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ENVIRONMENT

Steven M. Scharf, P.E.
Project Engineer
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A, 11th Floor
625 Broadway
Albany, New York 12233-7015

Subject:
Results of Third Quarter 2008 Groundwater Monitoring, Operable Unit 2, Northrop Grumman Systems Corporation (Northrop Grumman) and Former Naval Weapons Industrial Reserve Plant (NWIRP) Sites, Bethpage, New York.
(NYSDEC Site #s 1-30-003A and B).

Date:
January 7, 2009

Contact:
David E. Stern

Phone:
(631) 391-5284

Email:
David.stern@arcadis-us.com

Our ref:
NY001464.0408.00004

Dear Mr. Scharf:

On behalf of Northrop Grumman Systems Corporation (Northrop Grumman), ARCADIS is providing the New York State Department of Environmental Conservation (NYSDEC) with the validated results of groundwater monitoring performed in accordance with the approved groundwater monitoring plan and the public water supply contingency plan (ARCADIS G&M, Inc. 2006 and 2003, respectively) for the Third Quarter of 2008 for Operable Unit 2 (OU2). Table 1 provides OU2 remedial systems performance and operational data and water balance for the current period. Tables 2, 3, and 4 provide the results of monitoring for volatile organic compounds (VOCs) and metals in monitoring wells and for VOCs in outpost wells, for this period, respectively. Figure 1 shows the site plan with well locations.

Please contact us if you have any questions or comments.

Sincerely,

ARCADIS

David E. Stern
Senior Hydrogeologist/Associate Project Manager

Enclosures

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Table 1. Summary of Operational Data and Water Balance for the On-Site Portion of the OU2 Groundwater Remedy, Third Quarter 2008, Operable Unit 2, Northrop Grumman Corporation, Bethpage, New York.

Identification	Design Pumping/ Recharge Rate [a] (gpm)	Current Actual Average Pumping/Recharge Rate [b] (gpm)	Design Total Pumpage/Recharge (MG)	Current Actual Total Pumpage/Recharge (MG)	Current Percent of Design Pumpage/ Recharge	Current TCE Concentration (ug/L)	Current TVOC Concentration [c] ug/L	3rd Quarter 2008 Estimated VOC Mass Removed [d] (lbs)
Remedial Wells			**Groundwater Removed from Aquifer**					
Well 1	800	846	103.7	109.7	106%	310	420	384
Well 3	700	708	90.7	89.9	99%	2,400	2,610	1,954
Well 17	1,000	1,081	129.6	140.1	108%	210	234	273
Well 18	600	627	77.8	49.6	64%	91	101	42
Well 19	700	814	90.7	105.5	116%	180	209	184
Rounded Totals:	**3,800**	**4,076**	**493**	**495**	**100%**	**--**	**--**	**2,837**
Recharge Basins [a]			**Treated Water Recharged to Aquifer**					
West Recharge Basins	412	1,175	53	152.3	287%	--	--	--
South Recharge Basins	2,231	2,383	289.1	308.8	107%	--	--	--
Rounded Totals:	**2,643**	**3,558**	**342**	**461.1**	**135%**	**--**	**--**	**--**
Treated Water Sent to Calpine								
Calpine Demand	600-1000	379	78-130	48.6	--	--	--	--
Treatment Efficiencies			**Average SPDES Outfall TVOC Concentrations (ug/L) [f]**					
Tower 96 System Efficiency [e] :		**>99.9%**		**0.7**				
Tower 102 System Efficiency [e] :		**99.8%**		**0.3**				

see footnotes on last page

Table 1. Summary of Operational Data and Water Balance for the On-Site Portion of the OU2 Groundwater Remedy, Third Quarter 2008, Operable Unit 2, Northrop Grumman Corporation, Bethpage, New York.

(a) - Remedial well pumping rates based on computer modeling (ARCADIS G& M, Inc. 2003c). Acceptable minimum recharge rates based on computer modeling (ARCADIS G&M, Inc. 2004b). Design pumping and recharge rates were modified in April, 2005 and will be shown herein when procured equipment is installed and the wells returned to service at NYSDEC-approved modified pumping rates. Recharge includes remedial well pumpage (minus pipe loss) and incidental runoff from precipitation. Current average recharge rates have been determined using the entire 90-day span of time as opposed to current average pumping rates, which account for varying amounts of downtime, as indicated below.

b) - OU2 wells were operational during the Third Quarter 2008, at the following percentages: Well-1 (100%), Well-3 (98%); Well-17 (100%), Well-18 (61%), and Well-19 (100%). The Actual Average Pumping Rates and rate of treated water sent to Calpine are for when the wells are pumping.

