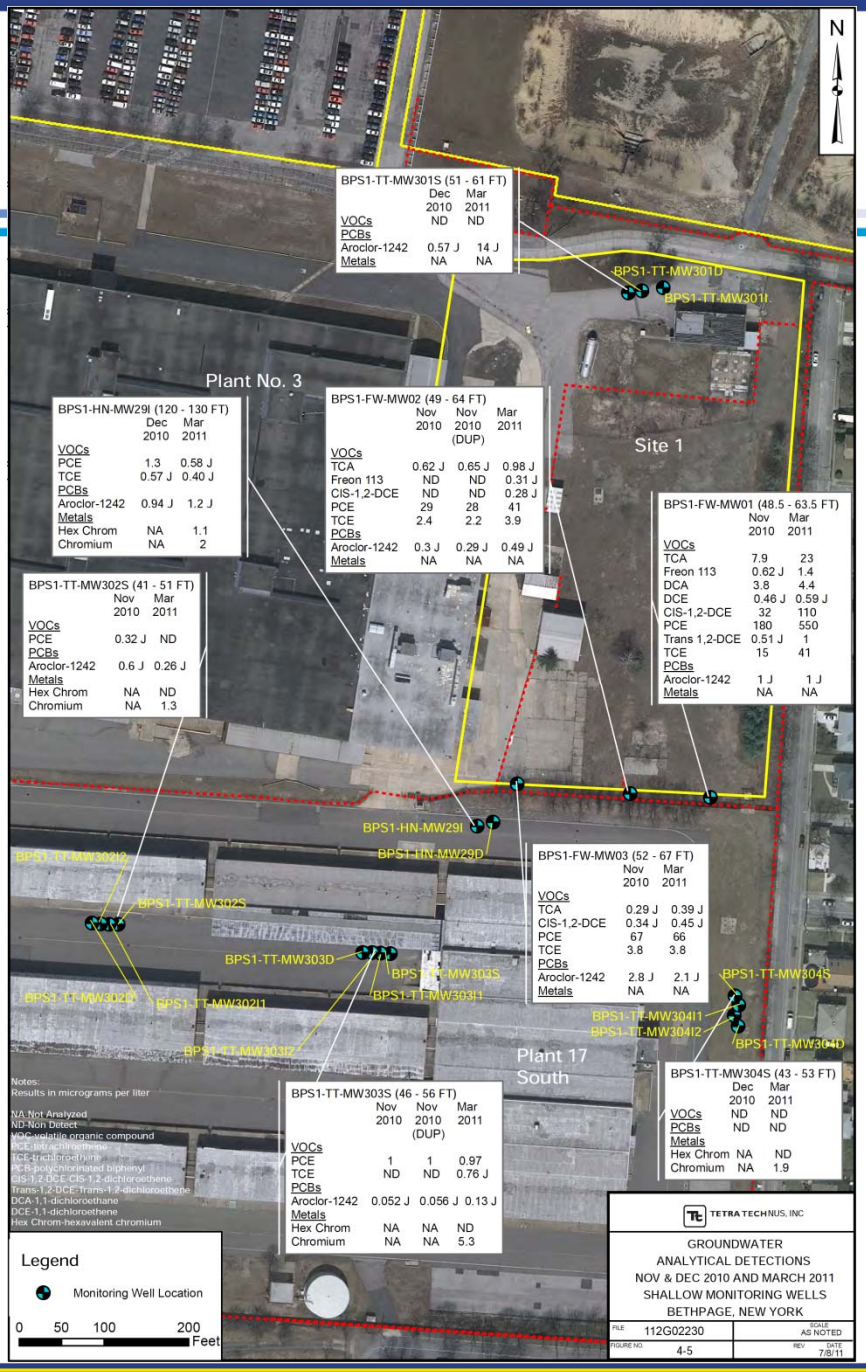
- SAP/Work Plan for PCB Investigation finalized May 2010
- Primary Objectives:
  - Delineate vertical extent of PCBs in soil
  - Determine whether PCB-contaminated groundwater has migrated beyond the site boundary
  - Determine whether organics could have acted as a carrier fluid promoting PCB migration
- 6 soil borings and 15 monitoring wells installed in 2010 via rotosonic drilling methods
- Groundwater sampling events conducted in early December 2010 and March 2011

