

**Conference Call-Northrop Grumman/NWIRP Bethpage
Operable Unit 2 (OU2) VPB 126-128 Meeting Agenda
September 16, 2013 Meeting Notes**

Participants

Jim Harrington	NYSDEC
John Swartwout	NYSDEC
Steven Scharf	NYSDEC
Steven Karpinski	NYSDOH
Joseph DeFranco	Nassau County Dept of Health.
Douglas Garbarini	USEPA
Pietro Mannino	USEPA
Carol Stein	USEPA
Rob Alvey	USEPA
Nicki DiForte	USEPA
Lora Fly	NAVFAC Midlant
Kim Brown	NAVFAC HQ
Nina Johnson	NAVFAC Midlant
Arun Gavaskar	NAVFAC ANT
Wanda Holmes	OPNAV
Edward Hannon	Northrop Grumman
David Stern	ARCADIS

Introduction- Meeting opened by Jim Harrington. "Western lobe of the plume was covered in the fact sheet released for the OU3 ROD execution. Need to continue OU2 Supplemental Investigation with possible remediation and outpost well installation. Meeting will also serve as an update on additional OU2 activities. Navy/Grumman were issued a letter to do the supplemental work and Navy responded in writing with call for this meeting that was turned into a conference call.

Agenda Items I & II. Deep Western Plume

NAVFAC-Midlant:

- Construction is ongoing for the Navy funded wellhead treatment for the American-AQUA-NY Wellfield.
- South Farmingdale Plant 3 remedial system has been built.
- Navy is working with MWD on placement of additional outpost wells south of the Southern State Parkway.
- Navy has fully funded BWD for the BWD Plant 6 treatment upgrades.
- Navy will be submitting a plan for additional investigations in the VPB 126-128 area and for additional outpost wells south of the Southern State Parkway in the November-December timeframe.
- TT102D and TT102D2: Wells were routinely sampled as part of the comprehensive sampling and TT102D and TT102D2 found to contain 0.5J* ug/l in May 2013. These wells will be re-sampled this month by Navy's field team.

NYSDEC

- These items look good and cover what we are looking for.

Agenda Item III. Status of Proposed and Ongoing Work:

NAVFAC-Midlant:

Comprehensive Groundwater Sampling Data:

- Complying with the OU2 ROD and the Alternative 2A Optimization Strategy that was approved by NYSDEC.
- Looking for the approval of the dual purpose for the use of the Muni wells to pump 24/7/365.
- TT102D2 has an initial detection of 0.5 ppb TCE. Discussed the number of times this was re-sampled and the re-development of the TT102D2 well. Navy has agreed to resample this well the end of this month.

J-Estimated Value Based on CLP Analytical Method Quantification Limitations*

- Did the pump test work in the GM-38 extraction wells to collect field data in support of the capture zone modeling that the USGS is doing for GM 38 area.

- NAVFAC will be submitting a GM 38 Area remedy exit strategy with discussion for additional purposes.
- NAVFAC consultant is compiling report which will be released by the end of the year.
- NAVFAC believes the majority of the hotspot of the GM 38 Area has been captured.

Northrop Grumman (NGC):

- WRT OU2 sampling NGC is putting a table together with the data from the comprehensive GW sampling, routine OU2 sampling and the additional wells sampled for a number of parameters. This includes the OXY wells sampled upgradient of NGC/NWIRP. These sampling results will be discussed at the Navy/Grumman Quarterly meeting 9-25-2013 and then made available to the interested agencies. No red flags on the VOC data and the overall trends are "down."

ONCT Evaluation:

- NGC will be looking at the data to see if further work is required with more to come on OU2.
- NGC will be submitting a data gap analysis work plan for the OU3 portion.

