

**Steven Scharf - FW: Northrop Grumman OU3 - Proposed VPBs**

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**From:** "Stern, David" <David.Stern@arcadis-us.com>  
**To:** "Steven Scharf" <sxscharf@gw.dec.state.ny.us>  
**Date:** 4/9/2007 12:20 PM  
**Subject:** FW: Northrop Grumman OU3 - Proposed VPBs  
**CC:** "Cofman, John" <john.cofman@ngc.com>, "Leskovjan, Larry" <larry.leskovja...>  
**Attachments:** Proposed & Completed Monitoring Well Locations.pdf; Phase 3 RI VPBs.pdf

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Steve:

On behalf of Northrop Grumman, ARCADIS has proposed the installation of two additional VPBs with the goals of meeting RI objectives for off-site groundwater.

See attached table and figure providing details on the completed work as well as the proposed VPB program. The attached is provided for your information, in accordance with the approved Phase 3 RI Work Plan.

We plan to begin work in the middle of this week, the VPB locations will be drilled in sequence and each VPB will require about 4 weeks to complete.

Feel free to call if you have questions.

<<Proposed & Completed Monitoring Well Locations.pdf>> <<Phase 3 RI VPBs.pdf>>

**David E. Stern, LEP**

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Table 1. Summary of Completed and Proposed Off-Site Vertical Profile Borings, and Rationale, Former Grumman Settling Ponds (Operable Unit 3 - Bethpage Community Park), Bethpage, New York.

<b>Activity</b> Proposed Sample ID	VPB Completed/ Proposed Total Depth (ft bls)	Proposed Soil Sampling Intervals <sup>(1)</sup> (ft bls)	Proposed Groundwater Sampling Intervals (ft bls)	Proposed Groundwater Sampling Frequency (ft)	Proposed Groundwater Analysis	Proposed Geophysics	Complete General Rationale
<b>Completed VPBs</b>							
VP-100	400	None	50 - 400 <sup>(2)</sup>	10/20	TCL VOC <sup>(3)</sup> , ClO <sub>4</sub> <sup>-</sup>	Gamma	Site-related VOC plume characterization. Collect data pertaining to regional perchlorate concentrations per NYSDEC request.
VP-101	507	None	50 - 507 <sup>(2)</sup>	20	TCL VOC <sup>(3)</sup> , ClO <sub>4</sub> <sup>-</sup>	Gamma	Site-related VOC plume delineation to the east. Collect data pertaining to regional perchlorate concentrations per NYSDEC request.
VP-102	385	None	50 - 385 <sup>(2)</sup>	10	TCL VOC <sup>(3)</sup> , ClO <sub>4</sub> <sup>-</sup>	Gamma	Site-related VOC plume characterization, assessment of shallow VOC groundwater concentrations as pertains to guidance of soil gas portion of RI.. Collect data pertaining to regional perchlorate concentrations per NYSDEC request.
VP-103	660	None	50 - 660 <sup>(2)</sup>	20	TCL VOC <sup>(3)</sup> , ClO <sub>4</sub> <sup>-</sup>	Gamma	Site-related VOC plume characterization. Collect data pertaining to regional perchlorate concentrations per NYSDEC request.
VP-104	880	None	50 - 880 <sup>(2)</sup>	20	TCL VOC <sup>(3)</sup> , ClO <sub>4</sub> <sup>-</sup>	Gamma	Site-related VOC plume characterization. Collect data pertaining to regional perchlorate concentrations per NYSDEC request.
VP-105	170	None	50 - 170 <sup>(2)</sup>	10	TCL VOC <sup>(3)</sup> , ClO <sub>4</sub> <sup>-</sup>	Gamma	Site-related VOC plume characterization. Assessment of shallow VOC groundwater concentrations as pertains to guidance of soil gas portion of RI.. Collect data pertaining to regional perchlorate concentrations per NYSDEC request.
VP-106	120	None	51 - 120 <sup>(2)</sup>	10	TCL VOC <sup>(3)</sup> , ClO <sub>4</sub> <sup>-</sup>	Gamma	Site-related VOC plume characterization. Assessment of shallow VOC groundwater concentrations as pertains to guidance of soil gas portion of RI.. Collect data pertaining to regional perchlorate concentrations per NYSDEC request.
VP-107	170	None	52 - 170 <sup>(2)</sup>	10	TCL VOC <sup>(3)</sup> , ClO <sub>4</sub> <sup>-</sup>	Gamma	Site-related VOC plume delineation to the west. Assessment of shallow VOC groundwater concentrations as pertains to guidance of soil gas portion of RI.. Collect data pertaining to regional perchlorate concentrations per NYSDEC request.
VP-108	170	None	53 - 170 <sup>(2)</sup>	10	TCL VOC <sup>(3)</sup> , ClO <sub>4</sub> <sup>-</sup>	Gamma	Site-related VOC plume characterization, assessment of shallow VOC groundwater concentrations as pertains to guidance of soil gas portion of RI.. Collect data pertaining to regional perchlorate concentrations per NYSDEC request.
VP-109	300	None	50 - 300 <sup>(2)</sup>	10	TCL VOC <sup>(3)</sup> , ClO <sub>4</sub> <sup>-</sup>	Gamma	Site-related VOC plume characterization. Collect data pertaining to regional perchlorate concentrations per NYSDEC request.
VP-110	380	None	50 - 380 <sup>(2)</sup>	10	TCL VOC <sup>(3)</sup> , ClO <sub>4</sub> <sup>-</sup>	Gamma	Site-related VOC plume characterization. Collect data pertaining to regional perchlorate concentrations per NYSDEC request.

