ARCADIS
*Infrastructure, environment, facilities*

ARCADIS
Two Huntington Quadrangle
Suite 1S10
Melville
New York 11747
Tel 631.249.7600
Fax 631.249.7610
www.arcadis-us.com

ENVIRONMENT

Mr. Steven M. Scharf, P.E.
Project Engineer
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Action, Bureau A
625 Broadway
Albany, New York 12233-7015

Subject:
August 2008 Monthly Progress Report,
Northrop Grumman Systems Corporation,
Operable Unit 3,
NYSDEC Site ID # 1-30-003A,
Bethpage, New York

Date:
September 8, 2008

Contact:
David Stern

Phone:
631-391-5284

Email:
David.Stern@arcadis-us.com

Our ref:
NY001464.0908.00006

Dear Steve:

In accordance with Section III of Administrative Order on Consent (AOC) Index # W1-0018-04-01, this letter reports the activities for Operable Unit 3 (OU3) performed by Northrop Grumman Systems Corporation (Northrop Grumman) during the month of August 2008; activities planned for September 2008 are also discussed. This report is the 29th OU3 monthly progress report since the AOC between Northrop Grumman and the New York State Department of Environmental Conservation (NYSDEC) was signed on June 24, 2005.

**OU3 Activities Conducted During August 2008**

Validated data from the OU3 remedial investigation (RI) are provided in Table 1. The site plan showing vertical profile boring (VPB) and well locations is provided on Figure 1. Additional data collected as part of the startup of the Soil Gas interim remedial measure (IRM) will be provided in the Operable Unit 3 – Interim Operation, Maintenance, and Monitoring Report and Startup Summary (February 2008 to June 2008) (i.e., Startup Report), to be submitted to NYSDEC under separate cover. Activities performed this period include:

- Prepared and submitted the July 2008 AOC Monthly Progress Report.
- Conducted planning, implementation, and data review/evaluation for the OU3 RI/FS as follows:

- Continued preparation of Site Area Focused Feasibility Study Report (FFS Report).
- Completed letter in response to NYSDEC comments on the Site Area RI Report and preparation of letter in response to comments.
- Continued evaluation of VPB data and assessment of potential additional RI data gaps.

- Conducted planning, implementation, and data review/evaluation for on-site IRMs as follows:
  - Continued routine operation and maintenance (O&M) of Soil Gas IRM.
  - Continued to address punch list items and preparation of Soil Gas IRM as-built drawings.
  - Completed preparation of Soil Gas IRM startup report and OM&M Manual and submitted documents to NYSDEC.
  - Completed preparation of Groundwater IRM Final design/construction document, submitted document to NYSDEC, received NYSDEC comments, and initiated addressing NYSDEC comments.
  - Reviewed recommendations from Water Systems Engineering, Inc. to address bio-fouling of Groundwater IRM Well RW-2.
- Conducted RI/FS field activities including the following:
  - Installed permanent pump and packer system in Monitoring Well MW116-5 and collected groundwater sample for analysis of volatile organic compounds (VOCs).
  - Completed demobilization from off-site VPB VP-110R. Performed RI investigation-derived waste (IDW) characterization.

**OU3 Activities Expected During September 2008**

- Prepare and submit August 2008 Monthly Progress Report.
- Conduct planning, implementation, and data review/evaluation for the OU3 RI/FS as follows:
  - Continue preparation of Site Area FFS Report.
  - Perform RI-related IDW transportation and disposal.
  - Collect monthly groundwater sample for analysis of VOCs from Monitoring Well MW116-5.

  - Continue evaluation of VPB data and assessment of potential additional RI data gaps.

- Conduct planning, implementation, and data review/evaluation for on-site IRMs as follows:
  - Continue to address punch list items for Soil Gas IRM.
  - Continue OM&M of the Soil Gas IRM.
  - Finalize Groundwater IRM Final design/construction document to NYSDEC.
  - Mobilize and begin drilling of pumping wells and associated piezometers for the Groundwater IRM.
  - Perform remediation activities to address bio-fouling of Groundwater IRM Well RW-2.

Feel free to call us if you have any questions.