PCB INVESTIGATION UPDATE

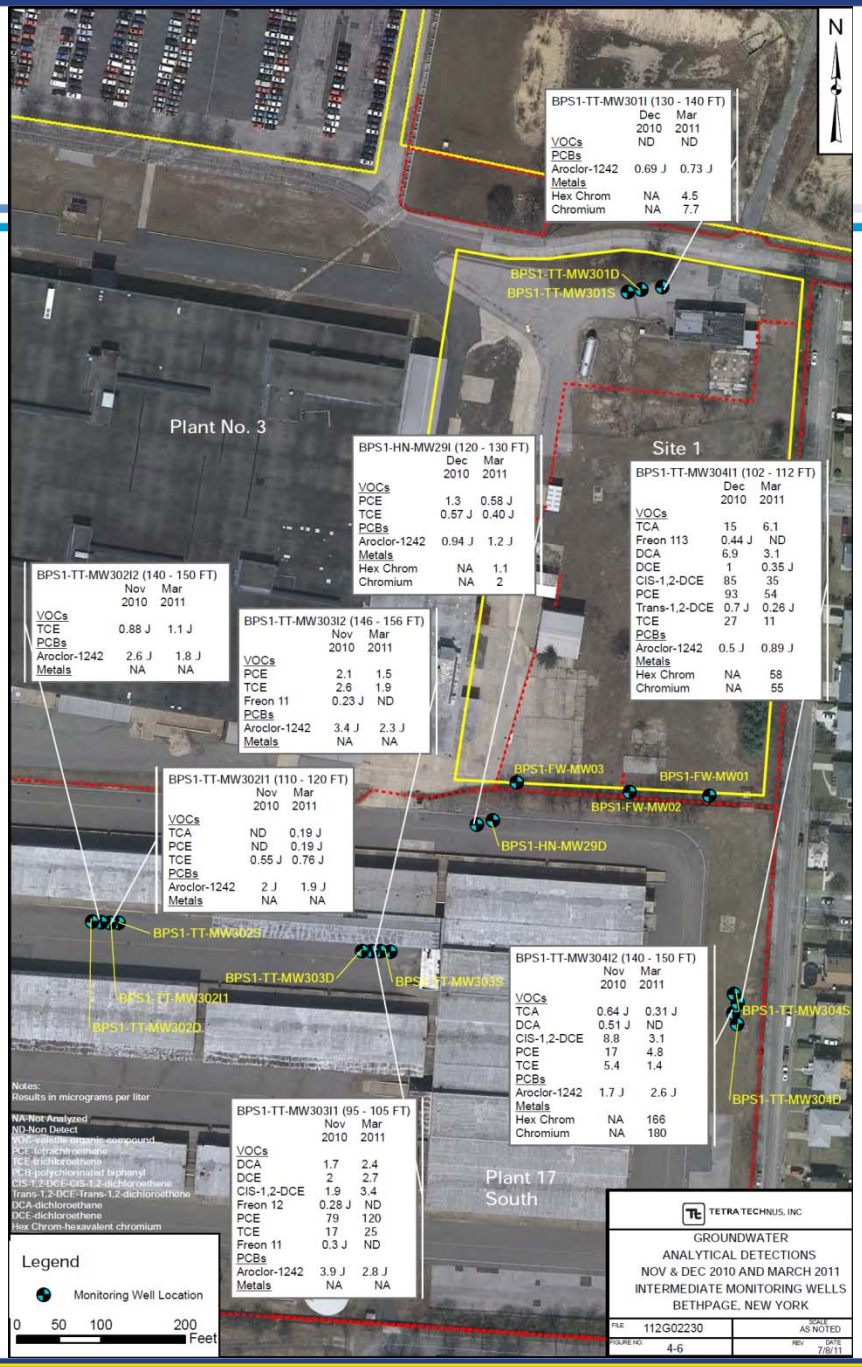
- Vertical extent of PCB contaminated soils determined at approximately 70 feet bgs in source area soil borings
- Organics (fuel and solvent-related) detected at low concentrations, not likely to affect PCB migration
- Groundwater sampling events conducted in early December 2010 and March 2011
- Results indicated PCBs in groundwater (ND to 14 µg/L)
- Results also indicated some detections of chromium (CR^{+6}) ranging from ND to 166 µg/L