NAVFAC:

- NAVFAC is planning to install additional VPB's and MW's in the VPB 126-128 area. The Navy also is working with USGS to develop a groundwater model to evaluate the capture zone around AQUA NY and SFWD supply wells. .
- Completed all field work on GM 38 Pump test in conjunction with BWD Plants 4, 5 and 6 wells operation.
- Based on VPB findings and pump test, will move further south and southwest.
- Report on GM 38 Areas due by 12-31. NAVFAC will be looking for GM 38 area exit strategy & potential future use.
- Navy wants to protect the districts and will adhere to the 1 ppm action level (hotspot) for additional groundwater remediation, if appropriate, as specified in the OU2 ROD.
- NAVFAC meeting with Massapequa Water District (MWD) later this month to discuss locations for the outpost wells near MWD Plants 4 and 5. The Navy has identified tentative MWD outpost well locations.

NYSDEC:

- These outpost wells and other strategies are from the previous DEC table on future work.
- NYSDEC wants a letter from the Navy committing to the work of VPB 126-128 etc. Navy states DOD has already responded in 08-01-2013 NYSDEC letter. NYSDEC will review this and get back to Navy.
- NYSDEC is working with Grumman to have the periodic review report prepared.

NAVFAC:

- Discussion on what to call the "Post GM 75 VPB work. Will call this "Upgradient Plume Delineation Work."
- Levittown Wells. The Navy is looking to see whether the Freon 113 in LWD is from Navy/Grumman. There are no other constituents. Asked Levittown and NCDH for what additional data they have in the area.
- NAVFAC is working on a conceptual site model.
- NCDH- South Farmingdale Plant 3 Treatment for iron and VOCs has been released for use and should be on-line.
- NAVFAC is preparing the NWIRP 5 Year Review, similar to the NYSDEC "Periodic Review."

Agenda Item IV. Other Items:

- Next RAB is November 6 or 13th. NYSDEC looking to set TAC meeting also.
- Discussion on TAC and when is best date to hold next meeting.
- DEC will review NAVFAC VPB 126-128 response letter and determine appropriate response.

Radium discussion:

- NGC has their data and that from BWD and concluded this is background and no further work is required.
- Discussion on the additional 6 wells requested to be sampled for Radium by BWD. BWD has not responded.
- DEC will be working with DOH to form reply to Bethpage Cancer Project.
- NCDH Worked with BWD and H2M on Radium and haven't heard back on additional 6 wells. NYSDOH referred data and issue to their Public Water supply Protection Bureau and RAD people and haven't heard yet.

Conference Call

Northrop Grumman/NWIRP Bethpage

Operable Unit 2 (OU2) VPB 126-128 Meeting Agenda

Date: September 16, 2013

Introduction: Meeting Overview & implementing requested Inv. work with the deep western plume.

Attendees: NYSDEC, USEPA, NAVFAC Midlant and Northrop Grumman Representatives

1. **Deep Western Plume: Part A**

- VPB 126-128 Area
- Summary of work done to date.
- Work Plan associated with the deep western plume investigation.
- Schedule of events.

2. **Deep Western Plume: Part B**

- Outpost Wells
- TT102D and TT102D2 GW VOC Sampling

3. **Status of Proposed and Ongoing Work - Navy / Grumman**

- Comprehensive Groundwater Sampling Data - NG
 - Sampling Results
 - Outstanding Data
- ONCT Evaluation - NG
 - Results of Phase 2 Evaluation
 - Status of revised periodic review report
- GM-38 Capture Zone Analysis - Navy
 - Status of findings
 - Outstanding Data
- Plume Delineation and Migration Assessment - Navy
 - Status of findings
 - USGS Model
- Other Tasks – NG/Navy

4. **Other Items**

- Overall Project Schedule
- Additional Items

**Total Volatile Organic Compound Concentrations in
Off-Site Deep and Deep2 Monitoring Wells (South of the Site), Operable Unit 2
Northrop Grumman Systems Corporation, Bethpage, New York**