Sincerely,

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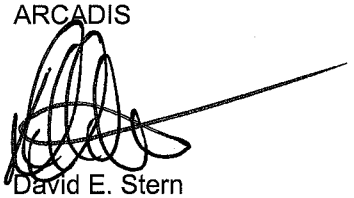

David E. Stern
Associate Project Manager/Senior Scientist

Enclosures

Copies:
C. San Giovanni, ARCADIS
M. Wolfert, ARCADIS
File, ARCADIS
J. Cofman, Northrop Grumman
K. Smith, Northrop Grumman
Bethpage Public Library – Public Repository

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Table 1. Concentrations of Volatile Organic Compounds in Groundwater Samples Obtained from Vertical Profile Borings, Operable Unit 3, Former Grumman Settling Ponds, Bethpage, New York.

| Location ID | VP-110R | VP-110R | VP-110R | VP-110R | VP-110R | VP-110R | VP-110R | VP-110R |
|---|---|---|---|---|---|---|---|---|
| Depth (ft bls): | 404 | 424 | 444 | 464 | 489 | 504 | 524 | 544 |
| Sample Date | 7/9/2008 | 7/9/2008 | 7/9/2008 | 7/10/2008 | 7/11/2008 | 7/11/2008 | 7/11/2008 | 7/14/2008 |
| CONSTITUENT (units in ug/L) | | | | | | | | |
| 1,1,1-TRICHLOROETHANE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| 1,1,2,2-TETRACHLOROETHANE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| 1,1,2-TRICHLOROETHANE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| 1,1-DICHLOROETHANE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| 1,1-DICHLOROETHENE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| 1,2-DICHLOROETHANE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| 1,2-DICHLOROPROPANE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| 2-BUTANONE | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U |
| 2-HEXANONE | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U |
| 4-METHYL-2-PENTANONE | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U |
| ACETONE | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U |
| BENZENE | < 0.7 U | < 0.7 U | < 0.7 U | < 0.7 U | < 0.7 U | < 0.7 U | < 0.7 U | < 0.7 U |
| BROMODICHLOROMETHANE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| BROMOFORM | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| BROMOMETHANE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| CARBON DISULFIDE | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U | < 50 U |
| CARBON TETRACHLORIDE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| CHLOROBENZENE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| CHLORODIBROMOMETHANE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| CHLORODIFLUOROMETHANE (FREON 22) | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| CHLOROETHANE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| CHLOROFORM | < 7 U | < 7 U | < 7 U | < 7 U | < 7 U | < 7 U | < 7 U | < 7 U |
| CHLOROMETHANE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| CIS-1,2-DICHLOROETHENE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| CIS-1,3-DICHLOROPROPENE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| DICHLORODIFLUOROMETHANE (FREON 1 | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| ETHYLBENZENE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| FREON 113 | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| METHYLENE CHLORIDE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| STYRENE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| TETRACHLOROETHENE | **7** | **10** | **11** | **10** | **9.7** | **5.9** | **14** | **6.1** |
| TOLUENE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| TRANS-1,2-DICHLOROETHENE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| TRANS-1,3-DICHLOROPROPENE | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| TRICHLOROETHYLENE | **7.5** | **10** | **9.3** | **9.8** | **9.3** | **8.1** | **8.8** | **9** |
| VINYL CHLORIDE | < 2 U | < 2 U | < 2 U | < 2 U | < 2 U | < 2 U | < 2 U | < 2 U |
| XYLENE-O | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| XYLENES - M,P | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U | < 5 U |
| **Total VOCs** | **14.5** | **20** | **20.3** | **19.8** | **19** | **14** | **22.8** | **15.1** |

Notes

**Bold value indicates a detection**

ug/L micrograms per liter

ft bls feet below land surface

Table 1. Concentrations of Volatile Organic Compounds in Groundwater Samples Obtained from Vertical Profile Borings, Operable Unit 3, Former Grumman Settling Ponds, Bethpage, New York.

