RESTORATION ADVISORY BOARD MEETING
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP), BETHPAGE
TOWN OF OYSTER BAY ICE SKATING RINK COMMUNITY ROOM
1001 STEWART AVENUE, BETHPAGE, NEW YORK
WEDNESDAY, DECEMBER 5, 2012

The Thirtieth meeting of the Restoration Advisory Board (RAB) was held at the Ice Skating Rink Community Room in Bethpage, New York. Meeting attendees included representatives from the Navy (Lora Fly), New York State Department of Environmental Conservation (NYSDEC) (Steven Scharf, Larry Rosenmann and Walter Parish), New York State Department of Health (NYSDOH) (Steve Karpinski), United States Environmental Protection Agency (USEPA) (Rob Alvey), Nassau County Department of Health (Joe DeFranco), Town of Oyster Bay (John Ellsworth), RAB Community Members (Rose Walker), Tetra Tech (David Brayack), H&S Environmental (Jen Good and John Hudacek), ARCADIS (David Stern), South Farmingdale Water District (Len Constantinopoli), Massapequa Water District (Stan Carey), Steel Equities/Edgewater Environmental (Stephen Hix and Kevin Lumpe), and Resolution Consultants (Bill Spronz, Robert Forstner and Eleanor Vivaudou). There were several guests at the meeting, including eleven Bethpage residents and three residents from neighboring towns. 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 Navy presentations for the meeting are included in Attachment 3.

COMMUNITY UPDATE AND REVIEW AND APPROVAL OF MEETING MINUTES

Approval of the April 2012 meeting minutes was tabled until the next RAB meeting because a quorum of RAB members was not present.

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 show a decreasing concentration trend. It was noted that these graphs reflect groundwater concentrations in the extraction wells. Recent activities include quarterly groundwater sampling in June 2012, August 2012 and December 2012 and routine change out of activated carbon in August 2012. Approximately 1,512 million gallons of water were treated though October 2012. The system was shut down from October 29, 2012 through November 5, 2012 due to a power outage as a result of Superstorm Sandy. 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 whom the results are reported to, the Navy reports the results to the NYSDEC. In answer to a question of how the 2014 end date was selected, what is the target that allows for shutdown and was there any thought to regionalization, Ms. Fly answered that the initial estimates of operation were provided in the O&M manual based on design estimates of effectiveness; actual shutdown will be determined based on results of capture zone analysis and further evaluation of results. The endpoint for treatment is when hotspots match surrounding concentrations. Hotspots are areas where concentrations exceed 1 ppm.

Ms. Good reviewed the status of the Site 1 SVE containment system, and indicated that the purpose of the system is to prevent off site migration of Site 1 VOC-impacted soil gas and to clean up off site 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 and brought on-line in November 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. Good stated that nine additional SVPM systems were installed in the residential neighborhood. In answer to a question of whether there have been any spikes in any air samples, Ms. Fly indicated that samples are taken on a quarterly basis and reported to NYSDEC. All samples have been in compliance so far. If a sample doesn't comply, the Navy would work with the NYSDEC to determine a response. Mr. Brayack added that in addition to the NYSDEC, the NCDOH and the NYSDOH are reviewing the data. In answer to a question from a resident of why have I not received any data since the unit has been taken out of my house, Ms. Fly answered that the data are available on line and can be emailed. Mr. Scharf stated that the results are also available in the library. Mr. Brayack stated that there are no results yet for

wells installed in September 2012. The system appears to be working very well, maintaining a slight vacuum in the soil. Sampling in January 2013 will be the first set of results for these wells.

There was a discussion as to what the air permits allow and who governs the permit. Ms. Fly explained that there is a scrubber system and that both the input and exhaust from the scrubber are tested. The exhaust limit comes from the Clean Air Act (CAA). Mr. Brayack stated that the state manages the air permit system. Although the CAA limits have been met even without treatment, the treatment system is still operated anyway. Exhaust levels are in the ppb range.

There was a discussion as to what are the soil gas concentrations before and after discharge, what is the source of contamination and when was the last time that delineation was done. Mr. Brayack explained that soil gas concentrations are in the 50 to 100 ppb range. Theoretically allowable exhaust discharges could be up to 1,000 ppb. The system is achieving 90% removal rates. Reports with detailed data are available on the public website. The soil gas in this area is not directly associated with a groundwater plume, rather it is associated with on-property soil. Ms. Fly indicated that the Navy performed testing in 2009 in the area and stepped out to find the limits of where the systems needed to be installed and that quarterly sampling is being performed to determine if the soil gas remains.

There were concerns that the soil from the off-property drilling would negatively impact the surrounding air. Ms. Vivaudou responded that air monitoring is done at the drilling locations, and upwind and downwind from this location. If there are any detections, there are protocols in place to control emissions. Steve Scharf (NYSDEC) added that drilling materials must be containerized and that it is not expected to have any air emissions with the soil that's extracted and containerized. Mr. DeFranco added that this also includes the drilling mud. All waste is to be disposed of legally. Mr. Brayack stated that a PID is used to monitor emissions. Ms. Fly also stated that work is being done pursuant to a work plan approved by the state.

Questions regarding the presentations include the following:

- Why are we not hearing anything about radioactive material? This question was asked by a former Grumman employee who stated that there was a reactor on site. Ms. Fly responded that testing has not indicated that there was a nuclear issue and the she was unaware of any radioactive operations on the Navy owned site. Mr. Scharf added that any radioactive issues would have been identified in screening during the RCRA process initiation.
- This is the first time that we are hearing about nuclear issues. What will be done? Ms. Fly responded that the Navy will follow up on it.
- Please explain GM 38. Mr. Scharf responded that GM stood for Geraghty Miller, which was the consultant who installed the wells, and 38 is the well number that caused the investigation.

TECHNICAL PROGRESS – SITE 1 ACTIVITIES - ONSITE DRILLING ACTIVITIES

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

The Site 1 ROD was issued in 1995. Site 4 work began in 1998 and Area of Concern (AOC) 32 work was completed this fall. For Site 1, PCBs are the primary concern, and there is also some chromium and VOCs. Soil samples that have been collected from Site 1 since 1992 are shown. Additional soil borings are being installed to better delineate the extent of the PCB contaminated soil at Site 1 to support the RI and FS Addendum. Borings were installed between 1992 and 2012 and soil samples were collected at depths between 2 and 75 feet below ground surface. The investigation also included two dry wells. Results will be presented in spring 2013 report.

Site 4 former USTs contained #6 oil. The tanks never made it into the PBS registry by 1984, so they were probably removed earlier. Petroleum was identified in the soils and into the water table.
In answer to the question what solution are you leaning towards, Mr. Brayack responded that it is not at that stage yet. Mr. Scharf added that the Navy has already implemented a remedial action to address VOCs. The remaining material has a tar-like consistency.

There was a discussion as to why it took so long to delineate the area around Site 4. Ms. Fly stated that the Navy is not chasing the contamination. There will be a FS in the Spring of 2013.

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

Mr. Brayack discussed the GM-38 capture zone analysis. GM 38 has been in operation for 2 years and is being evaluated to see if targets have been met. The first evaluation is area wide and the USGS is working in conjunction with the Navy.

The Navy is also working on designing a full scale granular activated carbon treatment system for an offsite public water supply. Mr. Scharf stated that design point was 50 ppb VOC. Mr. Brayack added that VOCs are in a narrow band vertically and horizontally. The capture zone exceeds this. In this case, it's TCE and no degradation products are evident. Another area farther east is more degraded and is not as good a candidate.

Mr. Brayack provided an update on the public water supply treatment system design. There was a discussion about what wells will be impacted and where excess water will be discharged. Mr. Brayack answered that it is a possibility that downgradient wells will be contaminated, but that the Navy is working

with the water departments to address this potential. Water from the filter backwash will be sent to a storage tank inside the building (20,000 gal). The Navy is working with the Nassau County DPW for disposal of backwash. Once the full-scale treatment system is in place, operation of the interim system will be discontinued.

There was a discussion on overall project management plan and placement of wells. Ms. Fly explained that a lot of decisions are being based on what we find as the current work goes on. There's a dense network of wells around NY American Water, where treatment has been in place for some time, and also focused on an area near Hempstead Turnpike. Water supply wells are at the center of the circles on the figure shown (included in the attachments to these minutes). These investigations are evaluating one of the Bethpage Water District wells.
In answer to the question why did you chose to drill outside my house when there is an empty lot 200 feet south of me, Mr. Brayack stated that wells cannot get too close to the high-tension wires. There are high tension wires near the empty lot; there needs to be a minimum of a 100-ft clearance for the drill rig. The selected location was the only one that was not near high tension wire that had 100 feet of uninterrupted curb space available within about a 1,000 ft radius. The Navy uses stormwater basins as drilling locations wherever possible, but this location was a critical data gap and we need to know where contaminated water is coming from.

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 860 to 1,000 feet bgs. Approximately 36 groundwater samples per boring are collected and analyzed for VOCs. Mr. Brayack reviewed figures showing NWIRP and Northrop Grumman properties, groundwater flow direction, and locations of completed wells and borings and planned wells and borings.

Ms. Vivaudou spoke about the VPBs that are currently being installed. Drilling is currently underway at the site on Avoca Avenue, and 20 samples have been collected so far with plans to be finished with this location within a couple of weeks. The Navy is in the process of getting permits for additional locations. Monitoring on site is done with a PID every day and at upwind and downwind locations. No impacts have been observed so far.

Mr. Brayack noted that two underground storage tanks (AOC-32) were recently found with water in them. The tanks are believed to have been removed from service prior to 1984 since they were not registered. Residual solvents were detected. The tanks were removed and taken off-property. Samples around the tanks were clean and a removal action memo is being prepared.
In response to the question of whether, looking south to north, has the Navy determined whether higher concentrations are to the north, Ms. Fly responded that there is a decrease at the northernmost part of the plume. Near GM75 concentrations used to be 1,000 ppb, recently less than 50 ppb. In the area of the vertical profile borings, concentrations are 200 to 300 ppb. In the southernmost areas, the concentrations are at 50 ppb as a maxium. For comparison, the MCLs are 5 ppb.