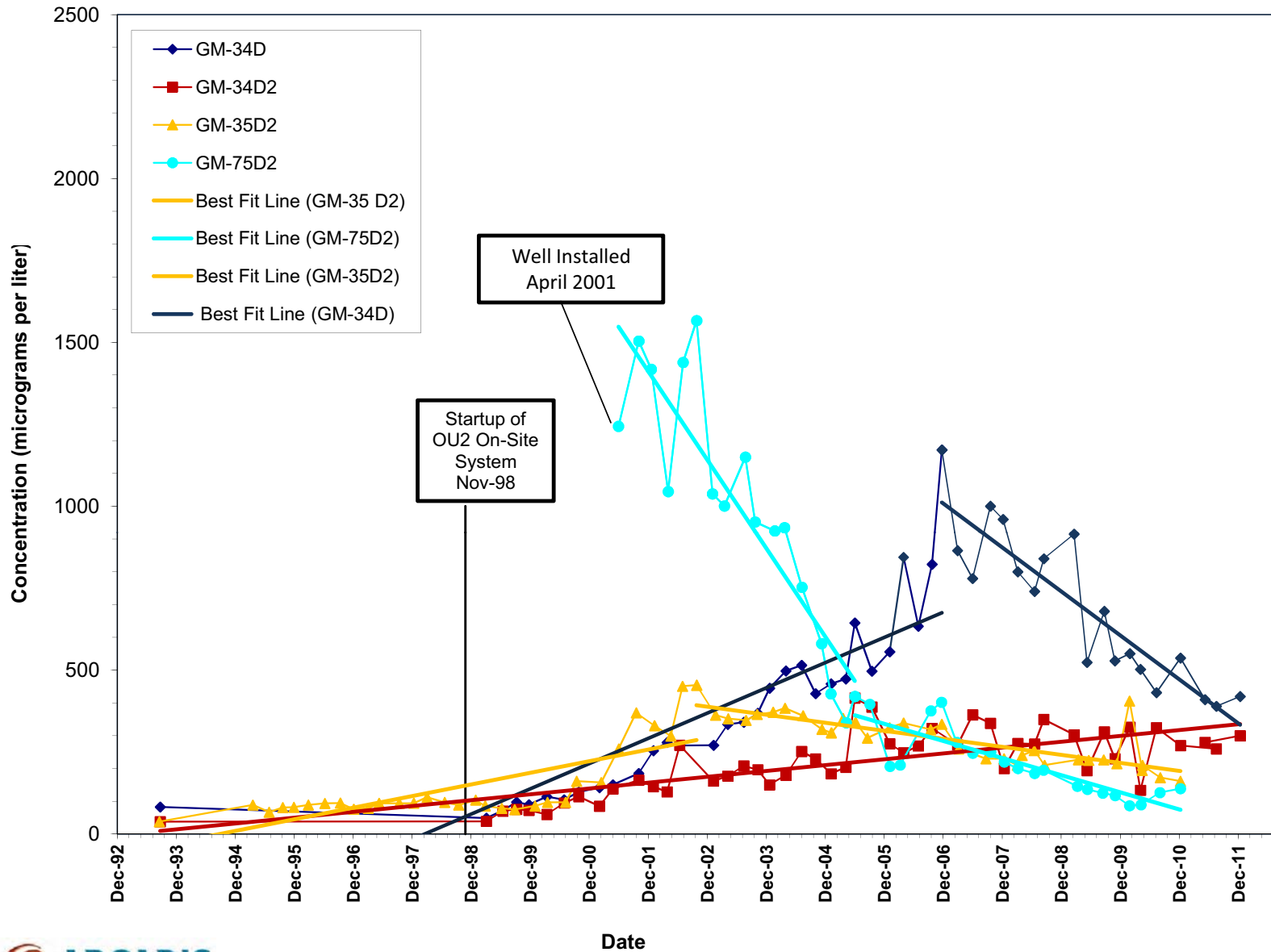
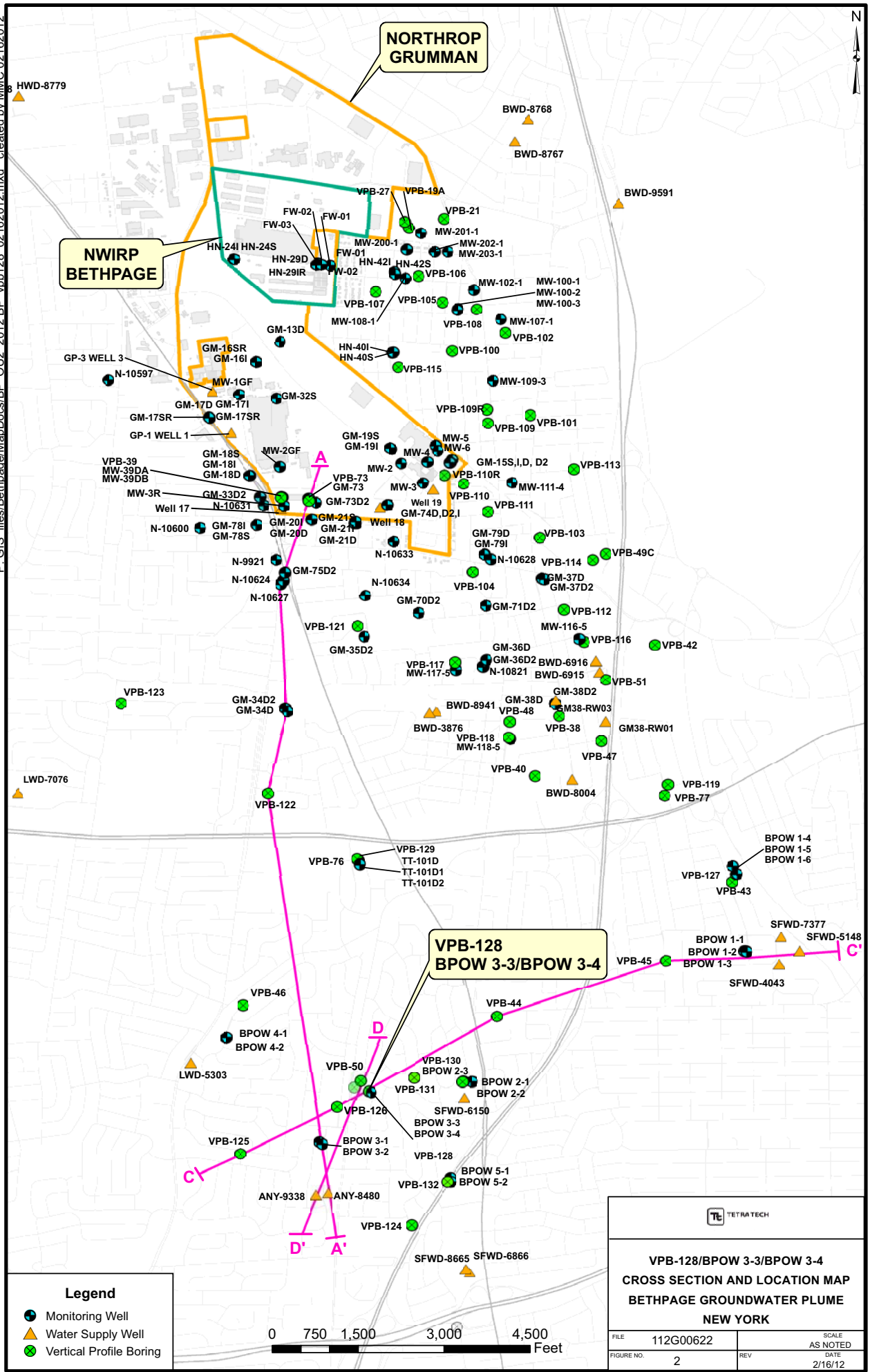