(c) - The TVOC concentration for each well was calculated based on Third Quarter 2008 groundwater monitoring data (Table 2).

(d) - TVOC mass removed is based on the TVOC data given above and the following formula:

(TVOC concentration in ug/L) X (gallons pumped) X (3.785 L/gal) X (1×10^{-6} g/ug) X (2.2×10^{-3} lb/g)

(e) Air Stripping Efficiency calculated from values above and in Table 2 using the following formula:

$$1 - \left[\left(\frac{\text{Average SPDES TVOC Concentration at Outfall}}{\frac{[(\text{TVOC}_{\text{Well 1}} \times Q_{\text{Well 1}}) + (\text{TVOC}_{\text{Well 2}} \times Q_{\text{Well 2}})]}{(Q_{\text{Well 1}} + Q_{\text{Well 2}})}} \right) \right]$$

When non-detectable levels of VOCs are found in the effluent, a value of zero is used to estimate the efficiency of the air stripper.

(f) Towers 96 and 102 outfalls are identified as Outfalls 005 and 006, respectively (commonly known as the Plant 5 Recharge Basins and South Recharge Basins, respectively). Complete SPDES reporting provided to NYSDEC by Northrop Grumman under separate cover.

--	Not Available or Not Applicable	lb/g	pounds per gram
TVOC	Total Volatile Organic Compounds	lbs	pounds
g/ug	grams per microgram	MG	Million Gallons
gpm	gallons per minute	ug/L	micrograms per liter
L/gal	Liters per gallon	OU2	Operable Unit 2
SPDES	State Pollutant Discharge Elimination System	Q	Pumping Rate
Northrop Grumman	Northrop Grumman Systems Corporation	NYSDEC	New York State Department of Environmental Conservation

Table 2. Concentrations of Volatile Organic Compounds Detected in Monitoring Wells and Groundwater Remedial Wells, Third Quarter 2008, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

	Well:	N-10627	N-10631	FW-03	GM-13D	GM-15S	GM-15I	GM-15D	GM-15D2	GM-17I	GM-17D
CONSTITUENT	**Sample ID:**	N-10627	N-10631	FW-03	GM-13D	GM-15S	GM-15I	GM-15D	GM-15D2	GM-17I	GM-17D
(Units in ug/L)	**Date:**	8/19/2008	8/19/2008	9/5/2008	8/20/2008	8/13/2008	8/26/2008	8/13/2008	8/13/2008	8/11/2008	8/11/2008
1,1,1-Trichloroethane		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene		< 5	< 5	< 5	**12**	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dichloropropane		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
2-Butanone		< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 50	< 50
2-Hexanone		< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 50	< 50
4-methyl-2-pentanone		< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 50	< 50
Acetone		< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 50	< 50
Benzene		< 0.7	< 0.7	< 0.7	< 1.4	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Bromodichloromethane		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
Bromoform		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
Bromomethane		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
Carbon Disulfide		< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 50	< 50
Carbon tetrachloride		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
Chlorobenzene		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
Chloroethane		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
Chloroform		< 7	< 7	< 7	< 14	< 7	< 7	< 7	< 7	< 7	< 7
Chloromethane		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,2-dichloroethene		< 5	< 5	< 5	**22**	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,3-dichloropropene		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
Ethylbenzene		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
Freon 113		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
Methylene Chloride		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
Styrene		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene		< 5	< 5	**26**	**200**	< 5	< 5	< 5	**12**	< 5	< 5
Toluene		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,2-dichloroethene		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,3-dichloropropene		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
Trichloroethylene		< 5	< 5	< 5	**55**	< 5	< 5	< 5	**10**	< 5	< 5
Vinyl Chloride		< 2	< 2	< 2	< 4	< 2	< 2	< 2	< 2	< 2	< 2
Xylene-o		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
Xylenes - m,p		< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5
Total VOCs		0	0	**26**	**289**	0	0	0	**22**	0	0

ug/L Micrograms per liter
D Constituent identified at a secondary dilution
Bold Constituent detected
VOCs Volatile Organic Compounds