There was a discussion of what is being done to address the plume and are there any thoughts to containment. Ms Fly indicated that there is a ROD in place. It is agreed that because of mass volume that the approach is to have treatment on the supply wells. The recent optimization report had input from national experts in the field and the water districts, and that report confirmed that because the plume is so large, containment is not feasible.

There was discussion about where the OU2 groundwater data from the Navy's investigation are available. The Navy will work with the water district to ensure that they have the groundwater data that are being collected at OU2. Ms. Fly explained that the data are available in the NWIRP Bethpage public repository at Bethpage Library. The Navy holds RAB meetings to explain the results to interested parties. The Navy is setting up a web site to provide information on the OU2 groundwater investigation. The web site will have the data the Navy has collected.

Mr. Constantinopoli stated that everyone should be aware that the Public Water Supply systems are governed by county, state and federal regulations. People should feel comfortable with the quality of their water – there are more controls on tap water than there are on bottled water. The South Farmingdale outpost wells indicate contamination but it hasn't reached active supply wells. Because of the size of the plume, it simply cannot be stopped completely; it comes down to a question of cost as to what can be done effectively.

Questions regarding the presentations include the following:

- Will I be able to sell my house now that my property has well VPB-137 on it? Mr. Scharf stated that we are sampling deep groundwater; the presence of wells on the property should not have any direct impact. A monitoring well might make it more attractive since the water condition will be known.

- In answer to the question has there been strategic containment discussed with the DEC, Mr. Scharf answered yes but there is no information to report at this time.
- In answer to the question how do people get notice of the RAB meetings, Ms. Fly responded that notices are published in the newspaper and on the website.

CLOSING REMARKS

Ms. Fly asked whether there were any other questions or comments. There were no other questions or comments. Ms. Fly indicated that the next RAB meeting would be held in April 2013. Ms. Fly thanked everyone for coming to the meeting and the meeting was adjourned.

ATTACHMENT 1

DECEMBER 5, 2012 RAB MEETING SIGN-IN SHEET

30th RAB Meeting for NWIRP Bethpage
December 5, 2012
Sign in List

Name (Print)	Address if interested in being on mailing list	Affiliation	How did you hear about the meeting
Bill Sprouz		Resolution consultants	
Joyce Marinaccio		11th St	E.mail
Dave Brojock		JT	
John Hudacek		H&S	
Lora Fly		USN	
Jen Good		H+S	
Steve Karpinski		NYSDOH	
Larry Rosenmann		NYSDEC	
Steven Scharf		NYSDEC	
Ralph Ataklin			
Harriett Kane			LY @ .COM
Lois Iadarola			00.com
Robert Iadarola			
Paul Granger	LZM	MPWA	email

30th RAB Meeting for NWIRP Bethpage
December 5, 2012
Sign in List

Name (Print)	Address if interested in being on mailing list	Affiliation	How did you hear about the meeting	
SANDRA D'ARCANGELO	NORT [redacted]	→ [illegible]	ONGOING	Wants to become RAB member
Susan Bylaslicce	[redacted]	[redacted]	[redacted]	
DAVID STERN		ARCADIS	NBC	
ROSANNA BENASUTTI	2 [redacted]		[redacted]	
LISA DeSantis	[redacted]		[redacted]	S@ .com
Peter + Wanda O'Malley	[redacted]	[redacted]	[illegible] + letter	
Joanne Perico	[redacted]		Resident	
ROB ALVEY	[redacted]	EPA	[illegible]	
Walter Parish	NYSDEC Stony Brook	DEC		
John Ellsworth	Town of Oyster Bay			
LEN CONSTANTINOPOLI	SOUTH Farmingdale Water		Email	
Jackie Constantinopoli	[redacted]		EMAIL	
Stan Carey	[redacted]	Massapequa Water District	EMail	
Brian Nugent		NC ENEC	F	

30th RAB Meeting for NWIRP Bethpage
December 5, 2012
Sign in List

Interested in being a RAB Member →

Name (Print)	Address if interested in being on mailing list	Affiliation	How did you hear about the meeting
Steve Hiz		Bridgewater Firm	Letter
Kevin Lumpe		Steel Equities	"
Nick Anderson		NA Consultant	"
Rose Walker		N.C. Legislator	
Ethan Irwin			Letter
Eleanor Vivandera		Resolution	
Rob		Resolution	

ATTACHMENT 2

DECEMBER 5, 2012 RAB MEETING AGENDA

Resolution Consultants
A Joint Venture of AECOM & EnSafe
1500 Wells Fargo Building
440 Monticello Avenue
Norfolk, Virginia 23510

Agenda for Restoration Advisory Board

Naval Weapons Industrial Reserve Plant Bethpage

Date: December 5, 2012

Time: 7:00 PM

Location: Community Room at the Ice Skating Center at Bethpage

- General overview – *Lora Fly, NAVFAC Mid Atlantic*
- Distribution of minutes – *All members*
- GM-38 Operations and Site 1 Soil Vapor Extraction Containment System Performance – *H & S*
- Onsite Activities-PCB area – *Tetra Tech*
- OU-2 Offsite Groundwater Investigation – *Tetra Tech/Resolution Consultants*
- AOC 32 overview – *Tetra Tech/H&S*
- Closing remarks – *Lora Fly, NAVFAC Mid Atlantic*

RESOLUTION CONSULTANTS

ATTACHMENT 3

PRESENTATIONS

NAVFAC
Naval Facilities Engineering Command
NAVFAC MID-ATLANTIC

Restoration Advisory Board (RAB) Meeting

GM-38 Area Groundwater Treatment Plant and Site 1 Soil Vapor Extraction Containment System Operation

Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage

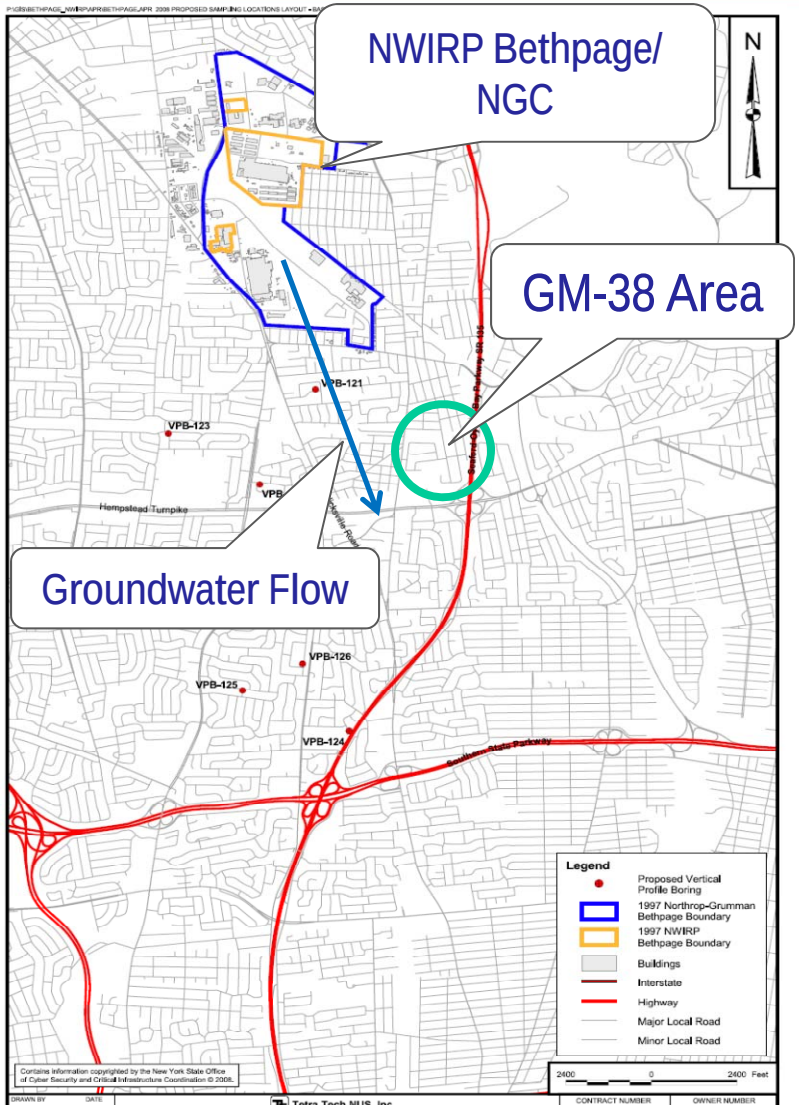
December 5, 2012

Presentation Agenda

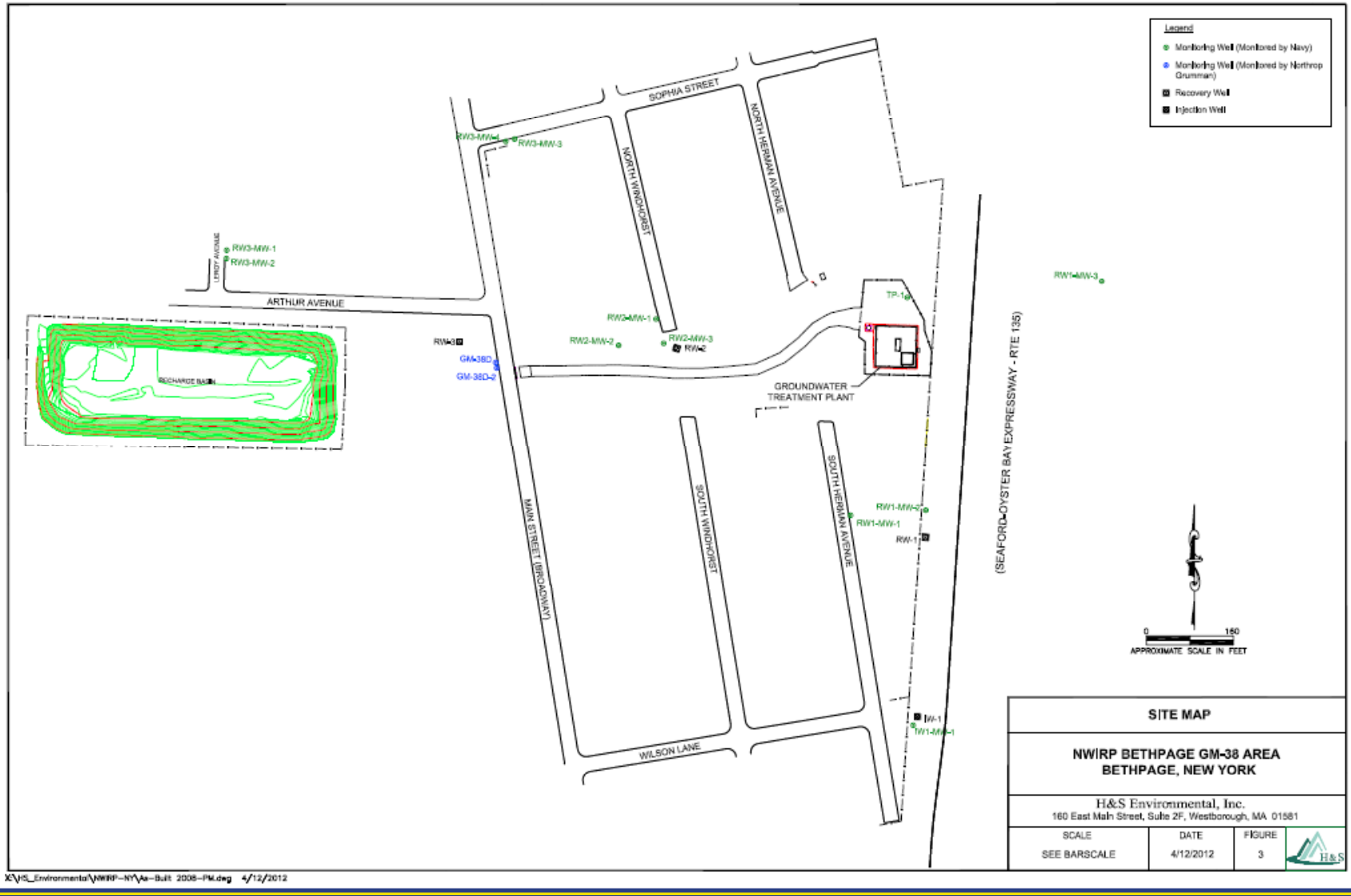
- GM-38 Groundwater Treatment Plant (GWTP)
  - Overview
  - Operational Activities
  - GWTP performance and future activities
- Site 1 SVECS (Soil Vapor Extraction Containment System)
  - Overview
  - Operational Activities
  - System performance and future activities

GM-38 Project Overview

- Purpose: Treat an area of higher concentration volatile organic compound (VOC)-impacted groundwater.
- System started operation in October 2009.
- Extracts 45 million gallons of water and 135 pounds of VOCs per month.

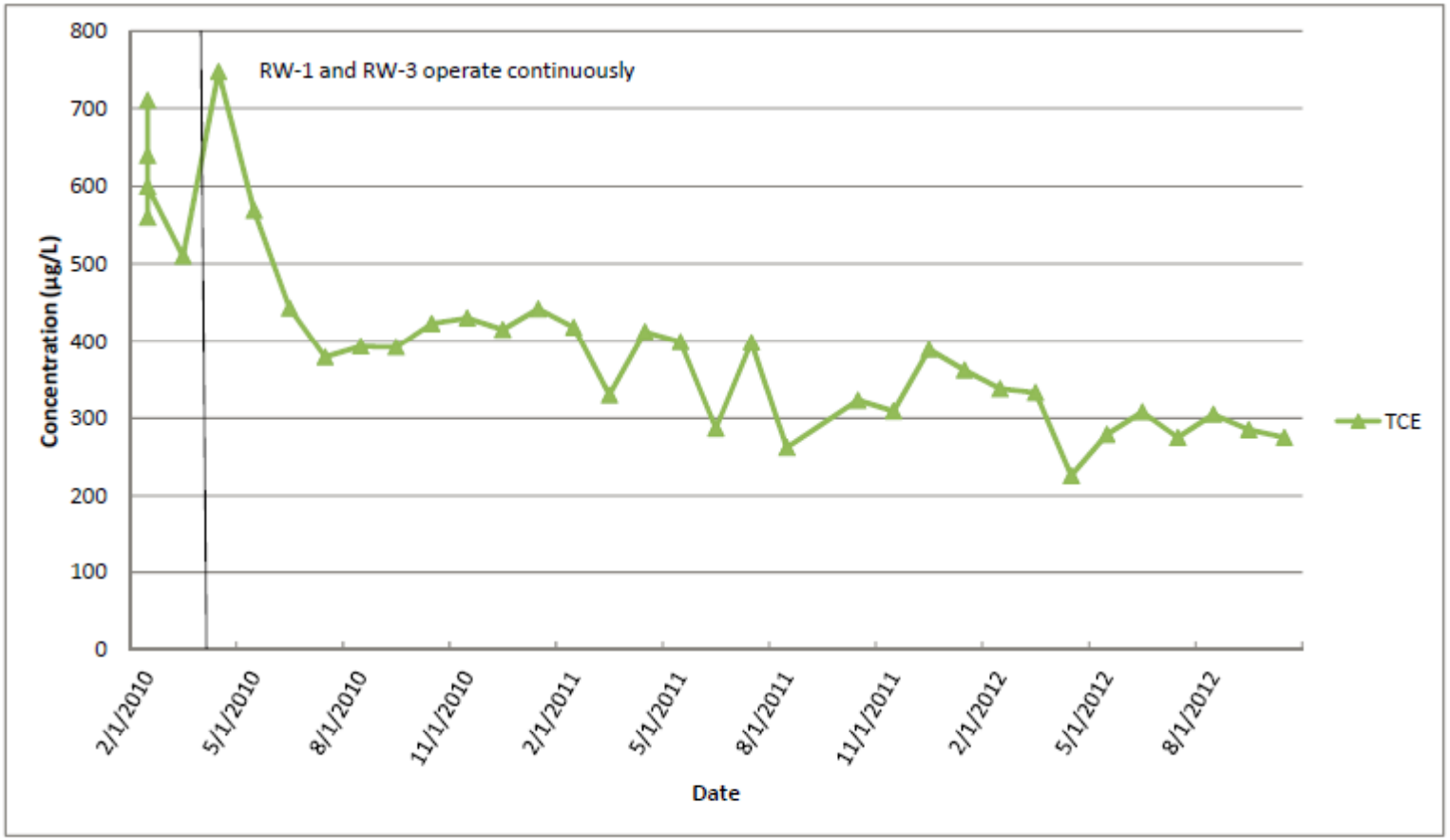


GM-38 REMEDIAL ACTION



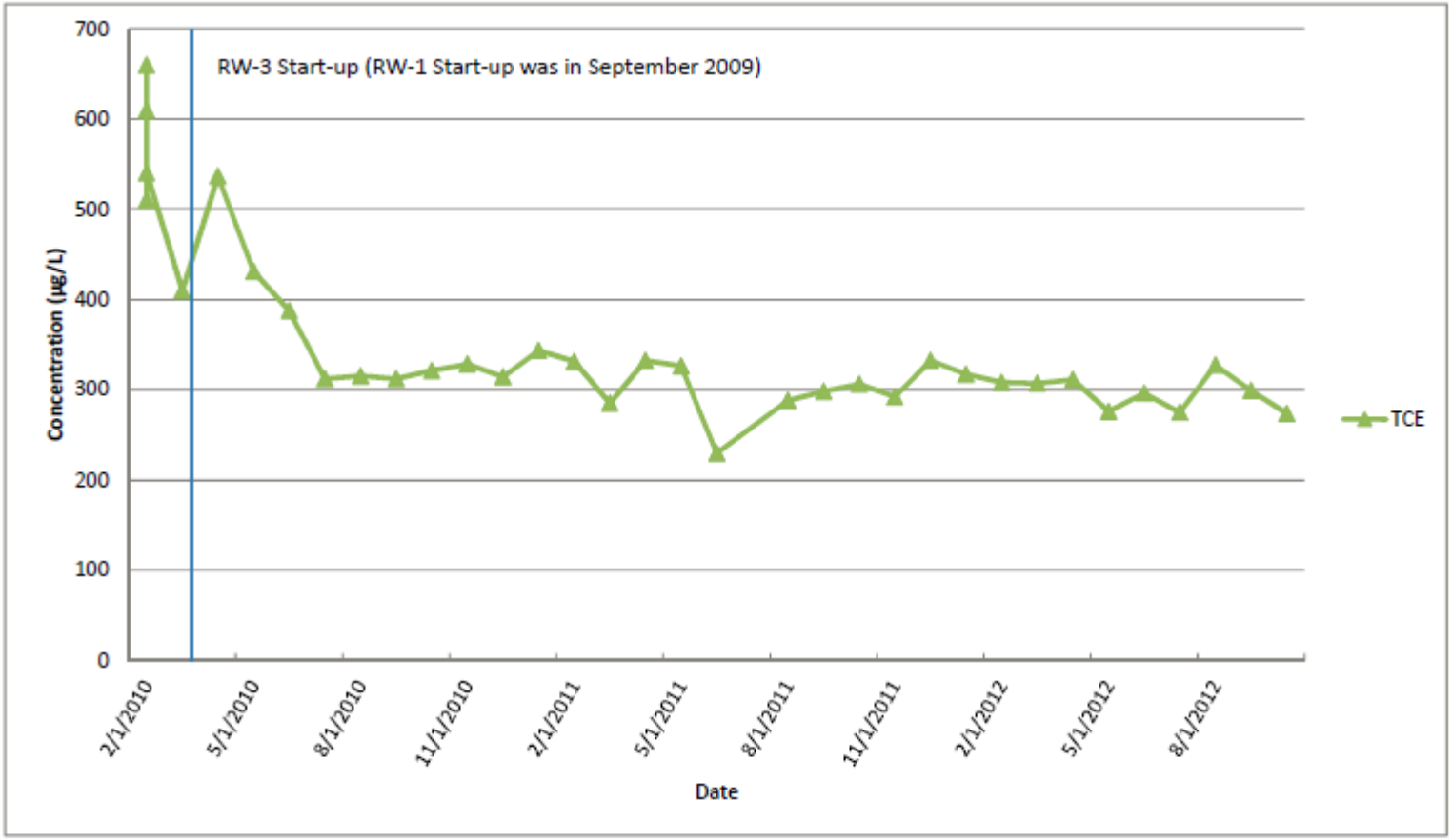
GM-38 REMEDIAL ACTION

Recovery Well RW-1 (335-395 and 410-435 ft bgs)
TCE Concentrations
GM-38 Groundwater Treatment Plant
NWIRP Bethpage, NY