Table 1. Summary of Completed and Proposed Off-Site Vertical Profile Borings, and Rationale, Former Grumman Settling Ponds (Operable Unit 3 - Bethpage Community Park), Bethpage, New York.

<b>Activity</b> Proposed Sample ID	VPB Completed/ Proposed Total Depth (ft bls)	Proposed Soil Sampling Intervals <sup>(1)</sup> (ft bls)	Proposed Groundwater Sampling Intervals (ft bls)	Proposed Groundwater Sampling Frequency (ft)	Proposed Groundwater Analysis	Proposed Geophysics	Complete General Rationale
<b>Proposed VPBs</b>							
VP-111	700	None	50 - 700 <sup>(2)</sup>	20	TCL VOC <sup>(3)</sup> , C104-	Gamma	<i>VP-111 will be drilled and sampled to fill data gaps to characterize groundwater quality and VOC concentrations within the off-site groundwater VOC plume. VP-112 will be drilled to delineate the southern extent of the VOC groundwater plume. At depth, the boring will be terminated if three consecutive groundwater sample results shown no detectable concentrations of VOCs.</i>
VP-112	700	None	50 - 700 <sup>(2)</sup>	20	TCL VOC <sup>(3)</sup> , C104-	Gamma	
<b>Contingency VPBs</b>							
VP-113	700	None	50 - 700 <sup>(2)</sup>	20	TCL VOC <sup>(3)</sup> , C104-	Gamma	<i>Based on the results obtained from VP-111 and VP-112, then VP-113 may be drilled and sampled.</i>

**Footnotes:**

- <sup>(1)</sup> Soil samples may be collected from selected intervals for lithologic analysis, based on field conditions and results obtained.
- <sup>(2)</sup> Groundwater sampling will commence at the water table (approximately 50 ft bls) and proceed at the specified intervals to final depth. Final depth will be determined based on the analytical data obtained from the VPB groundwater samples.
- <sup>(3)</sup> Laboratory analysis of groundwater samples shall be performed using the following methods (see Revised RI/FS Work Plan QAPP - Appendix B for details). VOCs: TCL List of VOCs using NYSDEC ASP 2000 Method OLM 4.2. Results will be obtained on a 24-48 hour TAT.  
- Perchlorate will be analyzed using USEPA 314.0, or equivalent, for groundwater samples.

**Definitions:**

ft bls	feet below land surface
VPB	Vertical Profile Boring
QAPP	Quality Assurance Project Plan
TAT	turnaround time
VOC	Volatile Organic Compound
NGC	Northrop Grumman Corporation



- EXPLANATION**
- PROPERTY BOUNDARY OF THE FORMER GRUMMAN AEROSPACE SITE
  - - - PROPERTY BOUNDARY OF U.S. NAVY SITE
  - ||||| LONG ISLAND RAILROAD
  - DENOTES NORTHROP GRUMMAN OWNED PROPERTY (AS OF 2003)
  - ▨ DENOTES U.S. NAVY OWNED PROPERTY (AS OF 2003)
  - ▩ RECHARGE BASIN
  - LAND SURFACE PROJECTION OF THE CAPTURE ZONE OF WELL ONCT 3 (WELL 19) PUMPING AT ITS NORMAL RATE OF 700 GPM (BASED ON MODELING)
  - ← CURRENT DIRECTION OF GROUNDWATER FLOW
  - - - LIMITS OF BETHPAGE HIGH SCHOOL MAIN BUILDING
  - 10592 ◆ OBSERVATION, MONITORING WELL (GRAY - SHOWN FOR REFERENCE) (BLACK - PROPOSED TO BE SAMPLED IN PHASE 2 RI)
  - 6781 ▲ INDUSTRIAL WELL
  - 9591 ● PUBLIC SUPPLY WELL
  - 4175 ★ IRRIGATION WELL
  - WELL-172 ◆ NORTHROP GRUMMAN OR NAVY PRODUCTION WELL
  - GP-11 ◆ ABANDONED PRODUCTION WELL
  - VP-49 ○ COMPLETED OU2 VERTICAL PROFILE BORING
  - VP-100 ○ COMPLETED OU3 VERTICAL PROFILE BORING
  - VP-111 ● PROPOSED OU3 VERTICAL PROFILE BORING
  - VP-113 ⊠ PROPOSED OU3 CONTINGENCY VERTICAL PROFILE BORING
  - BWD BETHPAGE WATER DISTRICT
  - VPB VERTICAL PROFILE BORING
  - RI REMEDIAL INVESTIGATION
  - OU2 OPERABLE UNIT 2
  - OU3 OPERABLE UNIT 3
  - BCP-MW-2 ◆ COMPLETED MONITORING WELLS
  - MW-100-1 ◆ PROPOSED MONITORING WELLS