FIGURE 10



New York State Department of Environmental Conservation

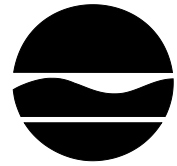
Division of Environmental Remediation

Remedial Bureau A, 12th Floor

625 Broadway, Albany, New York 12233-7015

Phone: (518) 402-9625 • Fax: (518) 402-9627

Website: www.dec.ny.gov



Joe Martens
Commissioner

July 11, 2013

Ms. Lora Fly
Naval Facilities Engineering Command, Mid-Atlantic
Building Z-144
9742 Maryland Avenue
Norfolk, VA 23511-3095

Mr. Edward Hannon
Northrop Grumman Corporation
925 S. Oyster Bay Rd.
M/S W1635
Bethpage, New York 11714-3582

Re: Northrop-Grumman Bethpage Facility (130003A) and
NWIRP-Bethpage (130003B) OU2 Remedy

Dear Ms. Fly and Mr. Hannon:

As you are aware, continued monitoring, vertical profile boring (VPB) installation, and various tasks associated with implementation of the OU2 groundwater plume remedy have identified the potential for an additional hotspot in the southern portion of the western lobe of the OU2 groundwater plume (referred to as the VPB 126/128 area). Therefore, further work in the VPB 126/128 area as discussed below is necessary. The purpose of this letter is to request that you make a commitment to the entire VPB 126/128 scope of the work.