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

- Quarterly groundwater samples collected from eight monitoring wells (6-7 June 2012, 22-23 August 2012 and 3-4 December 2012).
- Performed routine change out of liquid phase granular activated carbon (VGAC) (7 August 2012).
- System down 29 October 2012 through 5 November 2012 when power was restored after Superstorm Sandy.
    - No structural damage from Superstorm Sandy or nor'easter on 7 November 2012.

GM-38 GWTP Performance and Future Activities

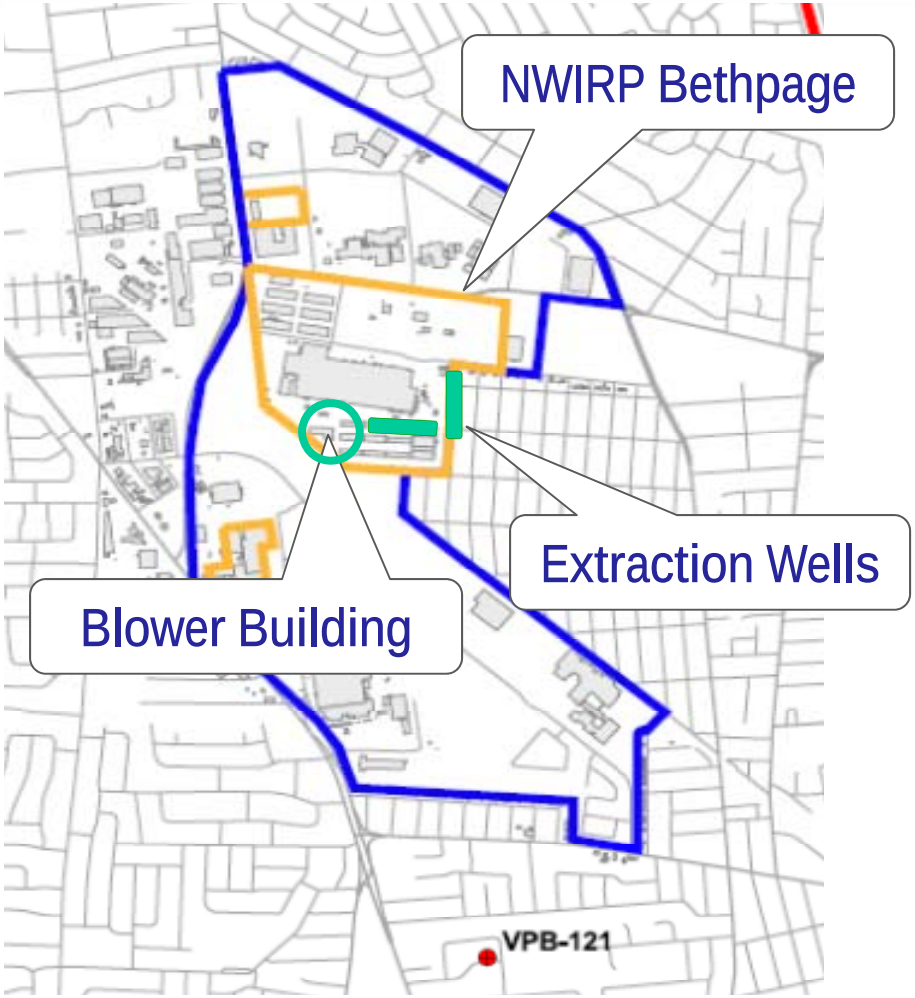
- Plant operates in compliance with air and SPDES permit guidelines.
- Runtime is above 95% with minimal downtime due to power outages and scheduled maintenance.
- Approximately 1,512 million gallons of water treated through October 2012.
- Collect monthly air and water compliance samples.
  - Submit monthly O&M compliance reports.
- Collect quarterly groundwater samples of surrounding monitoring wells.
  - Submit quarterly operations reports.

GM-38 GWTP Performance and Future Activities

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

SITE 1 SVECS Project Overview

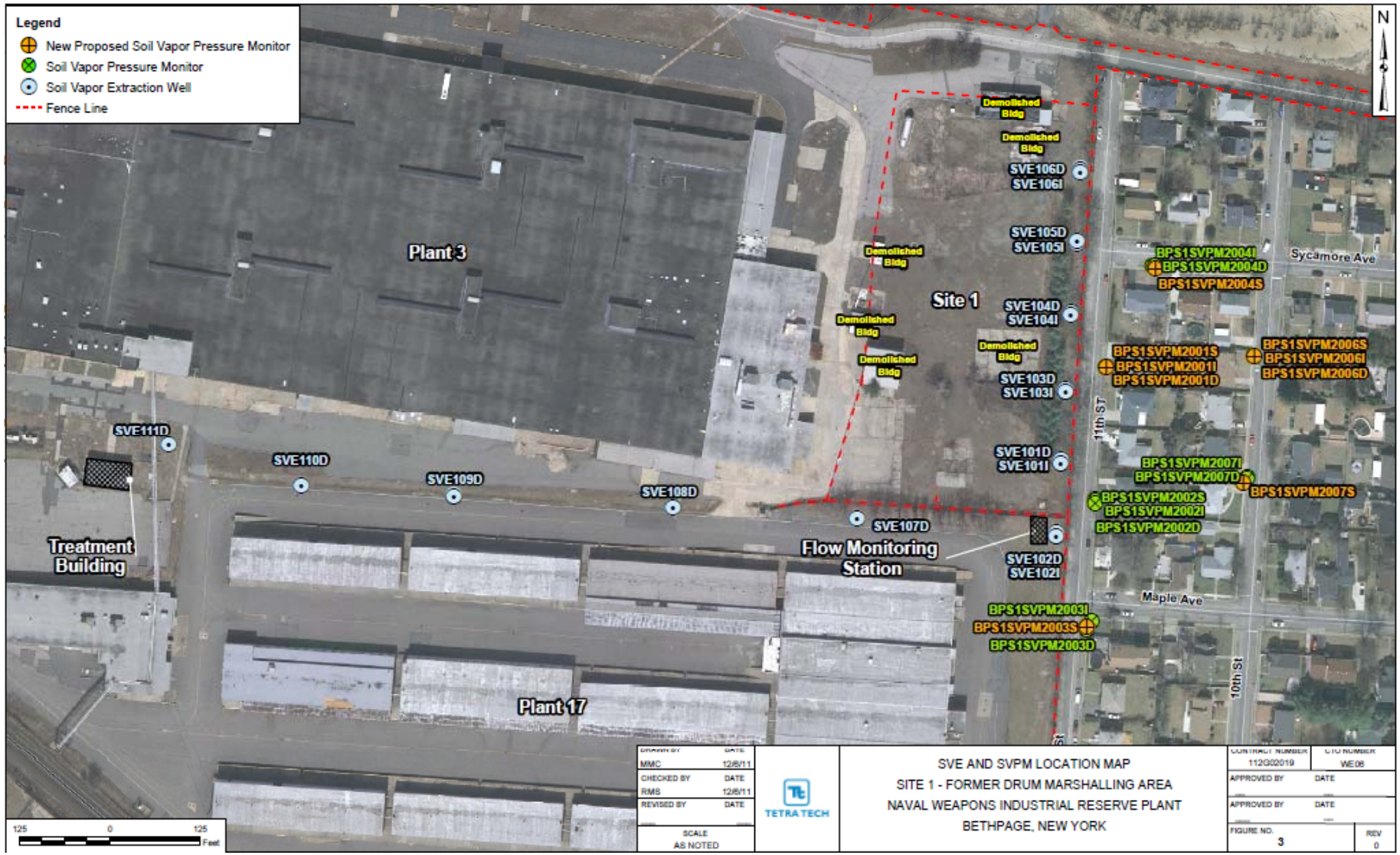
- Purpose: Prevent offsite migration of Site 1 VOC-impacted soil gas and cleanup offsite soil gas.
- System started operation in January 2010 and continues to operate.
- Extracts approximately 400 cubic feet per minute of soil gas from 12 wells located along Site 1 fence line. Five additional extraction wells added in October 2011 to address potential VOCs under Plant No. 3 and South Warehouse.



SITE 1 SVECS Operational Activities

- Nine additional SVPMs installed along 10th, 11th, and Sycamore Streets 5-6 September 2012.
- Quarterly vapor samples collected from 12 SVE wells (11 May 2012 and 11 September 2012). Quarterly SVPM monitoring performed 13 September 2012.
- Blower motors failed end of September 2012. Replacement blower motors installed 5 October 2012.
- System down 29 October 2012 through 31 October 2012 when power was restored after Superstorm Sandy.
- No structural damage from Superstorm Sandy or nor'easter on 7 November 2012.

