



Mr. Steven Scharf, P.E.  
New York State Department of Environmental Conservation (NYSDEC)  
Division of Environmental Remediation  
625 Broadway  
Albany, New York 12233-7015

Subject:  
Results of Third Quarter 2012 Groundwater Monitoring,  
Operable Unit 2, Northrop Grumman Systems Corporation and Naval Weapons  
Industrial Reserve Plant (NWIRP) Sites, Bethpage, New York.  
(NYSDEC Site #s 1-30-003A and B)

Dear Mr. Scharf:

On behalf of Northrop Grumman Systems Corporation (Northrop Grumman),  
ARCADIS is providing the NYSDEC with the validated results of Operable Unit 2  
(OU2) groundwater monitoring, performed in accordance with the approved  
groundwater monitoring plan (ARCADIS G&M, Inc. 2006) and the Public Water  
Supply Contingency Plan (PWSCP) (ARCADIS G&M, Inc. 2003), plus additional  
wells installed by the Navy that Northrop Grumman agreed to monitor on a voluntary  
basis. Table 1 provides OU2 remedial system performance operational data and  
water balance. Tables 2 through 4 provide the validated analytical results of  
monitoring for this period. Figure 1 shows the site plan with well locations.

Please contact us if you have any questions or comments.

Sincerely,

ARCADIS of New York, Inc.

David E. Stern  
Senior Hydrogeologist

Carlo San Giovanni  
Project Manager

Enclosures

Imagine the result

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ENVIRONMENT

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Table 1. Operational Summary for the On-Site Portion of the Operable Unit 2 Groundwater Remedy, Third Quarter 2012, Northrop Grumman Systems Corporation, Bethpage, New York. <sup>(1)</sup>

Identification	Flow Rates (gpm)		Quarterly Flow Volumes (MG)			VOC Concentrations (ug/L)		VOC Mass Removed (lbs) <sup>(7)</sup>
	Design <sup>(2)</sup>	Average <sup>(3,4)</sup>	Design <sup>(2)</sup>	Actual <sup>(3,4)</sup>	% of Design	TCE <sup>(5)</sup>	TVOC <sup>(5,6)</sup>	Quarterly
<b><u>Influent Groundwater</u></b>								
Well 1 <sup>(10)</sup>	800	830	104.8	82.7	79%	350	410	284
Well 3	700	711	91.7	90.4	99%	1,500	1,690	1,249
Well 17	1,000	1,003	131.0	126.2	96%	210	254	262
Well 18	600	627	78.6	81.4	104%	62	84	56
Well 19	700	701	91.7	90.9	99%	170	203	151
<b>Total</b>	<b>3,800</b>	<b>3,872</b>	<b>498</b>	<b>472</b>	<b>95%</b>	<b>--</b>	<b>--</b>	<b>2,002</b>
<b><u>Effluent Groundwater</u></b> <sup>(8)</sup>								
Calpine	100 - 400	467	--	62.5	--	--	--	--
OXY Biosparge <sup>(11)</sup>	14 - 54	0.0	--	0.0	--	--	--	--
West Recharge Basins	1,112 - 1,455	453	--	59.4	--	--	1.56	--
South Recharge Basins <sup>(12)</sup>	2,231	2,669	292.4	349.7	120%	--	0.59	--
<b>Total</b>	<b>--</b>	<b>3,589</b>	<b>--</b>	<b>472</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b><u>Treatment Efficiencies</u></b> <sup>(9)</sup>								
Tower 96 System Efficiency:	99.9%							
Tower 102 System Efficiency:	99.5%							

see footnotes on last page

Table 1. Operational Summary for the On-Site Portion of the Operable Unit 2 Groundwater Remedy, Third Quarter 2012, Northrop Grumman Systems Corporation, Bethpage, New York. <sup>(1)</sup>