PCB INVESTIGATION UPDATE

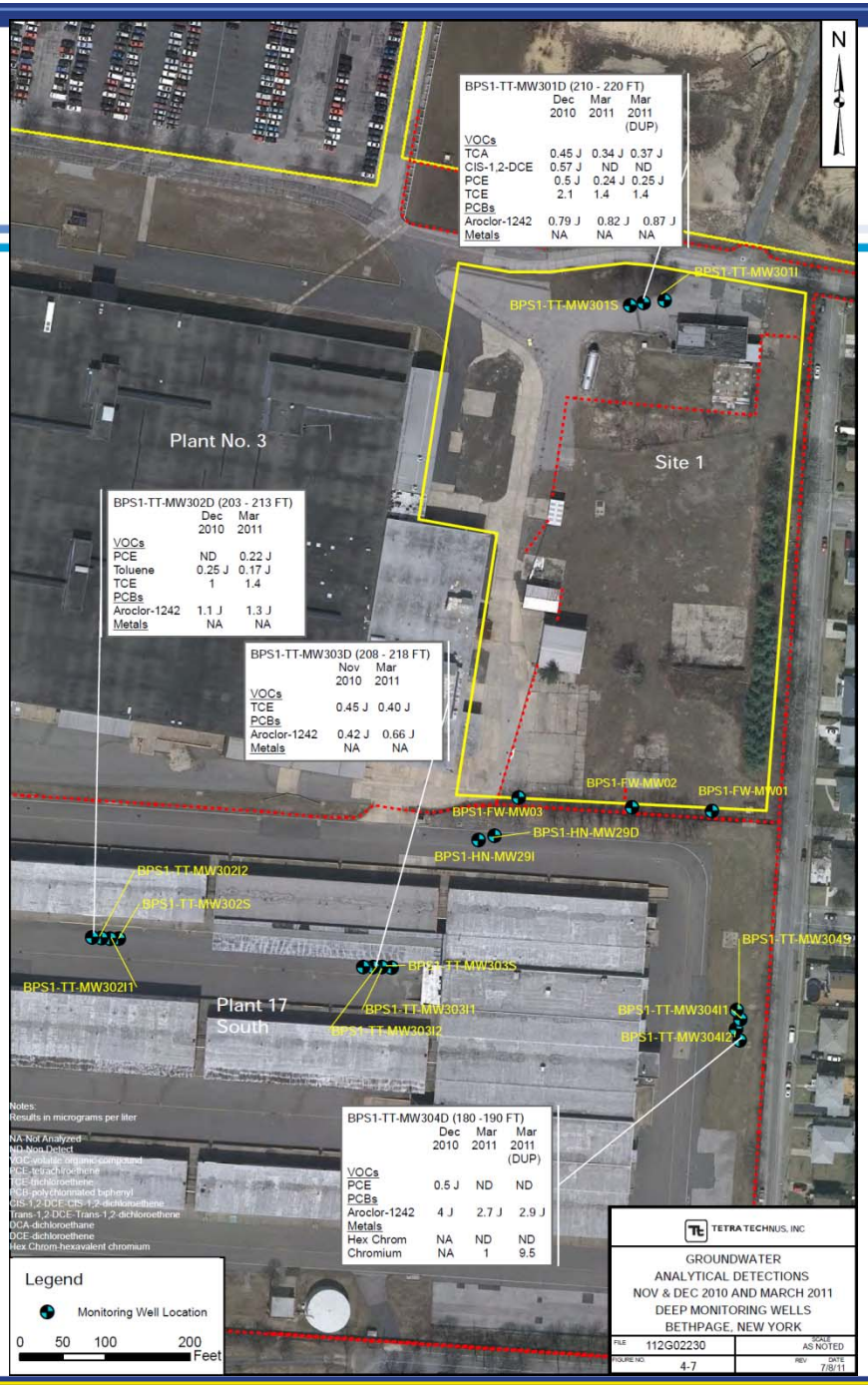
Groundwater Detections in Shallow Wells



Groundwater Detections in Intermediate Wells



Groundwater Detections in Deeper Wells



PCB INVESTIGATION UPDATE

- Based on the two rounds of groundwater sampling, additional delineation of PCBs and chromium in groundwater was needed
- Submitted Interim Report and SAP Addendum for additional groundwater investigation (June 2011)
- Objectives: Investigate potential upgradient sources and delineate extent of PCB-contaminated groundwater downgradient of Site 1
- Currently installing 15 additional monitoring wells – 6 upgradient and 9 downgradient

PCB INVESTIGATION UPDATE

PCB INVESTIGATION – FUTURE WORK

- Additional rounds of groundwater sampling planned for 2012
- Data gaps in soil delineation at Site 1 have been identified
- Further evaluating PCBs in soil (new and historical data) at Site 1
- Submittal of Interim Report and SAP Addendum addressing PCB-contaminated soils at Site 1
- Follow up soil investigation planned for Spring 2012 to address data gaps and complete soil delineation

QUESTIONS ?

Restoration Advisory Board Meeting

Former Naval Weapons Industrial Reserve Plant
Bethpage, NY
GM-38 Area GWTP
and Site 1 SVECS
2 November 2011

NAVFAC
Naval Facilities Engineering Command

Presented by

H&S

Presentation Agenda

- GM-38 GWTP
  - Overview
  - Operational Activities – issues / resolutions
  - GWTP performance and future activities
- Site 1 SVECS
  - Overview
  - Operational Activities – issues / resolutions
  - System performance and future activities