- GENERAL NOTES:**
- THIS FIGURE INCLUDES LOCATIONS OF PUBLIC SUPPLY WELLS BASED ON INFORMATION RECEIVED BY ARCADIS IN RESPONSE TO A SEPTEMBER 2001 LETTER TO WATER DISTRICTS.
  - BASIN LOCATIONS OBTAINED FROM USGS TOPOGRAPHIC MAPS (HUNTINGTON, HICKSVILLE, FREEPORT AND AMITYVILLE QUADRANGLES) AND INFORMATION PROVIDED BY NORTHROP GRUMMAN.
  - NORTHROP GRUMMAN PROPERTY HOLDINGS BASED ON DATA PROVIDED IN JUNE 2003.
  - LOCATIONS OF MONITORING WELLS INSTALLED BY DVIRKA & BARTILUCCI (D&B) AT PLANT 1 (i.e., MW-1 TO MW-6) ARE APPROXIMATE BASED ON D&B SITE PLAN, PROVIDED ON DECEMBER 19, 2002.
  - LOCATIONS OF MONITORING WELLS INSTALLED BY DVIRKA & BARTILUCCI (D&B) AT BETHPAGE COMMUNITY PARK ARE APPROXIMATE BASED ON DATA PROVIDED BY D&B SITE PLAN, DATED DECEMBER 2003.



ALL COORDINATES REFERENCED TO NORTH AMERICAN DATUM 1929

3	04-09-07	PROPOSED PHASE 3 VP LOCATIONS	MR
2	03-07-07	COMPLETED VP LOCATIONS	MR
1	02-05-07	PROPOSED LOCATIONS	MR
0	01-09-07	UPDATED	AS

NO.	ISSUED DATE	REVISION DESCRIPTION	BY/CAD
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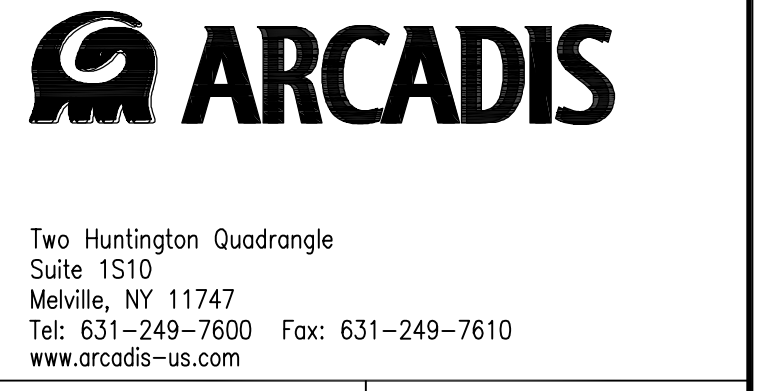
KEYPLAN

PROJECT TITLE

**OPERABLE UNIT 3  
NORTHROP GRUMMAN  
SYSTEMS CORPORATION  
BETHPAGE, NEW YORK**

SHEET TITLE

**SITE PLAN  
SHOWING PROPOSED AND  
COMPLETED VERTICAL PROFILE &  
MONITORING WELL LOCATIONS**



PROJECT MANAGER <b>C. SAN GIOVANNI</b>	DEPARTMENT MANAGER <b>M. WOLFERT</b>
LEAD DESIGN PROF.	CHECKED BY <b>M. REINDL</b>
TASK/PHASE NUMBER 00004	DRAWN BY <b>A. SANCHEZ</b>
PROJECT NUMBER <b>NY001464.0807</b>	DRAWING NUMBER <b>2</b>