SITE 1 SVECS Offsite Soil Gas Monitoring



SITE 1 SVECS Performance and Future Activities

- Plant operates in compliance with air permit guidelines.
- Runtime is above 95% with minimal downtime due to power outages and scheduled maintenance.
- Collect monthly air compliance samples.
- Collect quarterly air samples of SVE wells and perform quarterly SVPM monitoring. Collect annual air samples of the SVPMs (January 2012).
    - Submit quarterly operations reports.

SITE 1 SVECS Performance and Future Activities

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

NAVFAC
Naval Facilities Engineering Command
NAVFAC MID-ATLANTIC

Restoration Advisory Board (RAB) Meeting

Sites 1 and 4 Activities, OU2 - Offsite Groundwater Investigation, and Public Water Supply Design

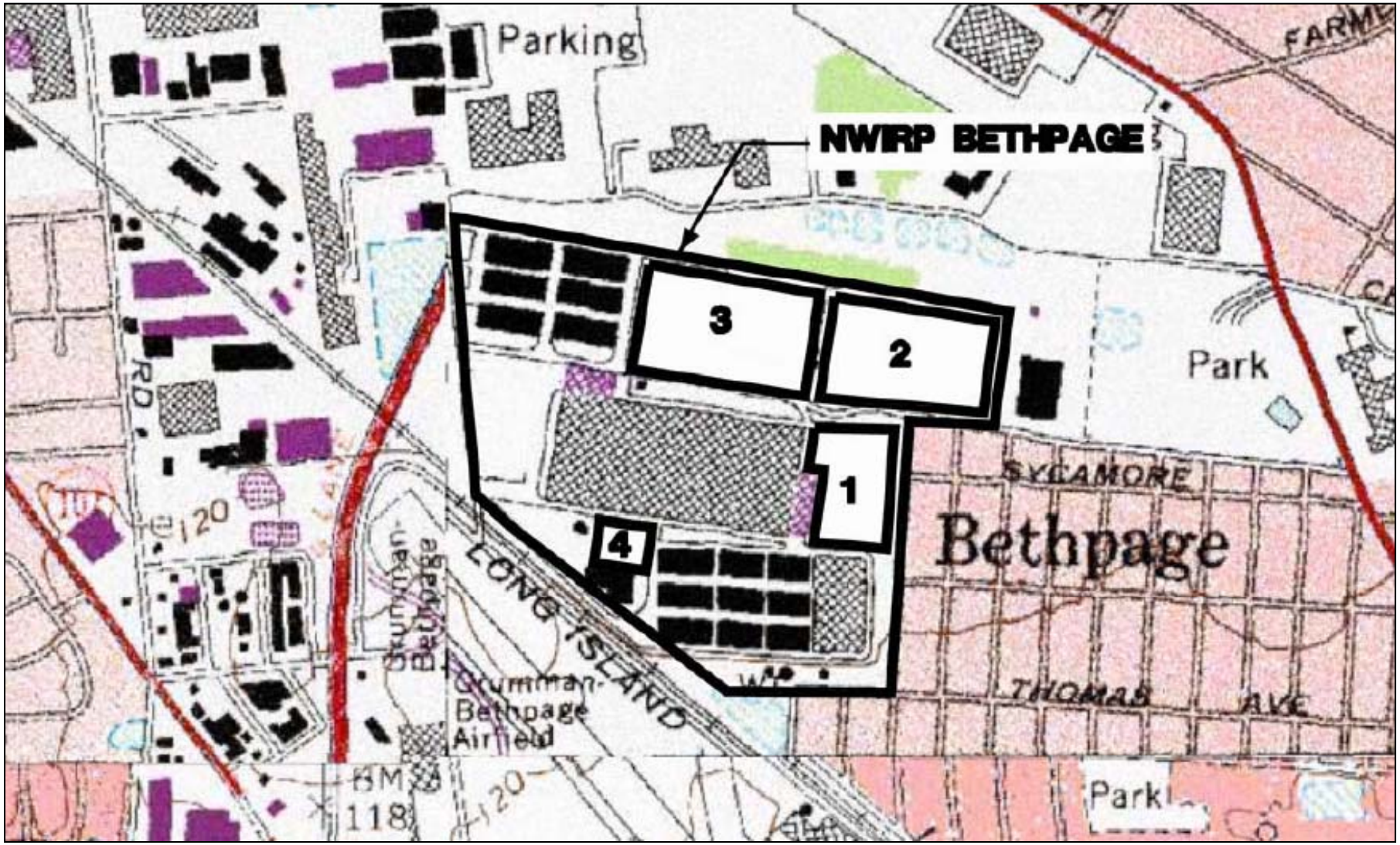
Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage

December 5, 2012

PRESENTATION OUTLINE

- Operable Unit 1 (OU1)
  - Site 1 Soil Investigations
  - Site 1 Groundwater Investigation (PCBs and metals)
  - Remedial Investigation (RI)/Feasibility Study (FS) Addendums
- Site 4 (AOC 22) Activities
  - FS Addendum
  - Proposed Remedial Action Plan (PRAP)/Record of Decision (ROD)
- AOC 32 Tanks
- OU2 – Offsite Groundwater
  - Groundwater Plume Delineation
  - GM-38 Capture Zone Analysis
  - Well Head Treatment

SITE LOCATION MAP



SITE 1 - SOIL AND GROUNDWATER INVESTIGATION

- Objective: Complete the delineation of soil and groundwater contamination in and around Site 1
- Investigation focused on polychlorinated biphenyls (PCBs) and metals (chromium), and to a lesser extent VOCs
- Soil borings and monitoring wells were installed
- The soil boring will be used to better delineate the extent of PCB-contaminated soil at Site 1 to support an RI and FS Addendum
- The monitoring wells will be used to identify the source and significance of chemicals in groundwater

SITE 1 - SOIL AND GROUNDWATER INVESTIGATION

- Subsurface soil sample locations at Site 1
- Borings installed between 1992 and November 2012
- Soil samples collected at depths of 2 to 75 feet below ground surface
- Investigations also included two dry wells: 20-08 and 34-07

SITE 1 - SOIL AND GROUNDWATER INVESTIGATION

- Surface soil sample locations at Site 1 (0 to 2 feet)
- Samples collected between 1993 and August 2012
- Results will be presented in upcoming data report (March 2013)

SITE 1 - SOIL AND GROUNDWATER INVESTIGATION

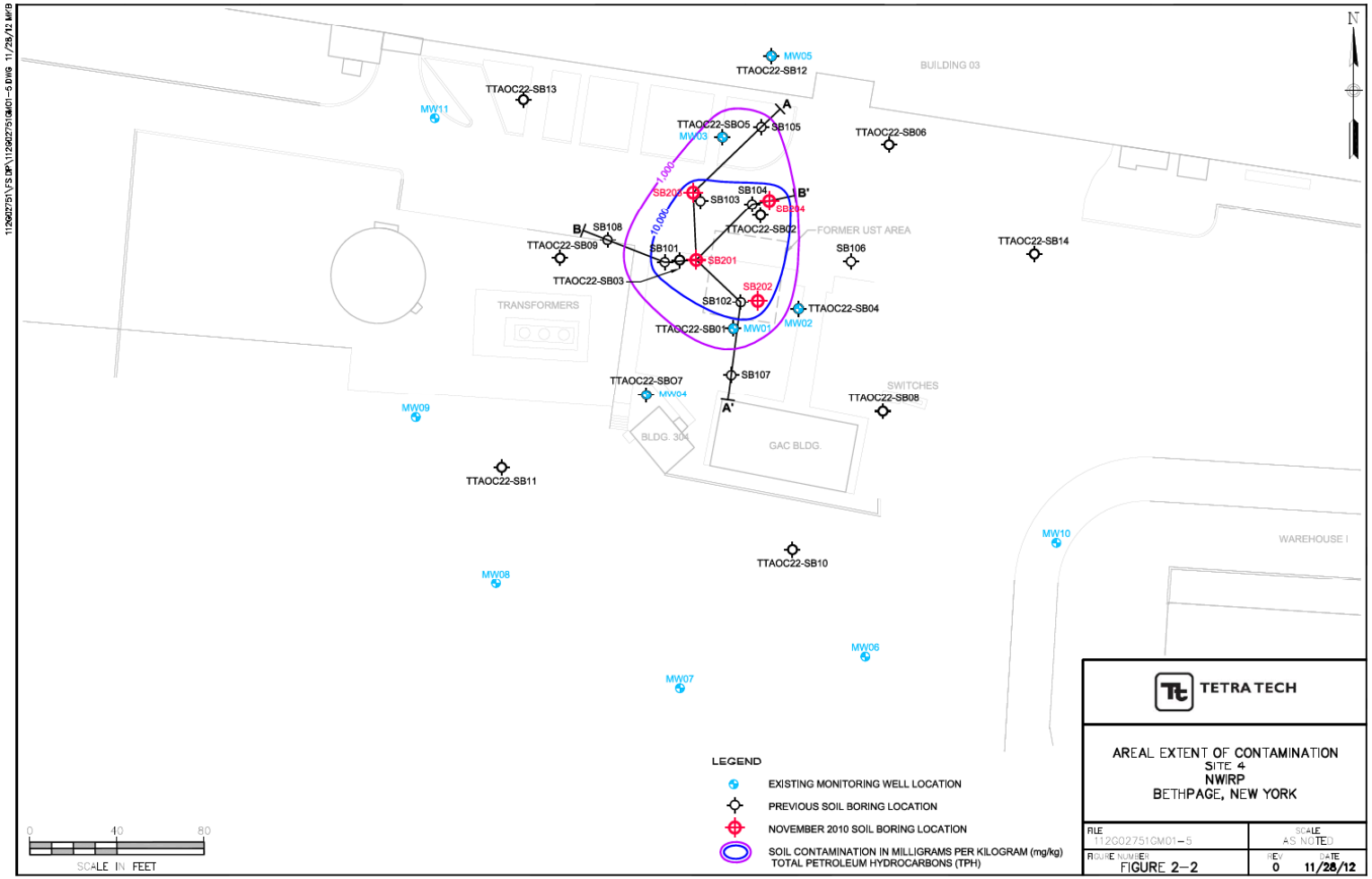
- Groundwater investigations are being conducted to determine whether Site 1 soil is affecting groundwater
- Monitoring wells were installed at depths of 53 to 296 feet below ground surface
- Latest round of samples collected in November 2012
- An RI/FS Addendum is planned for 2013

