ARCADIS

Infrastructure, environment, facilities

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

Date:
April 23, 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 March 2008; activities planned for April 2008 are also discussed. This report is the 24th 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 March 2008

Validated data from the RI and the Soil Gas Interim Remedial Measure (IRM) are provided in Tables 1 and 2, respectively. The site plan showing well and vertical profile boring (VPBs) locations is provided as Figure 1. Activities performed this period include:

- Prepared and submitted the February 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).

- Conducted planning, implementation, and data review/evaluation for on-site IRMs as follows:
    - Completed 28-day startup testing program for the Soil Gas IRM.
    - Commenced Soil Gas IRM routine operation, maintenance, and monitoring (OM&M).
    - Continued preparation of Soil Gas IRM as-built drawings.
    - Completed Basis of Design (formerly termed the 50-75 percent design) letter preparation for Groundwater IRM and submitted report to NYSDEC.
    - Began preparation of Final design/construction document for Groundwater IRM.
    - Initiated drilling and development of Groundwater IRM aquifer test pumping/observation wells. Prepared for Groundwater IRM aquifer test.
- Conducted RI/FS field activities including the following:
    - Completed mud rotary (MR) drilling rig mobilization to VP-116. Began and completed drilling and hydropunch groundwater sampling of VP-116. Initiated installation of Monitoring Well MW116-5.
    - Completed MR drilling rig mobilization to VP-113. Began drilling and hydropunch groundwater sampling of VP-113.

OU3 Activities Expected During April 2008

- Prepare and submit March 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.
    - Continue drilling and hydropunch sampling of off-site VPB VP-113.
    - Complete Monitoring Well MW116-5 installation; demobilize MR drilling rig from location. Mobilize development rig and crew and perform development and complete installation of Monitoring Well MW116-5.
    - Mobilize and commence drilling and hydropunch sampling of off-site VPB VP-115.
- Conduct planning, implementation, and data review/evaluation for on-site IRMs as follows:

- Continue routine OM&M of the Soil Gas IRM.
- Continue preparation of Soil Gas IRM as-built drawings.
- Continue preparation of Final design/construction document for Groundwater IRM.
- Conduct aquifer test as part of design of Groundwater IRM.

Feel free to call us if you have any questions.

Sincerely,

ARCADIS U.S., Inc.

David E. Stern
Associate Project Manager/Senior Scientist

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Table 1. Volatile Organic Compounds in Off-Site Vertical Profile Boring Groundwater Samples, Bethpage, New York.

CONSTITUENT (units in ug/L)	NYSDEC SCGs	Sample ID:	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116
		Depth bls:	54	74	94	114	134	154	179	194	214	234	274	294	314	334	369	374	394
		Date:	3/4/08	3/4/08	3/4/08	3/5/08	3/5/08	3/5/08	3/6/08	3/6/08	3/7/08	3/7/08	3/10/08	3/10/08	3/11/08	3/11/08	3/12/08	3/12/08	3/13/08
1,1,1-Trichoroethane	5		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<50	<50	<50	<50	<50	<50	<50
1,1,2-Trichloroethane	1		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	5		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	5.4
1,1-Dichloroethene	5		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	0.6		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
Carbon disulfide	50		<5	<5	<5	<5	<5	<5	<5	<5	<250	<10	<5	<5	<5	<5	<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
Chlorodifluoromethane	NE		<5	<5	<5	<5	<5	<5	<5	5.4	<25	<10	<5	<5	<5	<5	<5	<5	<5
Chloroethane	5		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
Chloroform	5		<7	<7	<7	<7	<7	<7	<7	<7	<25	<10	<7	<7	<7	<7	<7	<7	<7
cis-1,2-Dichloroethene	5		<5	<5	<5	<5	<5	<5	<5	43	200	150	32	23	79	22	<5	<5	<5
cis-1,3-Dichlorpropene	0.4		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
Dichlorodifluoromethane	5		<5	<5	<5	<5	<5	<5	<5	11	<25	<10	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	NE		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethene	5		<5	<5	<5	16	19	36	27	81	620	620	26	140	300	85	<5	<5	<5
Trichloroethene	5		<5	<5	<5	<5	<5	<5	<5	38	140	110	16	30	73	23	<5	<5	<5
Trichlorotrifluoroethane	5		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2	<2	<2	<2	14	51	29	7.3	<5	<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	1		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
Xylenes	5		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
2-Butanone (MEK)	50		<50	<50	<50	<50	<50	<50	<50	<50	<250	<100	<50	<50	<50	<50	<50	<50	<50
Acetone	50		<50	<50	<50	<50	<50	<50	<50	<50	<250	<100	<50	<50	<50	<50	<50	<50	<50
Bromomethane	5		<50	<50	<50	<50	<50	<50	<50	<50	<25	<50	<50	<50	<50	<50	<50	<50	<50
Methylene Chloride	50		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
Chloromethane	NE		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone (MIBK)	NE		<50	<50	<50	<50	<50	<50	<50	<50	<250	<100	<50	<50	<50	<50	<50	<50	<50
Benzene	1		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<3.5	<1.4	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
2-Hexanone	NE		<50	<50	<50	<50	<50	<50	<50	<50	<250	<100	<50	<50	<50	<50	<50	<50	<50
Bromodichloromethane	NE		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
Bromoform	NE		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane	5		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5	<5	<5	<5	<5	<25	<10	<5	<5	<5	<5	<5	<5	<5
Total VOCs	–		**0**	**0**	**0**	**16**	**19**	**36**	**27**	**192**	**1,011**	**909**	**81**	**193**	**452**	**130**	**0**	**0**	**5**