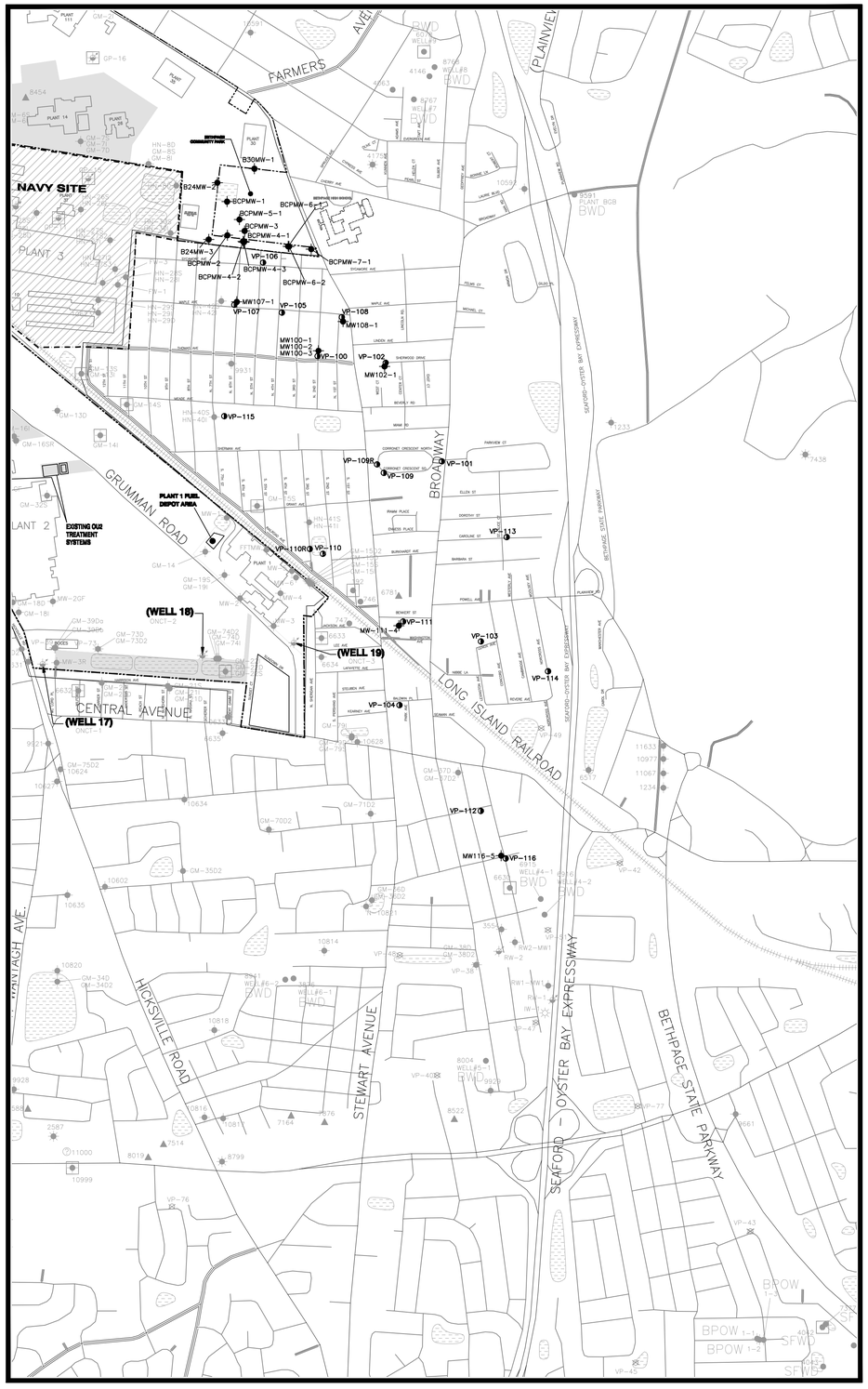
| Location ID | VP-110R | VP-110R | VP-110R | VP-110R |
|---|---|---|---|---|
| Depth (ft bls): | 569 | 584 | 604 | 629 |
| Sample Date | 7/14/2008 | 7/15/2008 | 7/15/2008 | 7/16/2008 |
| CONSTITUENT (units in ug/L) | | | | |
| 1,1,1-TRICHLOROETHANE | < 5 U | < 5 U | < 5 U | < 5 U |
| 1,1,2,2-TETRACHLOROETHANE | < 5 U | < 5 U | < 5 U | < 5 U |
| 1,1,2-TRICHLOROETHANE | < 5 U | < 5 U | < 5 U | < 5 U |
| 1,1-DICHLOROETHANE | < 5 U | < 5 U | < 5 U | < 5 U |
| 1,1-DICHLOROETHENE | < 5 U | < 5 U | < 5 U | < 5 U |
| 1,2-DICHLOROETHANE | < 5 U | < 5 U | < 5 U | < 5 U |
| 1,2-DICHLOROPROPANE | < 5 U | < 5 U | < 5 U | < 5 U |
| 2-BUTANONE | < 50 U | < 50 U | < 50 U | < 50 U |
| 2-HEXANONE | < 50 U | < 50 U | < 50 U | < 50 U |
| 4-METHYL-2-PENTANONE | < 50 U | < 50 U | < 50 U | < 50 U |
| ACETONE | < 50 U | < 50 U | < 50 U | < 50 U |
| BENZENE | < 0.7 U | < 0.7 U | < 0.7 U | < 0.7 U |
| BROMODICHLOROMETHANE | < 5 U | < 5 U | < 5 U | < 5 U |
| BROMOFORM | < 5 U | < 5 U | < 5 U | < 5 U |
| BROMOMETHANE | < 5 U | < 5 U | < 5 U | < 5 U |
| CARBON DISULFIDE | < 50 U | < 50 U | < 50 U | < 50 U |
| CARBON TETRACHLORIDE | < 5 U | < 5 U | < 5 U | < 5 U |
| CHLOROBENZENE | < 5 U | < 5 U | < 5 U | < 5 U |
| CHLORODIBROMOMETHANE | < 5 U | < 5 U | < 5 U | < 5 U |
| CHLORODIFLUOROMETHANE (FREON 22) | < 5 U | < 5 U | < 5 U | < 5 U |
| CHLOROETHANE | < 5 U | < 5 U | < 5 U | < 5 U |
| CHLOROFORM | < 7 U | < 7 U | < 7 U | < 7 U |
| CHLOROMETHANE | < 5 U | < 5 U | < 5 U | < 5 U |
| CIS-1,2-DICHLOROETHENE | < 5 U | < 5 U | < 5 U | < 5 U |
| CIS-1,3-DICHLOROPROPENE | < 5 U | < 5 U | < 5 U | < 5 U |
| DICHLORODIFLUOROMETHANE (FREON 1 | < 5 U | < 5 U | < 5 U | < 5 U |
| ETHYLBENZENE | < 5 U | < 5 U | < 5 U | < 5 U |
| FREON 113 | < 5 U | < 5 U | < 5 U | < 5 U |
| METHYLENE CHLORIDE | < 5 U | < 5 U | < 5 U | < 5 U |
| STYRENE | < 5 U | < 5 U | < 5 U | < 5 U |
| TETRACHLOROETHENE | **13** | **12** | < 5 U | < 5 U |
| TOLUENE | < 5 U | < 5 U | < 5 U | < 5 U |
| TRANS-1,2-DICHLOROETHENE | < 5 U | < 5 U | < 5 U | < 5 U |
| TRANS-1,3-DICHLOROPROPENE | < 5 U | < 5 U | < 5 U | < 5 U |
| TRICHLOROETHYLENE | **10** | **8.7** | < 5 U | < 5 U |
| VINYL CHLORIDE | < 2 U | < 2 U | < 2 U | < 2 U |
| XYLENE-O | < 5 U | < 5 U | < 5 U | < 5 U |
| XYLENES - M,P | < 5 U | < 5 U | < 5 U | < 5 U |
| **Total VOCs** | **23** | **20.7** | 0 | 0 |