SITE 4 (AOC 22) ACTIVITIES

- Former Underground Storage Tanks (USTs) for No. 6 Fuel Oil
- Tar-like material found in the soils near the water table
- Navy is preparing an FS Addendum to develop and evaluate potential remedial alternatives (Jan/Feb 13)
- Alternatives consist of:
  - No Action, Land Use Controls, Groundwater Monitoring, Steam Injection, Solvent Extraction, Biosparging, and Free Product Recovery

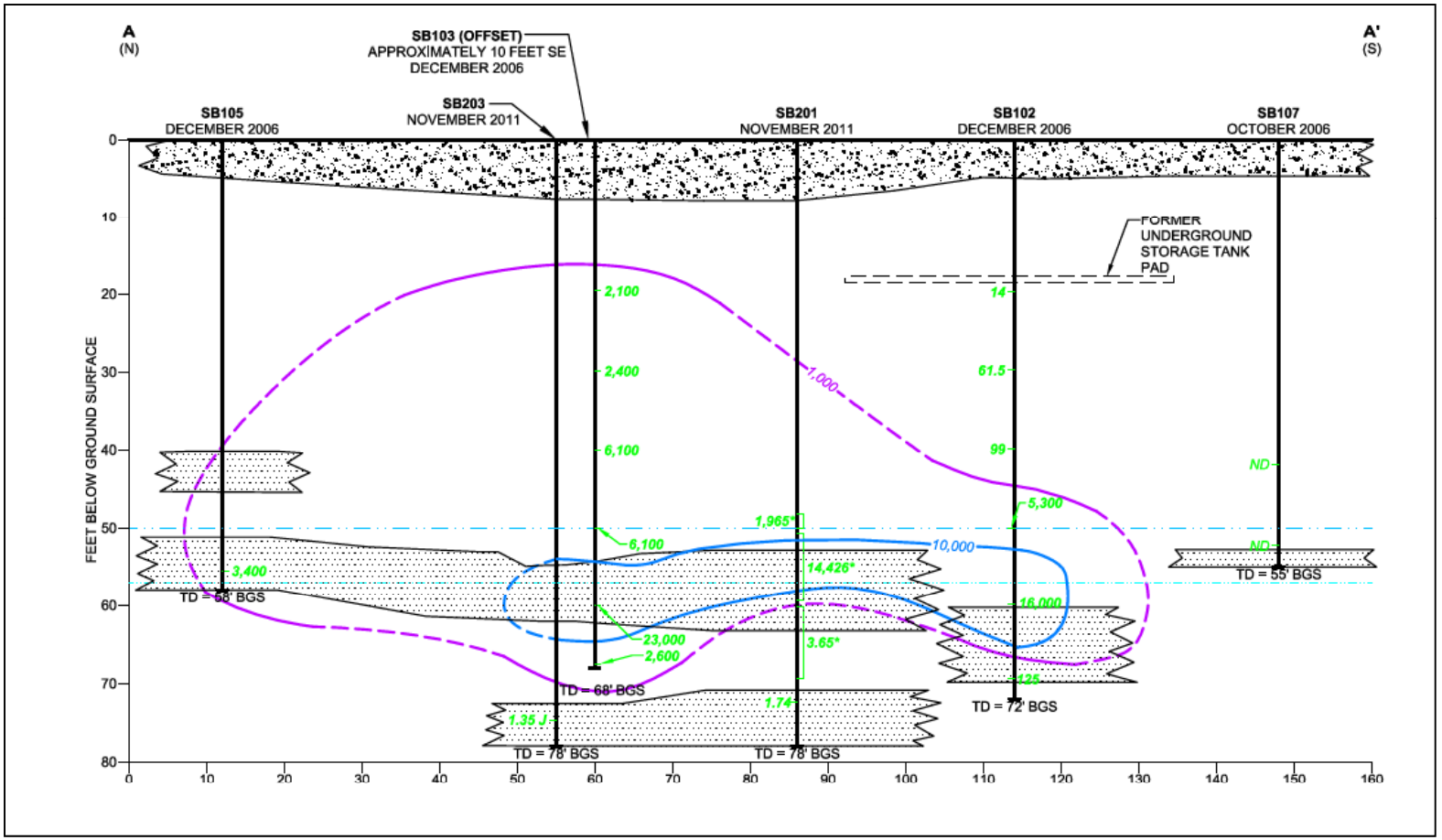
SITE 4 (AOC 22) ACTIVITIES

Layout



SITE 4 (AOC 22) ACTIVITIES

Cross-Section

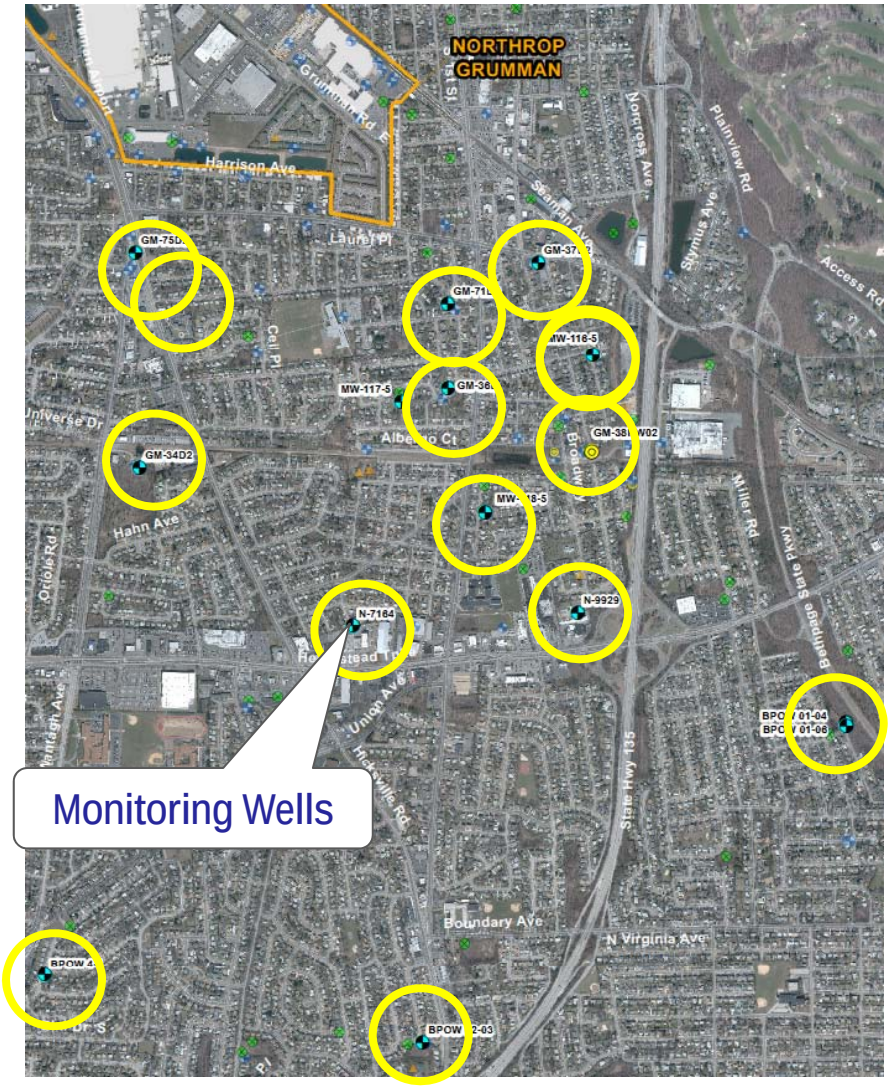


SITE 1 AND SITE 4 (AOC 22)

Questions?