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- (1) Quarterly reporting period: July 02, 2012 through October 01, 2012.
  - (2) "Design" flow rates were determined for the five remedial wells and for the South Recharge Basins based on computer modeling (ARCADIS G&M, Inc. 2003c, modified in April 2005). Flow rates for Calpine, OXY Biosparge and West Recharge Basins are typical flow rates and are provided for reader information. "Design" flow volumes represent the volume of water that should be pumped/discharged during the reporting period and is calculated by multiplying the design rate by the reporting period duration.
  - (3) "Average" flow rates for the remedial wells represent the average actual pumping rates when the pumps are operational and do not take into account the time that a well is not operational. During this reporting period, the remedial wells operated for the following percentage of the time: Well 1 (76%), Well 3 (97%), Well 17 (96%), Well 18 (99%), and Well 19 (99%). "Actual" volumes are determined via totalizing flow meters.
  - (4) "Average" flow rates for the system discharges represent the average flow rate during the entire reporting period and are determined by dividing the total flow during the reporting period by the reporting period duration. The Calpine, OXY Biosparge, and South Recharge Basins flow volumes are determined via totalizing flow meters. The West Recharge Basin flow is calculated by subtracting the cumulative flow to the other discharges from the total influent flow. Actual flow to the recharge basins are greater than shown because storm water combines with the plant effluents prior to discharge to the recharge basins.
  - (5) The TCE and TVOC concentrations for the remedial wells are from the quarterly sampling event performed during this reporting period (Table 2).
  - (6) The TVOC concentration for the two sets of recharge basins are their respective average monthly SPDES concentration for the current quarter.
  - (7) TVOC mass removed for the reporting period is calculated by multiplying the TVOC concentration from the quarterly sampling event and the quantity of water pumped during the reporting period.
  - (8) There are five discharges for the effluent groundwater: South Recharge Basins, West Recharge Basins, Calpine, OXY Biosparge system, and pipe loss. Treated water is continuously discharged to the south and west recharge basins, and is available "on-demand" to both the Calpine Power Plant (Calpine) for use as make-up water, and the biosparge remediation system operated by Occidental Chemical (OXY Biosparge).
  - (9) Treatment System Efficiencies are calculated by dividing the difference between the influent and effluent TVOC concentrations by the influent concentration.
  - (10) Well 1 operated intermittently from August 30, 2012 through September 25, 2012 due to a communication/control problem between the well and Tower 96. During this period, Well 1 was only operated when operators were on-site and was pumped at a higher pumping rate (1,000 gpm) than normal 800 gpm.
  - (11) OXY Biosparge was not in operation throughout the majority of the quarter due to construction related activities and was restarted the week of September 17, 2012.
  - (12) The discharge flow rate and flow volume to the south basin (T102 weir overflow) were estimated throughout the duration of this reporting period due to the need for re-calibration of the ultrasonic level indicator associated with the water level over the weir. Estimated values were calculated using historic data associated with the total clear well water elevation and weir overflow rates.

Acronyms:

--	Not Available or Not Applicable	lbs	pounds
TVOC	Total Volatile Organic Compounds	MG	Million Gallons
gpm	gallons per minute	ug/L	micrograms per liter
SPDES	State Pollutant Discharge Elimination System	OU2	Operable Unit 2
NG	Northrop Grumman Systems Corporation	NYSDEC	New York State Department of Environmental Conservation
TCE	Trichloroethene		



Table 2. Concentrations of Volatile Organic Compounds Detected in Monitoring Wells and Groundwater Remedial Wells, Third Quarter 2012, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	Well:	GM-15S	GM-15I	GM-15D	GM-15D2	GM-17I	GM-17D	GM-18I	GM-18D
	Sample ID:	GM-15S	GM-15I	GM-15D	GM-15D2	GM-17I	GM-17D	GM-18I	GM-18D
	Date:	9/11/2012	9/11/2012	9/12/2012	9/12/2012	9/10/2012	9/10/2012	9/10/2012	9/10/2012
1,1,1-Trichloroethane		< 5	< 5	< 5	<b>0.27 J</b>	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane		< 5	< 5	< 5	<b>0.24 J</b>	< 5	< 5	< 5	< 5
1,1-Dichloroethene		< 5	< 5	< 5	<b>1.1 J</b>	< 5	< 5	< 5	< 5
1,2-Dichloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dichloropropane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
2-Butanone (MEK)		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
2-Hexanone (MBK)		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
4-methyl-2-pentanone (MIK)		< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acetone		< 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
Bromodichloromethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromoform		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromomethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Carbon Disulfide		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Carbon Tetrachloride		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chlorobenzene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chloroethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chloroform		< 5	< 5	<b>0.38 J</b>	<b>0.39 J</b>	< 5	< 5	< 5	< 5
Chloromethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,2-dichloroethene		< 5	< 5	< 5	<b>0.41 J</b>	< 5	< 5	< 5	< 5
cis-1,3-dichloropropene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Ethylbenzene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Methylene Chloride		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Styrene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene		< 5	<b>0.58 J</b>	<b>0.43 J</b>	<b>6.4</b>	< 5	< 5	< 5	< 5
Toluene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,2-dichloroethene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,3-dichloropropene		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Trichloroethylene		<b>0.56 J</b>	< 5	<b>0.55 J</b>	<b>10</b>	<b>0.45 J</b>	< 5	<b>0.34 J</b>	<b>1.4 J</b>
Trichlorotrifluoroethane (Freon 113)		< 5	< 5	< 5	<b>1 J</b>	< 5	< 5	< 5	< 5
Vinyl Chloride		< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Xylene-o		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Xylenes - m,p		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
<b>TVOC</b>		<b>0.56</b>	<b>0.58</b>	<b>1.4</b>	<b>20</b>	<b>0.45</b>	<b>0</b>	<b>0.34</b>	<b>1.4</b>