See footnotes on last page.

Table 1. Volatile Organic Compounds in Off-Site Vertical Profile Boring Groundwater Samples, Bethpage, New York.

CONSTITUENT (units in ug/L)	NYSDEC SCGs	Sample ID:	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116	VP-116
		Depth bls:	414	434	454	474	494	514	544	554	574	594	614	634	659	674	699
		Date:	3/13/08	3/13/08	3/14/08	3/14/08	3/14/08	3/17/08	3/18/08	3/18/08	3/18/08	3/19/08	3/19/08	3/20/08	3/21/08	3/20/08	3/20/08
1,1,1-Trichoroethane	5		<50	<50	<50	<50	<50	<250	<130	<100	<500	<50	<130	<50	<100	<50	<50
1,1,2-Trichloroethane	1		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
1,1-Dichloroethane	5		<5	**5.8**	**5.6**	**5.6**	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
1,1-Dichloroethene	5		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
1,2-Dichloroethane	0.6		<5	<5	<5	<5	<5	<25	<13	<10	<50	**6.9**	<13	<5	<10	<5	<5
Carbon disulfide	50		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Chlorodifluoromethane	NE		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Chloroethane	5		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Chloroform	5		<7	<7	<7	<7	<7	<25	<13	**22**	<50	**20**	<13	<5	<10	<5	<5
cis-1,2-Dichloroethene	5		<5	<5	<5	**5.6**	<5	**61**	**33**	**51**	**140**	**120**	**31**	<5	<10	<5	<5
cis-1,3-Dichlorpropene	0.4		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Dichlorodifluoromethane	5		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
trans-1,3-Dichloropropene	NE		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Tetrachloroethene	5		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Trichloroethene	5		<5	<5	<5	<5	**18**	**470**	**330**	**250**	**1900**	**910**	**460**	**28**	**43**	**8.5**	<5
Trichlorotrifluoroethane	5		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Vinyl Chloride	2		<5	<5	<5	<5	<5	<10	<5	<4	<20	<2	<5	<2	<4	<2	<2
Ethylbenzene	5		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
1,2-Dichloropropane	1		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Xylenes	5		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Toluene	5		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
2-Butanone (MEK)	50		<50	<50	<50	<50	<50	<250	<130	<100	<500	<50	<130	<50	<100	<50	<50
Acetone	50		<50	<50	<50	<50	<50	<250	<130	<100	<500	<50	<130	<50	<100	<50	<50
Bromomethane	5		<50	<50	<50	<50	<50	<250	<130	<100	<500	<50	<130	<50	<100	<50	<50
Methylene Chloride	50		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Chloromethane	NE		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
4-Methyl-2-pentanone (MIBK)	NE		<50	<50	<50	<50	<50	<250	<130	<100	<500	<50	<130	<50	<100	<50	<50
Benzene	1		<0.7	<0.7	<0.7	<0.7	<0.7	<3.5	<1.8	<1.4	<7	<2	<1.8	<2	<1.4	<2	<2
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
2-Hexanone	NE		<50	<50	<50	<50	<50	<50	<13	<10	<50	<5	<13	<5	<10	<5	<5
Bromodichloromethane	NE		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Bromoform	NE		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Dibromochloromethane	5		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Styrene	5		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5	<5	<25	<13	<10	<50	<5	<13	<5	<10	<5	<5
Total VOCs	–		0	6	6	11	18	531	363	323	2,040	1,057	491	28	43	9	0

See footnotes on last page.