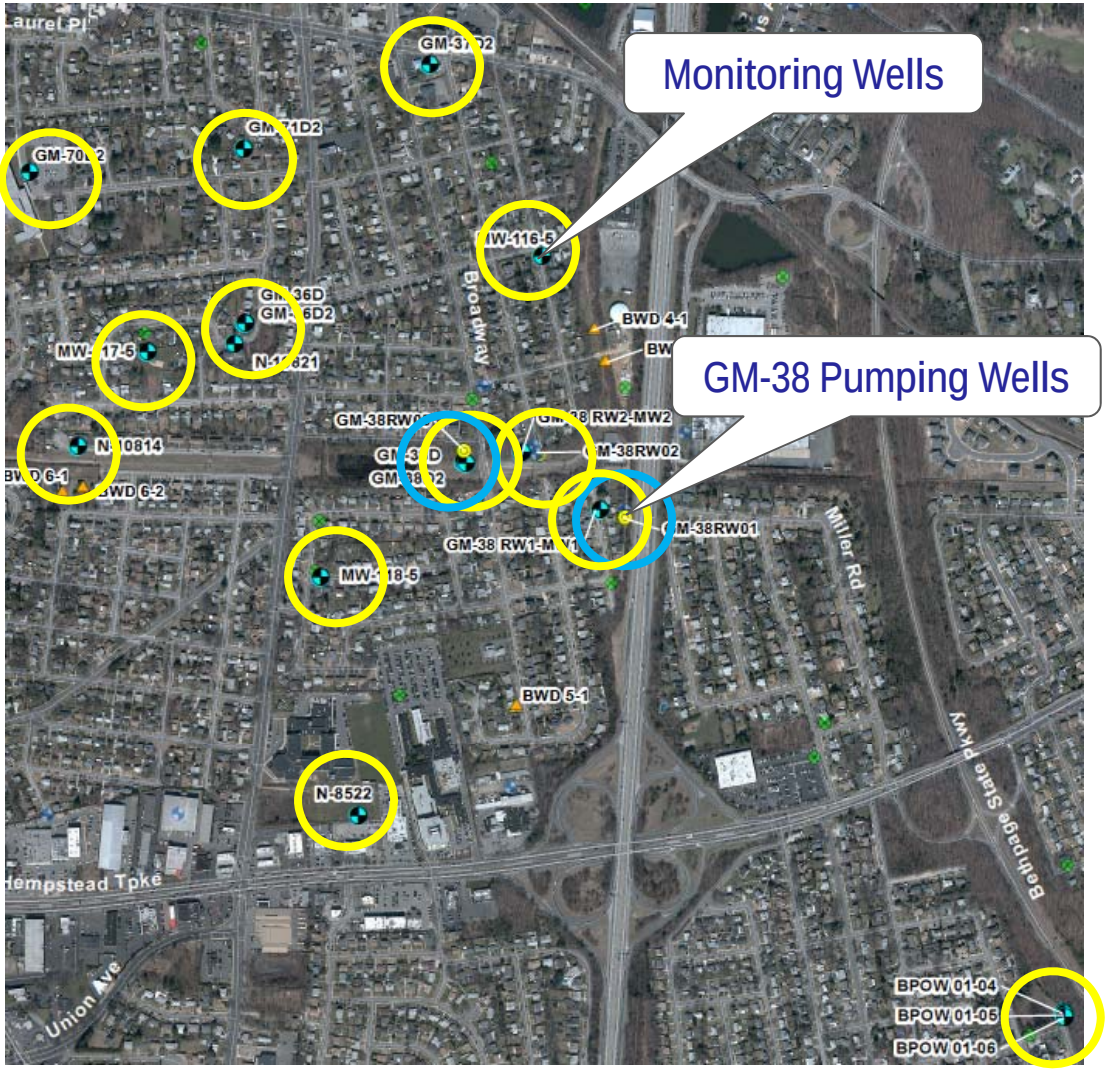
GM-38 CAPTURE ZONE ANALYSIS

- Water level measurement wells to be conducted over 12 months
- Data will be used to evaluate seasonal variations in water levels from weather and pumping



GM-38 CAPTURE ZONE ANALYSIS

- GM-38 Pumping Test
- Controlled pumping of wells to evaluate capture zone for specific wells
- Data will be used to calibrate a model



OU2 PUBLIC WATER SUPPLY DESIGN

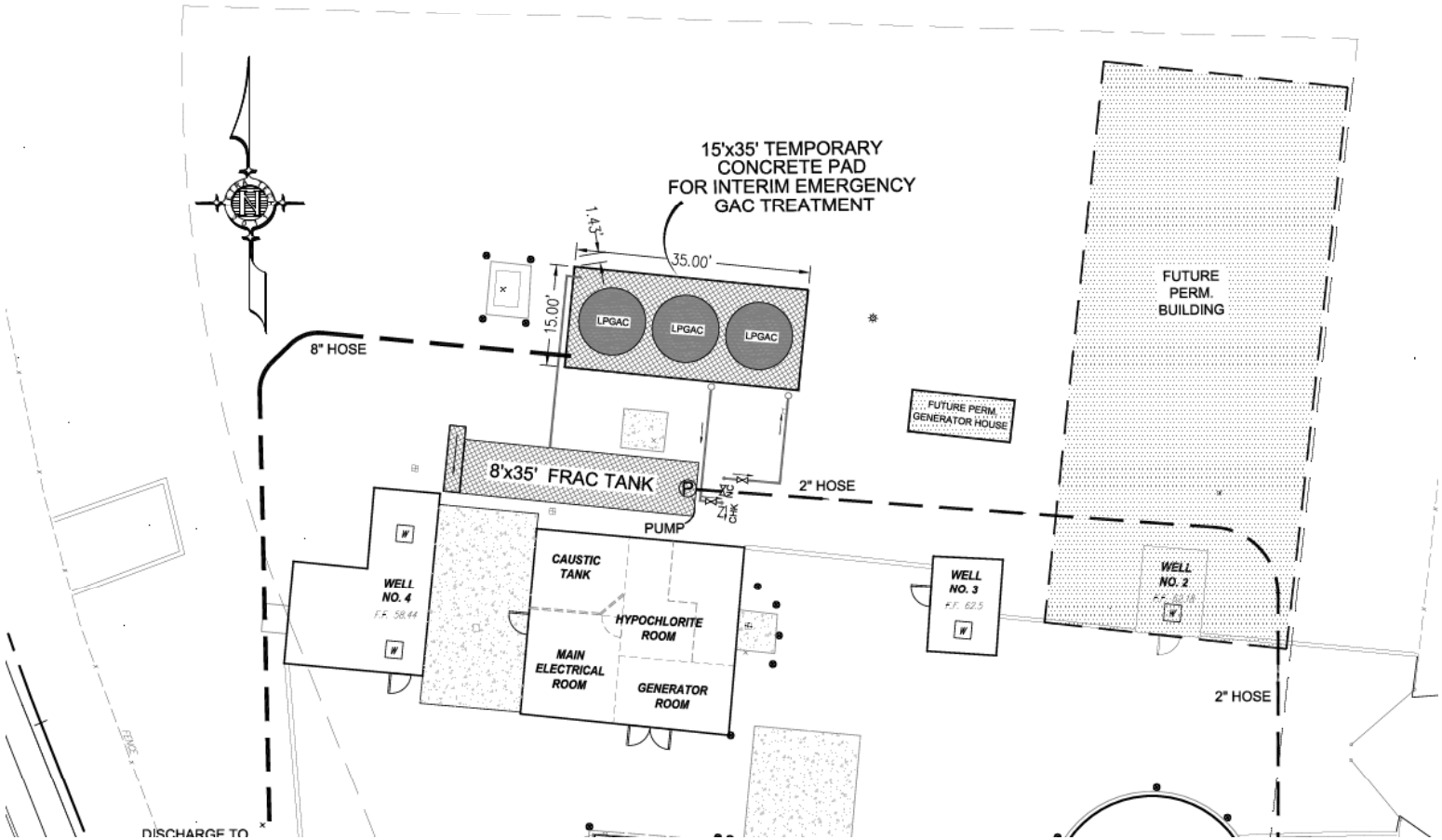
- Navy is currently designing a full-scale Granular Activated Carbon treatment system for an offsite Public Water Supply
  - Design completed in 2012
  - Working with TOH and DOH
  - Construction is anticipated to start in 2013
- Navy also designed, constructed, and operated an interim treatment system
  - System operated from May to December 2012
  - Treated approximately 160,000,000 gallons (through Oct 12)
  - System will be shut down and winterized, with a planned restart in spring 2013

OU2 PUBLIC WATER SUPPLY DESIGN

Full Scale Liquid Phase Granular Activated Carbon System

OU2 PUBLIC WATER SUPPLY DESIGN

Interim Liquid Phase Granular Activated Carbon System



OU2 PUBLIC WATER SUPPLY DESIGN

Interim Liquid Phase Granular Activated Carbon System

OU2 GROUNDWATER INVESTIGATION - PURPOSE

- Delineate 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
  - Support capture zone analysis for wells

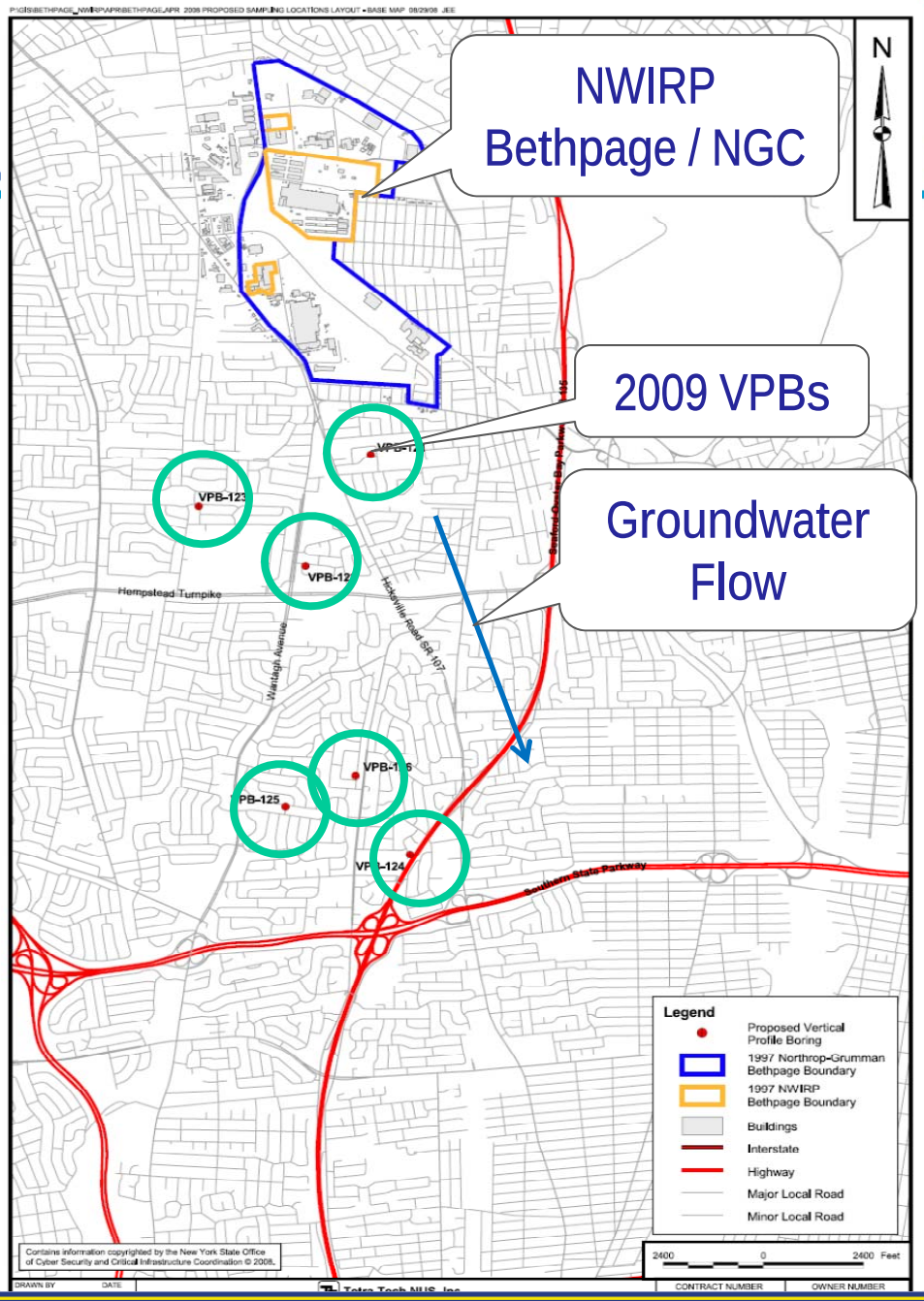
OU2 INVESTIGATION - VERTICAL PROFILE BORING PROGRAM

- 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 to 1000 feet below ground surface
- 36 groundwater samples are collected per boring and analyzed for VOCs