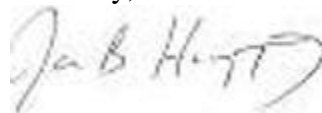
The VPB 126/128 area is south of Hempstead Turnpike and west of Hicksville Road and is upgradient of the Aqua New York Seamans Neck Road Wellfield. The objective of this effort is to determine whether there is a groundwater hot spot in this area which requires remediation. This effort is consistent with the OU2 Record of Decision which was issued by the Department in March 2001. Under this scope of work, during the next two years, the VPB 126/128 area of the OU2 plume will be further delineated and, if warranted, a design will be prepared for a projected 1 to 3 recovery wells and the associated treatment system. Implementation of the pumping and treatment would follow. Additionally, within the next nine months, sentinel wells for the South Farmingdale Wellfield No. 6 and Massapequa Water District well fields No. 5 & 6, will be installed and sampled. Exact locations should be determined, in cooperation with the water districts.

Northrop Grumman and the Department of the Navy are currently undertaking a major sampling effort for many of the onsite and offsite groundwater monitoring wells. The work plan for this sampling effort was recently approved by the NYSDEC. The groundwater, analytical data, once

complete, can be incorporated into the VPB 126/128 groundwater remediation determination project. The Navy is also implementing an approved work plan for a series of pump tests that are a necessary precursor to the VPB 126/128 area investigation.

The need for this further work has been discussed several times among the New York State Department of Environmental Conservation (NYSDEC), United States Environmental Protection Agency (USEPA), Northrop Grumman Systems Corporation (NGC) and the United States Navy (Navy), including the meeting held on November 29, 2012 at the USEPA Region 2 headquarters in New York City. NYSDEC also announced this additional work in a March 2013 fact sheet. Thus, you are familiar with the scope of work and urgency for completing the work. Please provide me with your written response to NYSDEC's request by July 26, 2013.

Sincerely,

A handwritten signature in dark ink, appearing to read "James Harrington". The signature is written in a cursive style with a large, sweeping initial "J".

James Harrington, P.E.
Director
Remedial Bureau A

ec: R. Schick
M. Ryan
J. Swartwout
S. Scharf
W. Parish
G. Pavlou, USEPA
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R. Rusinko, Esq
C. Bethony, NYSDOH
S. Karpinski, NYSDOH
J. Defranco, NCDH

For Release: IMMEDIATE
Monday, April 1, 2013

Contact: Lisa King
518-402-8000

DEC SELECTS REMEDY FOR CLEANUP OF CONTAMINATION AT NORTHROP GRUMMAN SITE IN BETHPAGE

Remedy Cleans Up Hot Spots and Restores Bethpage Park

After carefully considering nearly 200 public comments, the New York State Department of Environmental Conservation (DEC) has selected a remedy to clean up contamination at Operable Unit 3 of the Northrop Grumman - Bethpage Facility site (Former Grumman Settling Ponds) in Bethpage, DEC Commissioner Joe Martens announced today. The remedy requires the cleanup of hot spots of contaminated groundwater that will significantly lessen the threat of migration to public drinking water supply wells. In addition, Bethpage Park will be cleaned up and restored for future use.

“DEC listened to and carefully considered the concerns of the public before selecting a remedy to address the long-standing contamination at Northrop Grumman site,” Commissioner Martens said. “The remedy protects Long Island’s drinking water by addressing hot spots of contaminated groundwater. The remedy also will restore the park so it can be used in the future. These actions help protect public health and the environment of Nassau County.”