Table 1. Volatile Organic Compounds in Off-Site Vertical Profile Boring Groundwater Samples, Bethpage, New York.

Notes and Abbreviations:

1. Results validated following protocols specified in March 2006 RI/FS Work Plan (ARCADIS G&M, Inc. 2006).
2. Groundwater samples analyzed for the TCL VOCs using NYSDEC ASP Method 2000 OLM4.2.

Indicates an exceedance of an SCG

Bold value indicates a detection

NYSDEC	New York State Department of Environmental Conservation
TCL	Target compound list
VOC	Volatile Organic Compound
ASP	Analytical services protocol
VP	Vertical Profile Boring
SCGs	Standard, criteria, and guidance values
ft bls	feet below land surface
ug/L	Micrograms per liter
TVOC	Total volatile organic compounds

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Table 2. Vapor Sample Results, Operable Unit-3 Soil Gas Interim Remedial Measure, Former Grumman Settling Ponds,Northrop Grumman Systems Corporation, Bethpage, New York.

Parameter (units in ug/m^3)	Location ID: / Sample ID: / Sample Date:	VSP-601 OU3 VPGAC INF-20080218 2/18/2008	VSP-602 OU3 VPGAC EFF-20080218 2/18/2008	VSP-601 PRE VPGAC-20080219 2/19/2008	VSP-602 POST VPGAC-20080219 2/19/2008	VSP-601 VSP-601-20080225 2/25/2008	VSP-602 VSP-602-20080225 2/25/2008
1,1,1-Trichloroethane		110	< 0.62	71	< 0.61	35	< 0.63
1,1,2,2-Tetrachloroethane		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
1,1,2-Trichloroethane		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
1,1-Dichloroethane		43	< 0.62	33	< 0.61	45	< 0.63
1,1-Dichloroethene		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
1,2-Dichloroethane		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
1,2-Dichloropropane		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
1,3-Butadiene		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
2-Butanone		16	< 0.62	< 11	< 0.61	< 25	< 0.63
2-Hexanone		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
4-Methyl-2-Pentanone		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Acetone		< 140	< 6.2	< 110	< 6.1	< 250	< 6.3
Benzene		67	< 0.62	22	< 0.61	< 25	< 0.63
Bromodichloromethane		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Bromoform		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Bromomethane		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Carbon Disulfide		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Carbon Tetrachloride		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
CFC-11		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Chlorobenzene		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Chlorodibromomethane		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Chloroethane		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Chloroform		34	< 0.62	24	< 0.61	< 25	< 0.63
Chloromethane		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
cis-1,2-Dichloroethene		5800	< 0.62	4600	< 0.61	2900	< 0.63
cis-1,3-Dichloropropene		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Ethylbenzene		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Freon 113		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Freon 12		< 14	< 0.62	< 11	0.71	< 25	5.7
Methyl Tert-Butyl Ether		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Methylene Chloride		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Styrene		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Tetrachloroethene		340	< 0.62	200	< 0.61	82	< 0.63
Toluene		92	< 0.62	98	< 0.61	34	< 0.63
Trans-1,2-Dichloroethene		120	< 0.62	71	< 0.61	< 25	< 0.63
Trans-1,3-Dichloropropene		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Trichloroethylene		14000	< 0.62	9400	< 0.61	5100	< 0.63
Vinyl Chloride		< 14	< 0.62	< 11	< 0.61	< 25	1.1
Xylene-O		< 14	< 0.62	< 11	< 0.61	< 25	< 0.63
Xylenes - M,P		< 28	< 1.2	< 21	< 1.2	< 51	< 1.3
Total VOCs		20,622	0	14,519	0	8,196	6.8