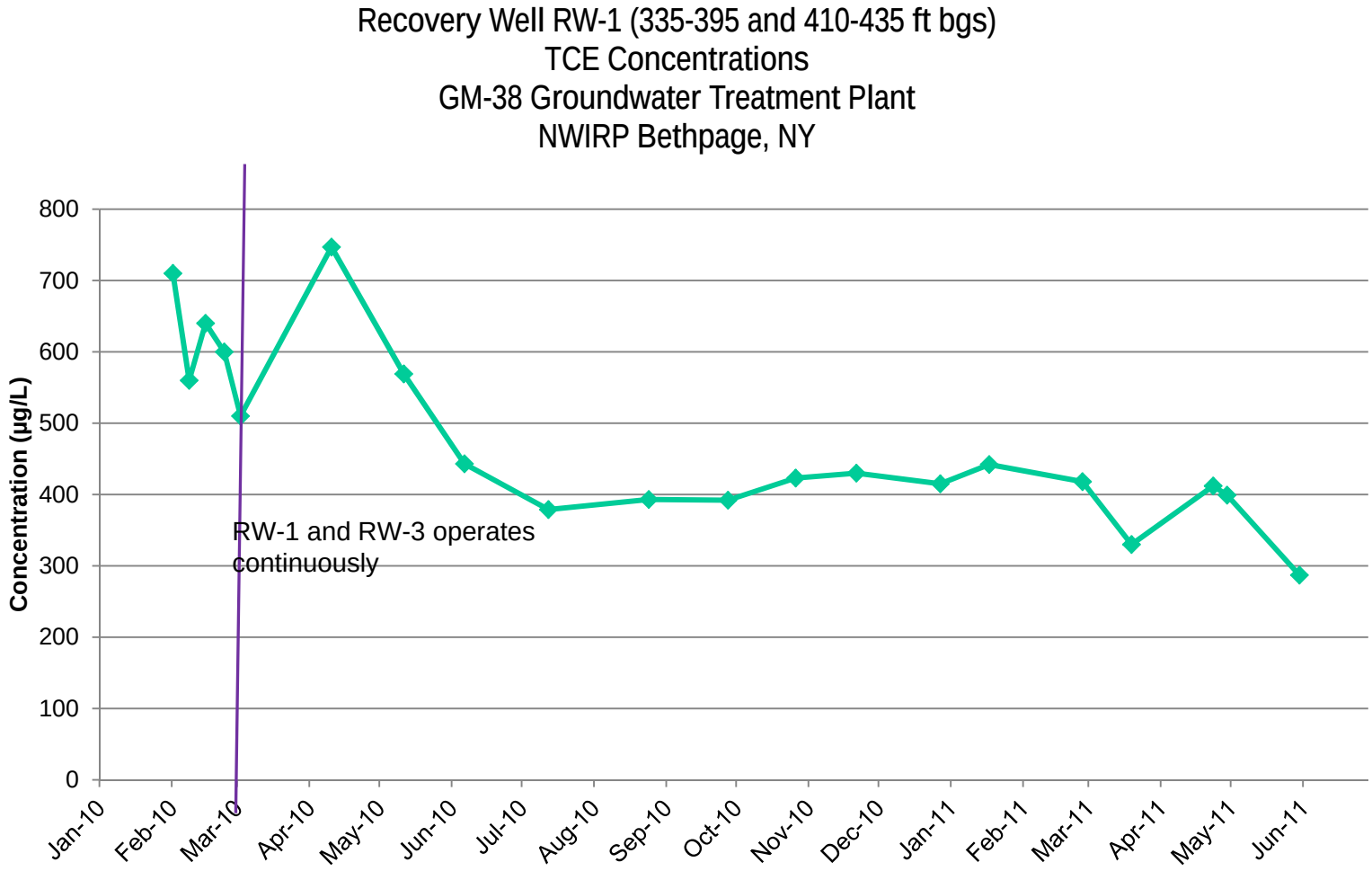
GM-38 Project Overview

- 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.

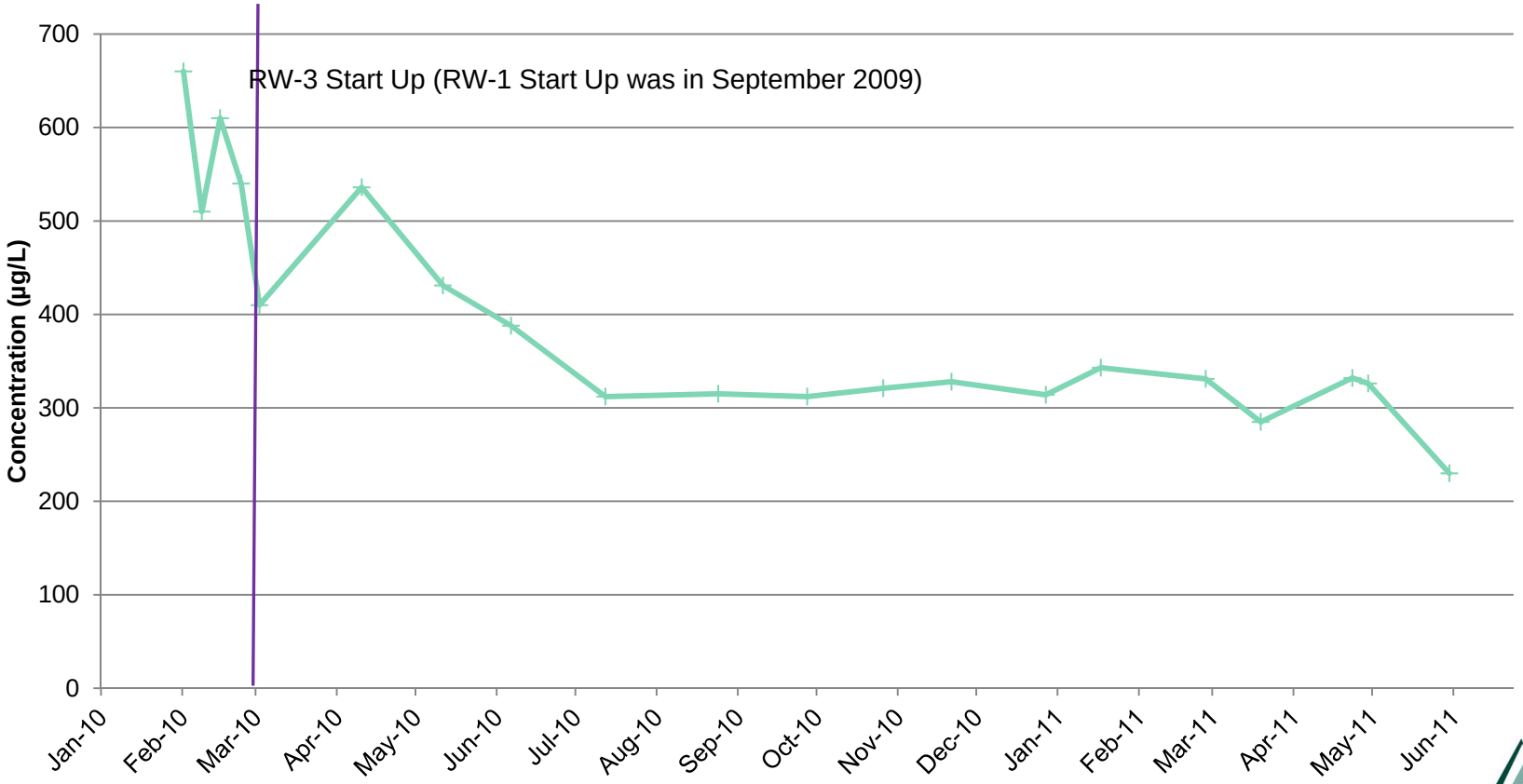
- Extracts 46 million gallons of water and 200 pounds of VOCs per month.