“Ensuring that the people of Long Island have access to safe and clean drinking water is vitally important to EPA,” said Judith A. Enck, EPA Regional Administrator. “We appreciate the decision by the New York State Department of Environmental Conservation to move forward on this groundwater cleanup plan and will continue to work with the state, the local water districts and the public on finding a long-term solution to this water contamination problem.”

DEC held a public meeting and availability sessions last June to present the Proposed Remedial Action Plan for the site and accepted comments from the public for 60 days. The public can now review the Record of Decision (ROD) outlining the selected remedy for Bethpage Park and related groundwater contamination, which are referred to as Operable Unit 3 (OU3). A Responsiveness Summary addressing public comments received is included in the ROD.

Summary of the selected remedy:

- Install groundwater extraction wells in the groundwater plume emanating from OU3 in a location upgradient of Bethpage Water District Plant 4. This system will capture and treat the contamination moving through the hot spot area of the plume. Additional wells will be installed to complete the delineation of the leading edge of the OU3 plume. This will allow DEC to assess the remedy for contaminated groundwater and determine if it needs to be further evaluated.
- Continue and upgrade as needed the existing groundwater extraction and treatment interim remedial measure at Bethpage Community Park as well as the soil vapor extraction and treatment system along the Grumman Access Road.
- Treat an approximately 1-acre volatile organic compound source area in a low permeability zone present approximately 40 feet deep in the Bethpage Community Park using an in ground thermal treatment technology.

- Excavate PCB (polychlorinated biphenyl) and chromium-contaminated fill from the Bethpage Community Park and the Grumman Access Road right-of-way.
- Cover the site with buildings, pavement and sidewalks or soil in areas where the upper two feet of exposed surface soil will exceed the restricted residential soil cleanup objectives.
- Excavate and restore residential yards between Sycamore Avenue and the Grumman Access Road where PCBs exceed 1 ppm (part per million) or chromium exceeds the residential soil cleanup objectives.
- Continue the Wellhead Treatment Contingency Plan put in place as a requirement of the OU2 ROD.
- Implement a Site Management Plan.

The Northrop Grumman - Bethpage Facility site is listed as a Class 2 site in the State Registry of Inactive Hazardous Waste Sites (list of state superfund sites). A Class 2 site represents a significant threat to public health or the environment; action is required. The former Grumman Settling Ponds and associated disposal areas are in the 18-acre Bethpage Community Park. This property was used historically for disposal of various wastes generated by industrial operations in the Grumman industrial complex. These wastes included chromium, PCBs and volatile organic compounds (chlorinated solvents used for cleaning or degreasing machinery or fabricated parts).

DEC will also require further investigation of a potential hot spot in the western portion of the OU2 groundwater plume, referred to as the VPB 126/128 area. This area is south of Hempstead Turnpike and west of Hicksville Road. The objective is to determine whether there is a groundwater hot spot in this area which requires remediation. This effort is consistent with provisions in the OU2 Record of Decision which was issued by DEC in March 2001.

After discussions between DEC, the United States Environmental Protection Agency, Northrop Grumman Systems Corporation, the United States Navy and the local water districts, the Navy and Grumman issued a work plan to begin looking at an area in the western area of the OU2 plume.

Under this plan, during the next two years, this area of the OU2 plume will be further delineated and, if warranted, a design will be prepared for one to three recovery wells and the associated treatment system. Implementation of the pumping and treatment would follow. In addition, sentinel wells for the two water district well fields where they are needed will be completed, and a round of sampling of all monitoring wells in the plume undertaken.

The ROD for OU3 with a Responsive Summary can be reviewed at the site document repository located at the:

Bethpage Public Library
Attn: Ms. Lois Lovisolo
Powell Avenue
Bethpage, NY 11714
Phone: 516.931.3907

Project documents are also available on DEC's website: www.dec.ny.gov/chemical/8431.html.