Table 2. Concentrations of Volatile Organic Compounds Detected in Monitoring Wells and Groundwater Remedial Wells, Third Quarter 2008, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

	Well:	GM-18I	GM-18D	GM-20I	GM-20D	GM-21S	GM-21I	GM-21D	GM-33D-2	GM-34D	GM-34D2
CONSTITUENT	**Sample ID:**	GM-18I	GM-18D	GM-20I	GM-20D	GM-21S	GM-21I	GM-21D	GM-33D-2	GM-34D	GM-34D2
(Units in ug/L)	**Date:**	8/26/2008	8/26/2008	8/28/2008	8/28/2008	8/15/2008	8/28/2008	8/28/2008	8/19/2008	8/21/2008	8/21/2008
1,1,1-Trichloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
1,1,2,2-Tetrachloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
1,1,2-Trichloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
1,1-Dichloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
1,1-Dichloroethene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
1,2-Dichloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
1,2-Dichloropropane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
2-Butanone		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 250	< 100
2-Hexanone		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 250	< 100
4-methyl-2-pentanone		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 250	< 100
Acetone		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 250	< 100
Benzene		< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 3.5	< 1.4
Bromodichloromethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
Bromoform		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
Bromomethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
Carbon Disulfide		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 250	< 100
Carbon tetrachloride		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
Chlorobenzene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
Chloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
Chloroform		< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 35	< 14
Chloromethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
cis-1,2-dichloroethene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
cis-1,3-dichloropropene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
Dibromochloromethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
Ethylbenzene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
Freon 113		< 5	< 5	< 5	< 5	< 5	< 5	< 5	**33**	< 25	< 10
Methylene Chloride		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
Styrene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
Tetrachloroethene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	**10**	< 25	**10**
Toluene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
trans-1,2-dichloroethene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
trans-1,3-dichloropropene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
Trichloroethylene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	**71**	**840**	**340**
Vinyl Chloride		< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 10	**< 4**
Xylene-o		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
Xylenes - m,p		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 10
Total VOCs		0	0	0	0	0	0	0	**114**	**840**	**350**

ug/L Micrograms per liter
D Constituent identified at a secondary dilution
Bold Constituent detected
VOCs Volatile Organic Compounds

Table 2. Concentrations of Volatile Organic Compounds Detected in Monitoring Wells and Groundwater Remedial Wells, Third Quarter 2008, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

	Well:	GM-35D2	GM-38D	GM-38D2	GM-39D$_A$	GM-39D$_B$	GM-73D	GM-73D2	GM-74I	GM-74D	GM-74I
CONSTITUENT	**Sample ID:**	GM-35D2	GM-38D	GM-38D2	GM-39D	GM-39D-2	GM-73D	GM-73D2	GM-74I	GM-74D	GM-74I
(Units in ug/L)	**Date:**	8/25/2008	8/25/2008	8/25/2008	8/20/2008	8/20/2008	8/21/2008	8/21/2008	8/18/2008	8/18/2008	8/18/2008
1,1,1-Trichloroethane		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dichloroethane		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dichloropropane		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
2-Butanone		< 100	< 500	< 250	< 50	< 50	< 50	< 50	< 50	< 50	< 50
2-Hexanone		< 100	< 500	< 250	< 50	< 50	< 50	< 50	< 50	< 50	< 50
4-methyl-2-pentanone		< 100	< 500	< 250	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acetone		< 100	< 500	< 250	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Benzene		< 1.4	< 7	< 3.5	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Bromodichloromethane		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromoform		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromomethane		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Carbon Disulfide		< 100	< 500	< 250	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Carbon tetrachloride		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chlorobenzene		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chloroethane		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chloroform		< 14	< 70	< 35	< 7	< 7	< 7	< 7	< 7	< 7	< 7
Chloromethane		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,2-dichloroethene		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,3-dichloropropene		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Ethylbenzene		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Freon 113		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Methylene Chloride		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Styrene		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Toluene		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,2-dichloroethene		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,3-dichloropropene		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Trichloroethylene		**210**	**1100**	**900**	**13**	**62**	**7.6**	**44**	< 5	< 5	< 5
Vinyl Chloride		< 4	< 20	< 10	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Xylene-o		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Xylenes - m,p		< 10	< 50	< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Total VOCs		**210**	**1100**	**900**	**13**	**62**	**7.6**	**44**	0	0	0

ug/L Micrograms per liter
D Constituent identified at a secondary dilution
Bold Constituent detected
VOCs Volatile Organic Compounds