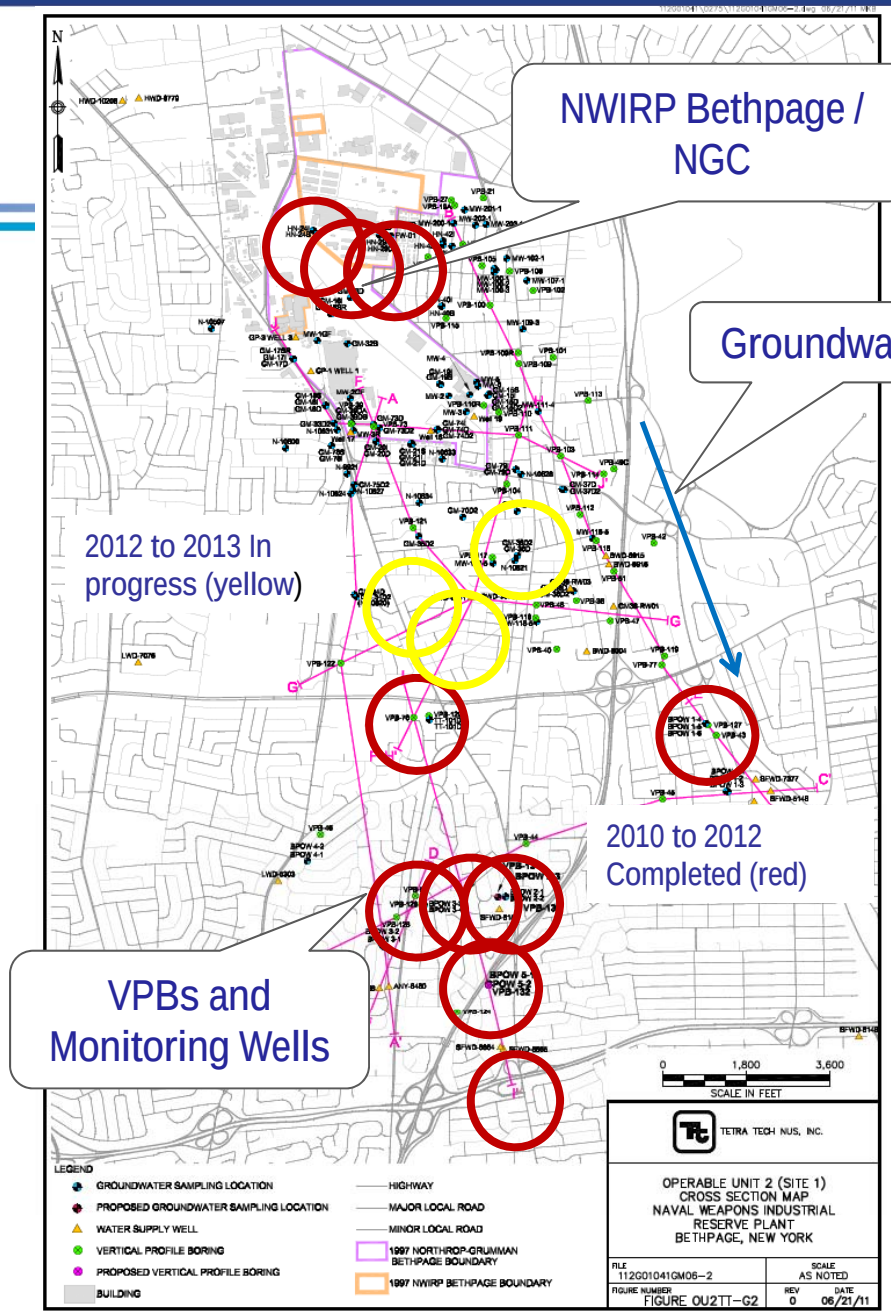
OU2 INVESTIGATION - VERTICAL PROFILE BORING PROGRAM (Cont.)

- Each boring requires 4 to 6 weeks to complete
- In November 2012, two reports were issued, one for the offsite vertical profile borings and monitoring wells and the second one for three onsite vertical profile borings
- Additional investigation are being planned and implemented

2009 Vertical Profile Borings



2010 to 2013 Vertical Profile Borings (VPBs) and Monitoring Wells

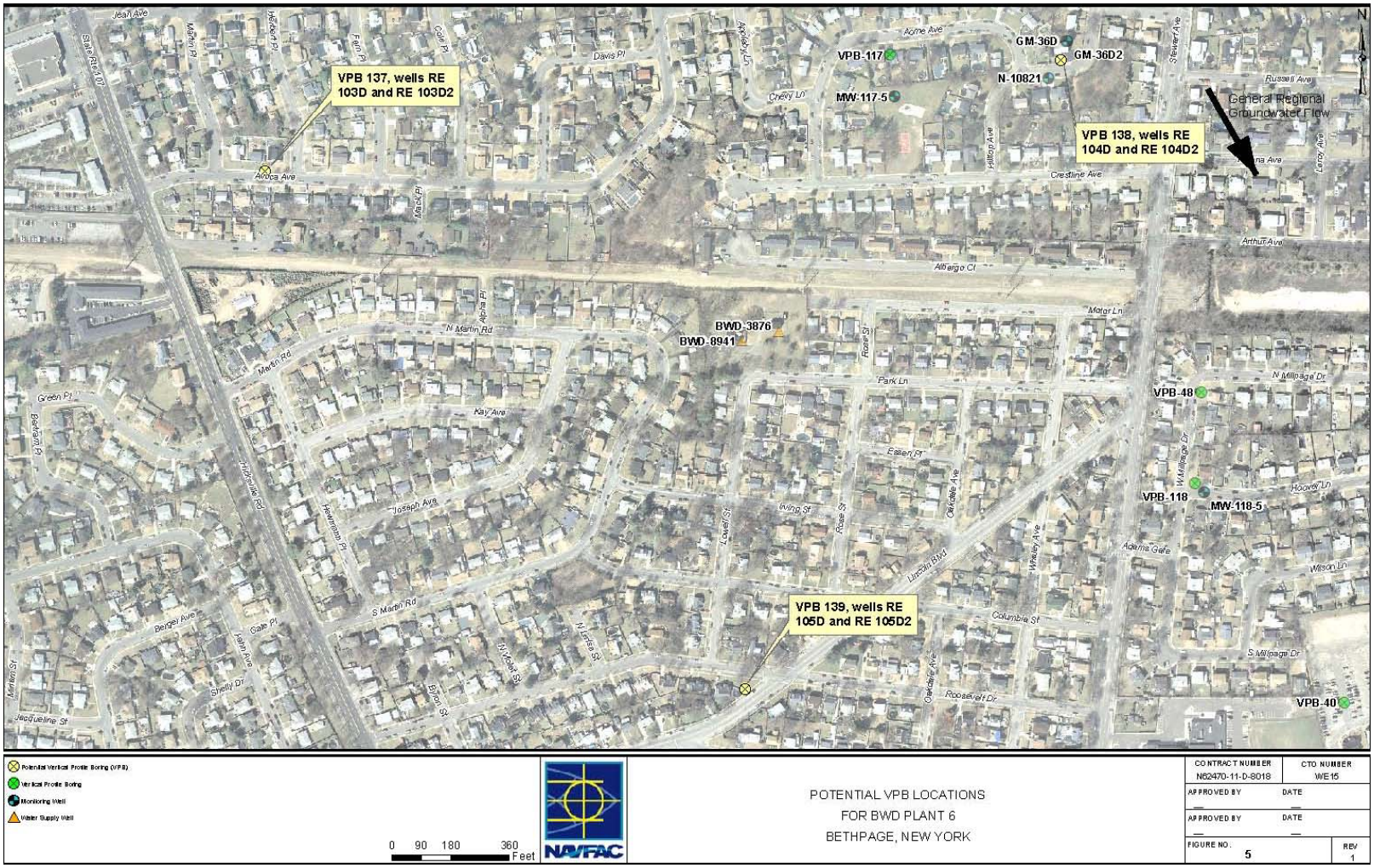


OU2 – CURRENT AND FUTURE VPB AND MONITORING WELLS

- Work performed 2012
  - –Installation of Vertical Profile Borings (VPB) 134, 135, and 136
  - –VPB 137 currently being installed.
  - –Two monitoring wells will also be installed at this location.

- Future work:
  - – VPB 138 and 139 installation scheduled for early 2013 as well as four monitoring wells

OU2 – CURRENT AND FUTURE VPB AND MONITORING WELLS



AOC 32 TANKS SUMMARY

- Two approximately 6,000 gallon USTs were identified during site grading activities
- Historic documentation was very limited, but suggested the tanks were used to store tetrachloroethene (PCE)
- Tanks were removed in Sept 2012
- Some of the contents were identified as hazardous
- Soil testing found no evidence of a release

OU2 ACTIVITIES

Questions?