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13-55



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND, MID-ATLANTIC
9742 MARYLAND AVENUE
NORFOLK, VA 23511-3095

5090
OPTE3/18
AUG 1 2013

James Harrington, P.E.
Director, Remedial Bureau A
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A, 12th Floor
625 Broadway
Albany, NY 12233-7015

Dear Mr. Harrington,

SUBJ: NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP) BETHPAGE
(130003B), OU-2 REMEDY

Thank you for your letter dated July 11, 2013 regarding the need for further work in the southern portion of the western lobe of the Operable Unit (OU) 2 groundwater plumes. The Department of the Navy continues to implement the strategy identified in the Navy's April 2003 OU-2 Record of Decision (ROD), as well as additional steps identified in the "Study of Alternatives for Management of Impacted Groundwater at Bethpage" (Alternatives Report) in Alternative 2A -- "Continued Implementation of OU-2 ROD Remedy and Sustained Pumping in Strategic Supply Wells." We believe this is the appropriate approach to addressing the Bethpage plumes in compliance with the remedy described in the Navy's OU-2 ROD.

In November 2012, the Navy met with the New York State Department of Environmental Conservation (NYSDEC), the United States Environmental Protection Agency (USEPA), and Northrop Grumman (NG). At this meeting, the Navy and NG agreed to jointly develop short- and long-term high-level strategies that focused on additional site characterization, hotspot treatment (where or if hotspots are confirmed) and installation of additional monitoring wells for plume delineation. The Navy's tasks, as listed in this strategy, are consistent with the preferred approach described in the Alternatives Report (Alternative 2A). The Navy/NG strategy was provided to NYSDEC in February 2013. NYSDEC concurred in June 2013.

Pursuant to its response authority under CERCLA, the Navy has continued to carry out various tasks under its OU-2 ROD. This includes, but is not limited to, installation of 10 vertical profile boring (VPBs) and 13 monitoring wells (MW) south of Hempstead Turnpike since 2010. Currently, as part of the joint Navy/NG Strategy, the Navy is evaluating the data it has collected from this area to determine if additional VPBs and MWs are needed to further characterize the area. Navy is also evaluating the concentration trends in the area near the western plume's leading edge to better understand the nature of this plume finger. The Navy has also contacted Massapequa Water District to discuss installing outpost wells for supply wells 6442 and 6443. In addition, with respect to the deep eastern plume, following the 2012


meeting, the Navy began conducting additional characterization upgradient of Bethpage Water District Plant 6 to determine whether a hotspot similar to GM-38 exists in this area, and is assessing field and modeling efforts to determine the capture zone of GM-38 hotspot remedy. We defer to NG as to the implementation of the tasks to which it committed under the joint Navy/NG strategy.

In your letter you requested that the Navy and NG commit to investigating the southern portion of the western lobe of the plumes area near VPB126/128 to determine whether there is a groundwater hotspot in this area which requires remediation using a stand-alone groundwater treatment system. In the OU-2 ROD, a "hotspot" is defined as concentrations of TVOCs exceeding 1,000 ppb (i.e., exceeding 1 ppm or 1 mg/L). Based on the investigations conducted by the Navy to date in this area, groundwater concentrations are far below the hotspot definition set forth in the Navy OU-2 ROD as well as the NYSDEC OU-2 ROD, and range from non-detect to 137 µg/L. In addition, the installation and operation of a containment system for one known finger of groundwater contamination in this area would not prevent all potential impacts to downgradient water supplies. As indicated above, the Navy is already evaluating the results of the existing field work in this area to determine whether there is adequate characterization of the nature and extent of contamination. This data is being supplied to your office as it becomes available.

During the November 2012 meeting, the parties agreed to meet again to discuss the progress made in implementing the joint Navy/NG strategy and to review newly obtained information. The Navy therefore suggests scheduling a meeting among all of the parties in the fall and would be pleased to provide periods of availability so a meeting can be scheduled.

If you have any questions, please contact the Navy's remedial project manager, Lora Fly, at (757) 341-2012.

Sincerely,



NINA M. JOHNSON
Northeast IPT
Environmental Business Line
Team Leader
By direction of the
Commanding Officer

Copy to:
NYSDEC, Steven Scharf
USEPA Region II, Carol Stein
Northrop Grumman, Ed Hannon
Public Repository