GM-38 Remedial Action



GM-38 Remedial Action

Recovery Well RW-3 (392-412 and 442-504 ft bgs)
TCE Concentrations
GM-38 Groundwater Treatment Plant
NWIRP Bethpage, NY



GM-38 GWTP Operational Activities

- H&S assumed operational responsibility (O&M / LTM) from EFS 1 June 2011.
- 14-15 June 2011 – quarterly LTM event, groundwater samples collected from eight monitoring wells.
- 16 August 2011 – pump / motor in extraction well RW-1 malfunctioned - electricians determine pump / motor needs pulled
  - Pump and motor pulled in September 2011 and inspected to assess cause of malfunction, determine that both pump and motor need replaced.
  - Procured new pump and motor.
  - Installed replacement pump and motor 14 October 2011, extraction well brought back on-line 17 October 2011.

GM-38 GWTP Operational Activities (cont'd)

- 28 August 2011 – System down due to power outages from Hurricane Irene. Back on-line 29 August 2011 – no damage from hurricane.
- 27-28 September 2011 – quarterly LTM event, groundwater samples collected from eight monitoring wells.
- September 2011 – 1,000-lb intermediary carbon unit installed to treat vapor from EQ tank prior to entering Air Stripper blower.

GM-38 GWTP Performance and Future Activities

- Plant has continually operated in compliance with air and SPDES permit guidelines.
- Runtime has been above 95% with minimal downtime due to power outages and scheduled installation of carbon vessel.
- Approximately 985 million gallons of water treated through September 2011.
- Continue to collect monthly air and water compliance samples.
  - Submit monthly O&M compliance reports.
- Continue to collect quarterly groundwater samples as LTM.
  - Submit quarterly LTM reports.

Site 1 Project Overview

- 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.