Table 2. Concentrations of Volatile Organic Compounds Detected in Monitoring Wells and Groundwater Remedial Wells, Third Quarter 2008, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

	Well:	GM-74D	GM-74D-2	GM-75D-2	GM-78S	GM-78I	GM-79I	GM-79D	HN-24I	HN-40S	HN-40I
CONSTITUENT	**Sample ID:**	GM-74D	GM-74D-2	GM-75D-2	GM-78S	GM-78I	GM-79I	GM-79D	HN-24I	HN-40S	HN-40I
(Units in ug/L)	**Date:**	8/18/2008	8/18/2008	8/19/2008	8/14/2008	8/14/2008	8/22/2008	8/22/2008	9/5/2008	8/12/2008	8/12/2008
1,1,1-Trichloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	**5.2**	< 5	< 5
1,2-Dichloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dichloropropane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
2-Butanone		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
2-Hexanone		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
4-methyl-2-pentanone		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acetone		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Benzene		< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Bromodichloromethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromoform		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromomethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Carbon Disulfide		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Carbon tetrachloride		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chlorobenzene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chloroform		< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7
Chloromethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,2-dichloroethene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,3-dichloropropene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Ethylbenzene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Freon 113		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Methylene Chloride		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Styrene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene		< 5	**6.4**	**5**	< 5	< 5	< 5	< 5	**12**	< 5	< 5
Toluene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,2-dichloroethene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,3-dichloropropene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Trichloroethylene		< 5	**6.4**	**190**	< 5	< 5	< 5	**46**	**19**	< 5	< 5
Vinyl Chloride		< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Xylene-o		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Xylenes - m,p		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Total VOCs		0	**12.8**	**195**	0	0	0	**46**	**36.2**	0	0

Table 2. Concentrations of Volatile Organic Compounds Detected in Monitoring Wells and Groundwater Remedial Wells, Third Quarter 2008, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

	Well:	HN-42S	HN-42I	GP-1	GP-3	T-96 EFF	WELL 17	WELL 18	WELL 19	T-102 EFF
CONSTITUENT	**Sample ID:**	HN-42S	HN-42I	WELL 1	WELL 3	TOWER 96 EFF	WELL 17	WELL 18	WELL 19	TOWER 102 EFF
(Units in ug/L)	**Date:**	8/12/2008	8/12/2008	8/18/2008	8/18/2008	8/18/2008	8/18/2008	8/18/2008	8/18/2008	8/18/2008
1,1,1-Trichloroethane		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
1,1,2-Trichloroethane		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
1,1-Dichloroethane		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
1,1-Dichloroethene		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
1,2-Dichloroethane		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
1,2-Dichloropropane		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
2-Butanone		< 50	< 50	< 100	< 1000	< 50	< 100	< 50	< 50	< 50
2-Hexanone		< 50	< 50	< 100	< 1000	< 50	< 100	< 50	< 50	< 50
4-methyl-2-pentanone		< 50	< 50	< 100	< 1000	< 50	< 100	< 50	< 50	< 50
Acetone		< 50	< 50	< 100	< 1000	< 50	< 100	< 50	< 50	< 50
Benzene		< 0.7	< 0.7	< 1.4	< 14	< 0.7	< 1.4	< 0.7	< 0.7	< 0.7
Bromodichloromethane		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
Bromoform		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
Bromomethane		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
Carbon Disulfide		< 50	< 50	< 100	< 1000	< 50	< 100	< 50	< 50	< 50
Carbon tetrachloride		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
Chlorobenzene		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
Chloroethane		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
Chloroform		< 7	< 7	< 14	< 140	< 7	< 14	< 7	< 7	< 7
Chloromethane		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
cis-1,2-dichloroethene		< 5	**7.2**	< 10	< 100	< 5	< 10	< 5	**21**	< 5
cis-1,3-dichloropropene		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
Dibromochloromethane		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
Ethylbenzene		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
Freon 113		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
Methylene Chloride		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
Styrene		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
Tetrachloroethene		< 5	< 5	**110**	< 100	< 5	**24**	**10**	**8**	< 5
Toluene		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
trans-1,2-dichloroethene		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
trans-1,3-dichloropropene		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
Trichloroethylene		< 5	**17**	**310**	**2400**	< 5	**210**	**91**	**180**	< 5
Vinyl Chloride		< 2	< 2	< 4	**210**	< 2	< 4	< 2	< 2	< 2
Xylene-o		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
Xylenes - m,p		< 5	< 5	< 10	< 100	< 5	< 10	< 5	< 5	< 5
Total VOCs		0	**24.2**	**420**	**2610**	0	**234**	**101**	**209**	0