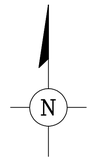
Notes

**Bold value indicates a detection**

ug/L micrograms per liter

ft bls feet below land surface




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
- LIMITS OF BETHPAGE HIGH SCHOOL MAIN BUILDING
- 10592 OBSERVATION, MONITORING WELL
- 6781 INDUSTRIAL WELL
- 9591 PUBLIC SUPPLY WELL
- 4175 IRRIGATION WELL
- WELL-17 NORTHROP GRUMMAN OR NAVY PRODUCTION WELL
- ABANDONED WELL
- VP-49 COMPLETED OU2 VERTICAL PROFILE BORING
- VP-100 COMPLETED OU3 VERTICAL PROFILE BORING
- BCP-MW-2 COMPLETED OU3 MONITORING WELL OR WELL CLUSTER
- BWD BETHPAGE WATER DISTRICT
- VPB VERTICAL PROFILE BORING
- RI REMEDIAL INVESTIGATION
- OU2 OPERABLE UNIT 2
- OU3 OPERABLE UNIT 3

GENERAL NOTES:

1. THIS FIGURE INCLUDES LOCATIONS OF PUBLIC SUPPLY WELLS BASED ON INFORMATION RECEIVED BY ARCADIS IN RESPONSE TO A SEPTEMBER 2001 LETTER TO WATER DISTRICTS.
2. BASIN LOCATIONS OBTAINED FROM USGS TOPOGRAPHIC MAPS (HUNTINGTON, HICKSVILLE, FREEPORT AND AMITYVILLE QUADRANGLES) AND INFORMATION PROVIDED BY NORTHROP GRUMMAN.
3. NORTHROP GRUMMAN PROPERTY HOLDINGS BASED ON DATA PROVIDED IN JUNE 2003.
4. 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.

0 800' 1600'
SCALE IN FEET

DRAFT

ALL COORDINATES REFERENCED TO NORTH AMERICAN DATUM 1983

NORTHROP GRUMMAN SYSTEMS CORPORATION
BETHPAGE, NEW YORK
**OPERABLE UNIT 3**
**(FORMER GRUMMAN SETTLING PONDS)**

# SITE PLAN SHOWING COMPLETED VPB AND MONITORING WELL LOCATIONS

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FIGURE 1