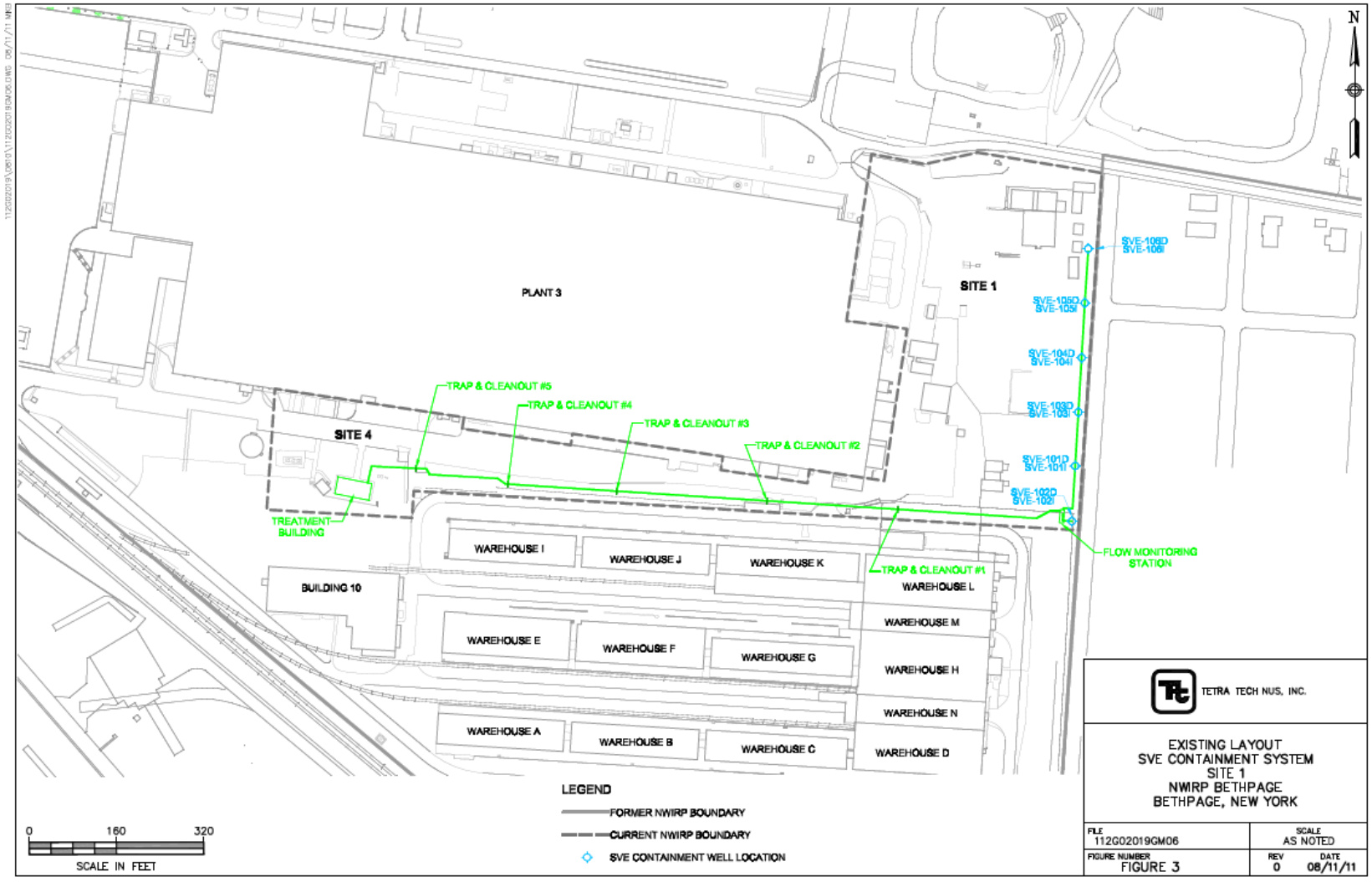
Site 1 Operational Activities

- H&S assumed operational responsibility from EFS 1 July 2011.
- 5 September 2011 – quarterly vapor samples collected from 12 SVE wells.
- 14 October 2011 – quarterly vapor samples collected from 12 SVE wells.
- 16-22 October 2011 – five additional SVE wells installed.

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
- Additional extraction wells added along 10-inch header to address potential VOCs under Plant No. 3 and South Warehouse.

Site 1 Soil Vapor Extraction Containment System



Site 1 SVECS Performance and Future Activities

- Plant has continually operated in compliance with air permit guidelines.
- Runtime has been above 95% with minimal downtime due to power outages and scheduled shut-down during well installation activities.
- Continue to collect monthly air compliance samples.
- Continue to collect quarterly air samples of SVE wells.
    - Submit quarterly operations reports.