ug/L Micrograms per liter
Bold Constituent detected
VOCs Volatile Organic Compounds

Table 3. Concentrations of Total and Dissolved Cadmium and Chromium Detected in Monitoring Wells, Third Quarter 2008, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

	Well:	N-10631	GM-15S	GM-78I	GM-78S	MW-1GF	MW-2GF	MW-04	MW-05	MW-06
CONSTITUENT	**Sample ID:**	N-10631	GM-15S	GM-78I	GM-78S	MW-01GF	MW-02GF	PT1MW-04	PT1MW-05	PT1MW-06
(Units in mg/L)	**Date:**	8/19/2008	8/13/2008	8/14/2008	8/14/2008	8/15/2008	8/14/2008	8/13/2008	8/13/2008	8/13/2008
Cadmium		< 0.005	-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-
Cadmium (Dissolved)		< 0.005	-	< 0.005	< 0.005	< 0.005	< 0.005	-	-	-
Chromium		**0.0159**	**0.486**	< 0.01	< 0.01	< 0.01	**0.0214**	< 0.01	**0.276**	**0.208**
Chromium (Dissolved)		< 0.01	**0.5**	< 0.01	< 0.01	< 0.01	**0.0156**	< 0.01	**0.267**	**0.195**

ug/L Micrograms per liter
Bold Constituent detected above IDL.
-- Not analyzed

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Table 4. Concentrations of Site-Related Volatile Organic Compounds Detected in Outpost Wells, Third Quarter 2008, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	Well: / Sample ID: / Date:	BPOW 1-1 / BPOW 1-1 / 8/5/2008	BPOW 1-2 / BPOW 1-2 / 8/5/2008	BPOW 1-3 / BPOW 1-3 / 8/5/2008	BPOW 3-1 / BPOW 3-1 / 8/7/2008	BPOW 3-1 / BPOW 3-1 / 8/7/2008	BPOW 3-2 / BPOW 3-2 / 8/6/2008	BPOW 4-1 / BPOW 4-1 / 8/6/2008	BPOW 4-2 / BPOW 4-2 / 8/6/2008
1,1,1-Trichloroethane		**1.1**	< 0.5	**4.2**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethane		**0.67**	< 0.5	**1.6**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethene		< 0.5	< 0.5	**3.1**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon tetrachloride		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-dichloroethene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Freon 113 [4]		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,2-dichloroethene		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethlene		**1.2**	< 0.5	1.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Site-Related VOCs [1] :		**2.97 [3]**	0	**10 [3]**	0	0	0	0	0
TVOC Trigger Value [2]:		**0.6**	**0.6**	**0.6**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**

Note: Outpost wells OW2-1 and OW2-2 were not sampled by Northrop Grumman this round, due to ongoing NYSDEC investigation of non-site related VOCs (benzene and methyl tertiary butyl ether) detected in these wells.

(1) Site-related VOCs were established in the Public Water Supply Contingency Plan (PWSCP) (ARCADIS G&M, Inc. 2003).

(2) TVOC Trigger Values were established in the PWSCP (ARCADIS G&M, Inc. 2003).