NAVFAC
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

November 2, 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

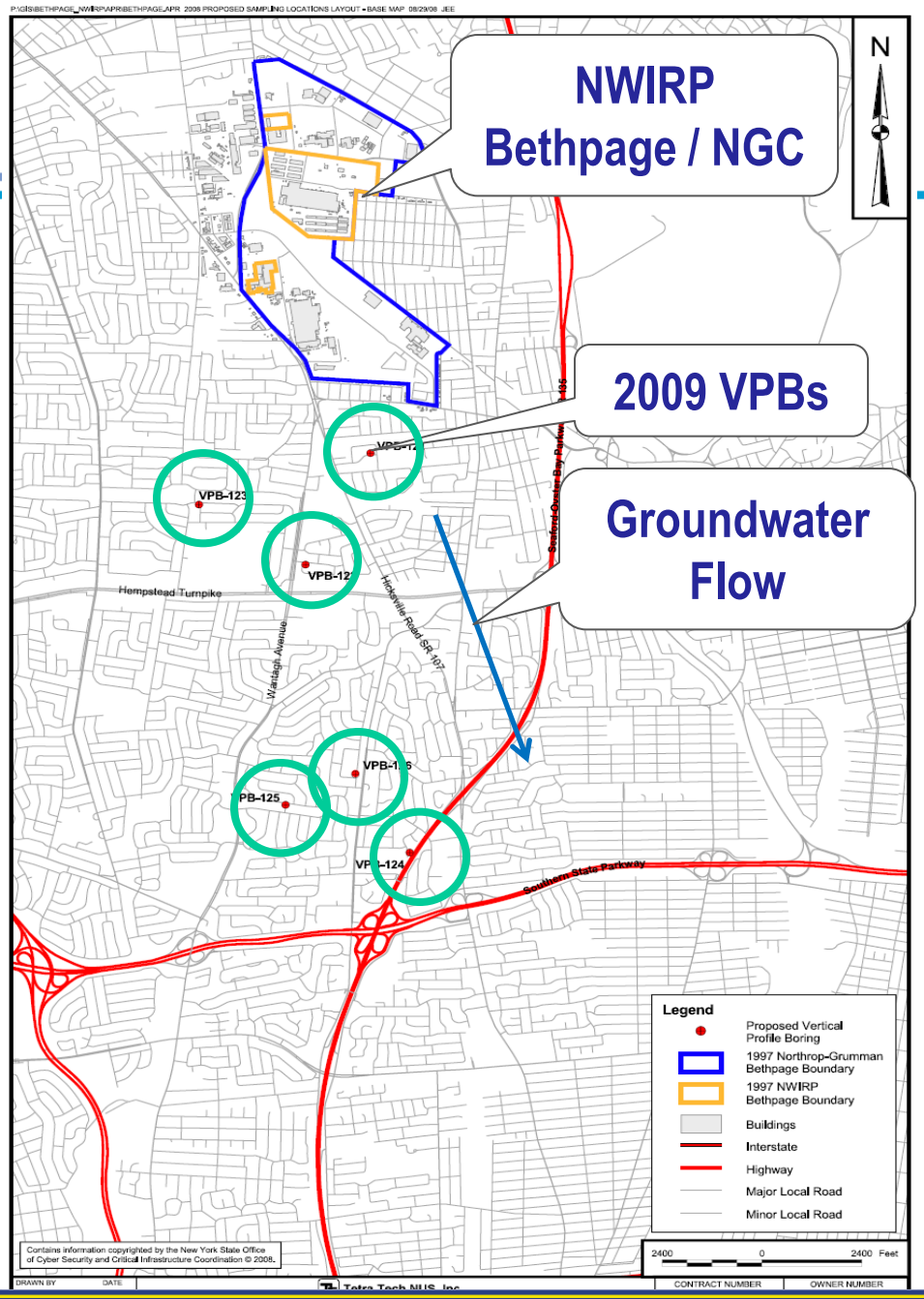
OU2 INVESTIGATION - VERTICAL PROFILE BORING PROGRAM

- 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 860 feet below ground surface
- 36 groundwater samples will be collected per boring and analyzed for VOCs

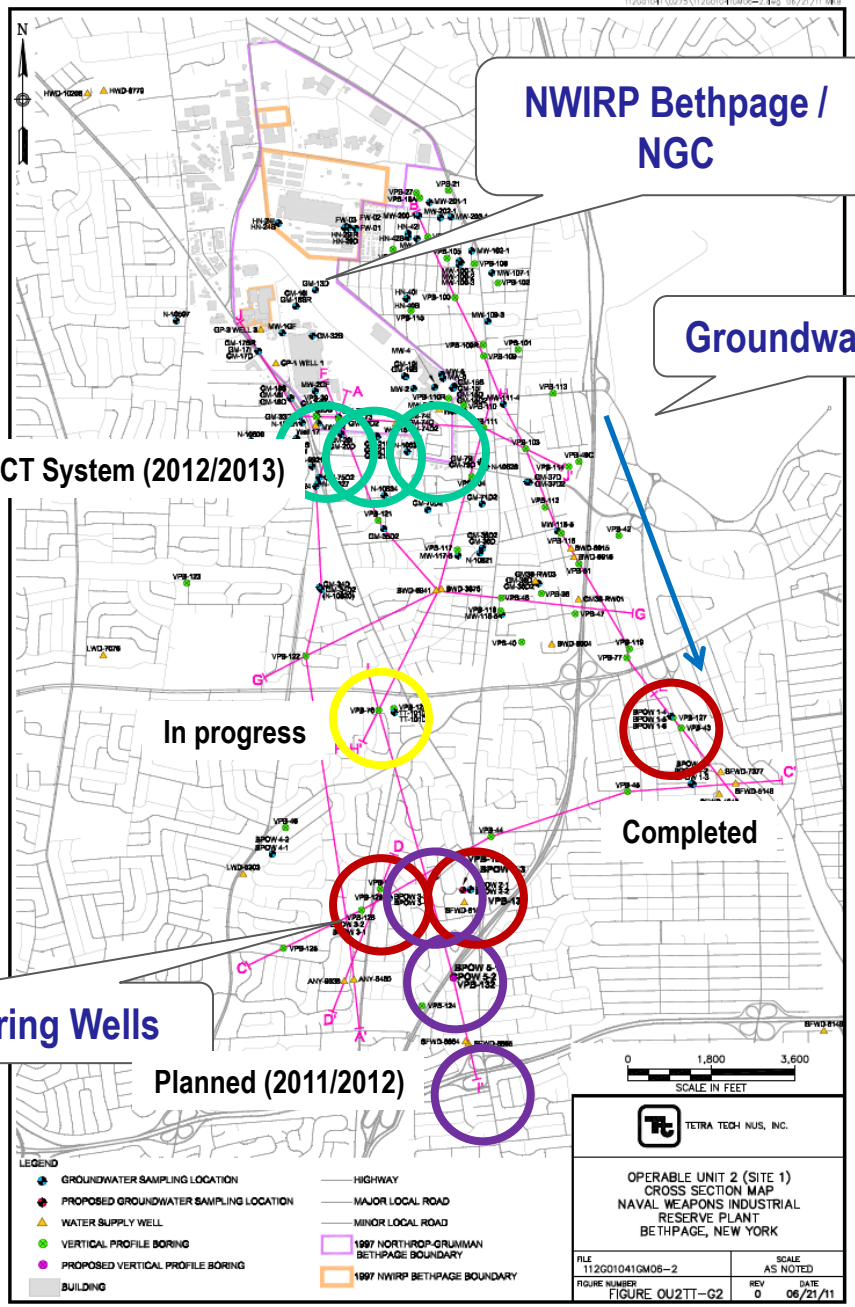
OU2 INVESTIGATION - VERTICAL PROFILE BORING PROGRAM (Cont.)