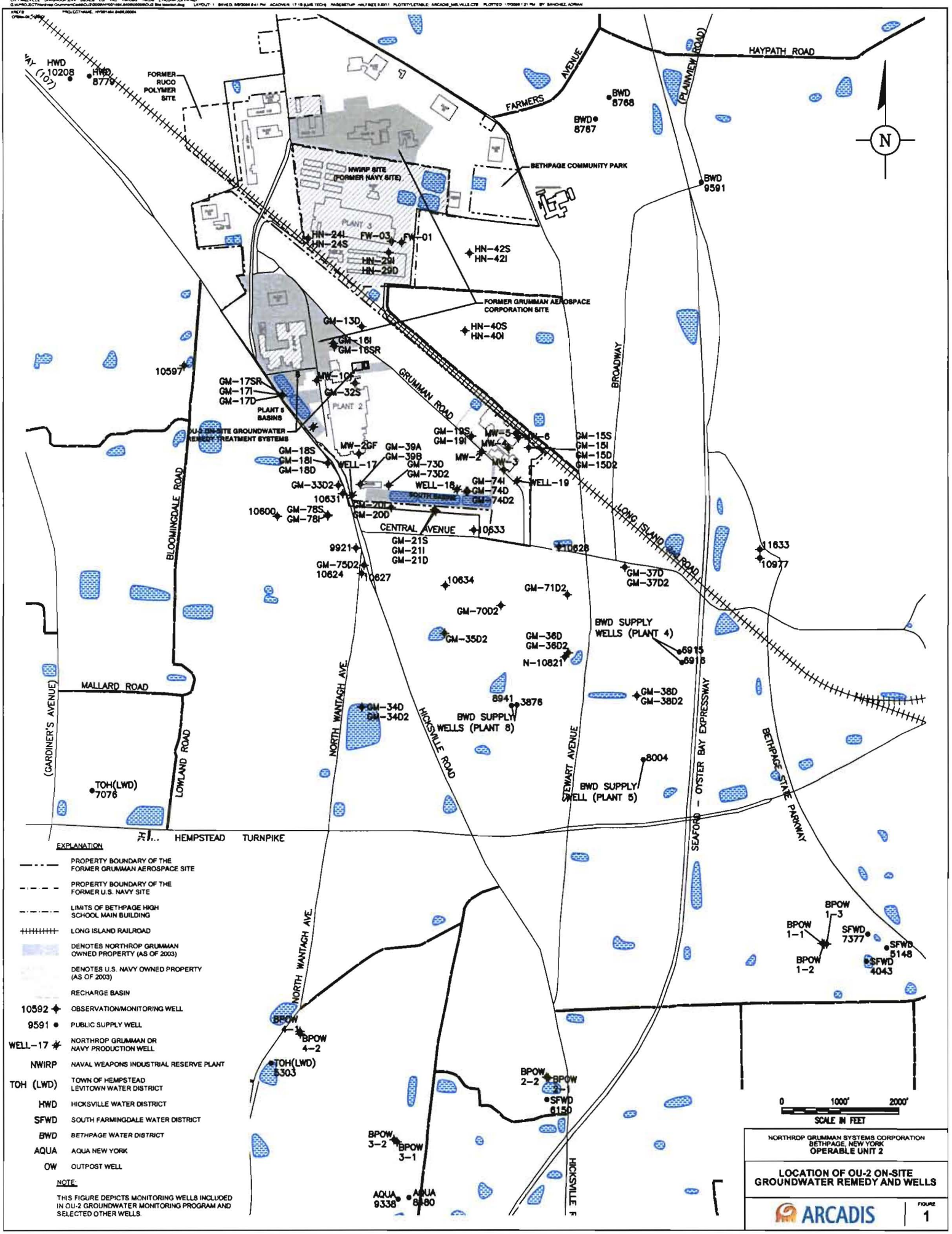
(3) The TVOC Trigger Value for Cluster 1 was initially exceeded on April 23, 2004; confirmatory sampling and reporting was conducted as per the PWSCP (ARCADIS G&M, Inc. 2

(4) Freon 113 is also known as 1,1,2-Trichloro-1,2,2-Triifluoroethane

ug/L Micrograms per liter

Bold Constituent detected

TVOC Total Volatile Organic Compounds


HWD 10208
HWD 8774
FORMER RUCO POLYMER SITE
FARMERS AVENUE
HAYPATH ROAD
(PLANMEW ROAD)
BWD 8768
BWD 8767
NWIRP SITE (FORMER NAVY SITE)
BETHPAGE COMMUNITY PARK
BWD 9591
PLANT 3
HN-24I
HN-24S
FW-03
FW-01
HN-25I
HN-25D
HN-42S
HN-42I
FORMER GRUMMAN AEROSPACE CORPORATION SITE
GM-13D
GM-16I
GM-16SR
HN-40S
HN-40I
10597
GM-17SR
GM-17I
GM-17D
MW-10F
GM-32S
PLANT 2
PLANT 5 BASINS
GRUMMAN ROAD
BROADWAY
OU-2 ON-SITE GROUNDWATER REMEDY TREATMENT SYSTEMS
GM-19S
GM-19I
MW-5
MW-6
GM-15S
GM-15I
GM-15D
GM-15D2
MW-4
MW-2
MW-3
GM-18S
GM-18I
GM-18D
MW-2GF
GM-39A
GM-39B
WELL-17
GM-73D
GM-73D2
GM-33D2
WELL-18
GM-74I
GM-74D
GM-74D2
WELL-19
SOUTH BASINS
10631
GM-70I
GM-20D
10600
GM-78S
GM-78I
CENTRAL AVENUE
10633
LONG ISLAND RAIL ROAD
BLOOMINGDALE ROAD
GM-21S
GM-21I
GM-21D
9921
GM-75D2
10624
10627
10628
11633
10977
GM-37D
GM-37D2
10634
GM-71D2
GM-70D2
GM-35D2
GM-36D
GM-36D2
N-10821
BWD SUPPLY WELLS (PLANT 4)
6915
6916
MALLARD ROAD
(GARDINER'S AVENUE)
LOWLAND ROAD
NORTH WANTAGH AVE.
HICKSVILLE ROAD
STEWART AVENUE
SEAFORD - OYSTER BAY EXPRESSWAY
BETHPAGE STATE PARKWAY
GM-34D
GM-34D2
8941
3876
BWD SUPPLY WELLS (PLANT 8)
GM-38D
GM-38D2
8004
BWD SUPPLY WELL (PLANT 5)
TOH(LWD) 7076
HEMPSTEAD TURNPIKE
BPOW 1-3
BPOW 1-1
BPOW 1-2
SFWD 7377
SFWD 5148
SFWD 4043
BPOW 4-1
BPOW 4-2
TOH(LWD) 5303
BPOW 2-2
BPOW 2-1
SFWD 6150
BPOW 3-2
BPOW 3-1
AQUA 9338
AQUA 8480
HICKSVILLE
N
0
1000'
2000'
SCALE IN FEET
EXPLANATION
PROPERTY BOUNDARY OF THE FORMER GRUMMAN AEROSPACE SITE
PROPERTY BOUNDARY OF THE FORMER U.S. NAVY SITE
LIMITS OF BETHPAGE HIGH SCHOOL MAIN BUILDING
LONG ISLAND RAILROAD
DENOTES NORTHROP GRUMMAN OWNED PROPERTY (AS OF 2003)
DENOTES U.S. NAVY OWNED PROPERTY (AS OF 2003)
RECHARGE BASIN
10592 OBSERVATION/MONITORING WELL
9591 PUBLIC SUPPLY WELL
WELL-17 NORTHROP GRUMMAN OR NAVY PRODUCTION WELL
NWIRP NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
TOH (LWD) TOWN OF HEMPSTEAD LEVITOWN WATER DISTRICT
HWD HICKSVILLE WATER DISTRICT
SFWD SOUTH FARMINGDALE WATER DISTRICT
BWD BETHPAGE WATER DISTRICT
AQUA AQUA NEW YORK
OW OUTPOST WELL
NOTE:
THIS FIGURE DEPICTS MONITORING WELLS INCLUDED IN OU-2 GROUNDWATER MONITORING PROGRAM AND SELECTED OTHER WELLS.
NORTHROP GRUMMAN SYSTEMS CORPORATION
BETHPAGE, NEW YORK
OPERABLE UNIT 2
LOCATION OF OU-2 ON-SITE GROUNDWATER REMEDY AND WELLS
ARCADIS
FIGURE 1