- 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
  - Since Oct 2010, four borings and seven wells (completed) and two wells (in progress)
  - Three borings and four wells are planed for 2011/2012
- Navy currently designing a treatment system, installation planned for 2012

2009 Vertical Profile Borings



2010 to 2013 Vertical Profile Borings and Monitoring Wells



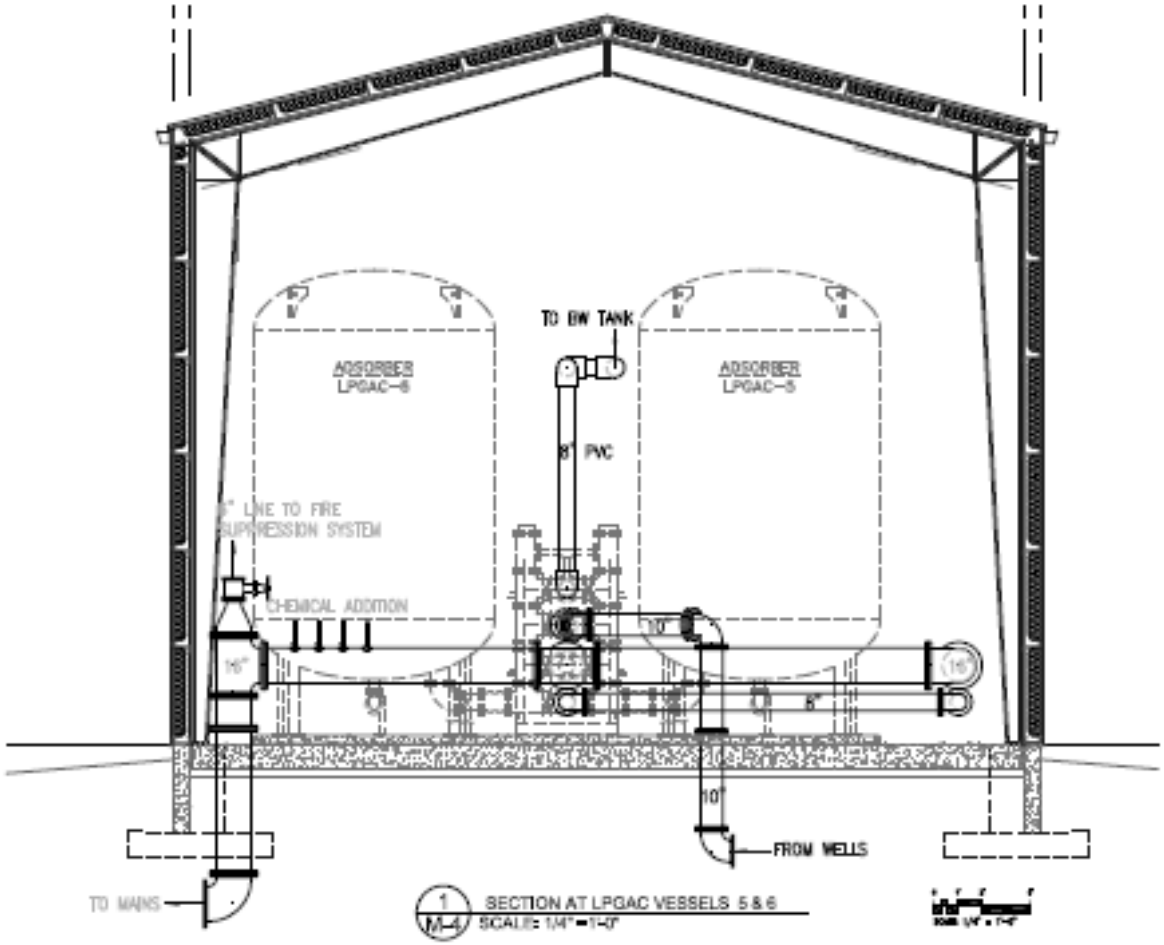
OU2 INVESTIGATION - VERTICAL PROFILE BORING PROGRAM

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
- Working with TOH and DOH
- Construction is anticipated to start in early 2012
- Interim treatment planning in progress

OU 2 PUBLIC WATER SUPPLY DESIGN

Liquid Phase Granular Activated Carbon System - Profile



OU2 ACTIVITIES

Questions