See last page notes and abbreviations.



Table 2. Concentrations of Volatile Organic Compounds Detected in Monitoring Wells and Groundwater Remedial Wells, Third Quarter 2012, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	Well:	GM-33D2	GM-34D	GM-34D2	GM-35D2	GM-38D	GM-38D2	GM-39DA	GM-39DB
	Sample ID:	GM-33D2	GM-34D	GM-34D2	GM-35D2	GM-38D	GM-38D2	GM-39DA	GM-39DB
	Date:	9/6/2012	9/7/2012	9/7/2012	9/13/2012	9/13/2012	9/13/2012	8/28/2012	8/28/2012
1,1,1-Trichloroethane		< 5	< 13	< 5	< 5	<b>1.4 J</b>	<b>0.71 J</b>	< 5	< 5
1,1,2,2-Tetrachloroethane		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
1,1,2-Trichloroethane		< 5	< 13	< 5	< 5	<b>0.95 J</b>	< 5	< 5	< 5
1,1-Dichloroethane		< 5	<b>1.1 J</b>	<b>0.39 J</b>	< 5	<b>1.5 J</b>	<b>0.78 J</b>	< 5	< 5
1,1-Dichloroethene		< 5	<b>4.7 J</b>	<b>1.4 J</b>	< 5	<b>3.3 J</b>	<b>0.2 J</b>	< 5	< 5
1,2-Dichloroethane		< 5	< 13	< 5	< 5	<b>3.1 J</b>	< 5	< 5	< 5
1,2-Dichloropropane		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
2-Butanone (MEK)		< 50	< 130	< 50	< 50	< 130	< 50	< 50	< 50
2-Hexanone (MBK)		< 50	< 130	< 50	< 50	< 130	< 50	< 50	< 50
4-methyl-2-pentanone (MIK)		< 50	< 130	< 50	< 50	< 130	< 50	< 50	< 50
Acetone		< 50	< 130	< 50	< 50	< 130	< 50	< 50	< 50
Benzene		< 0.7	< 1.8	< 0.7	< 0.7	< 1.8	< 0.7	< 0.7	< 0.7
Bromodichloromethane		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
Bromoform		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
Bromomethane		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
Carbon Disulfide		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
Carbon Tetrachloride		< 5	< 13	< 5	< 5	<b>0.5 J</b>	< 5	< 5	< 5
Chlorobenzene		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
Chloroethane		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
Chloroform		< 5	< 13	<b>0.32 J</b>	< 5	<b>0.68 J</b>	<b>1.7 J</b>	< 5	< 5
Chloromethane		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
cis-1,2-dichloroethene		< 5	<b>8.8 J</b>	<b>5.4</b>	<b>0.47 J</b>	<b>2.3 J</b>	<b>0.65 J</b>	< 5	<b>0.27 J</b>
cis-1,3-dichloropropene		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
Dibromochloromethane		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
Ethylbenzene		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
Methylene Chloride		< 5	< 13	< 5	< 5	< 13 B	< 5	< 5	< 5
Styrene		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
Tetrachloroethene		<b>5.1</b>	<b>4.8 J</b>	<b>9</b>	<b>7.5</b>	<b>16</b>	< 5	< 5	<b>0.56 J</b>
Toluene		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
trans-1,2-dichloroethene		< 5	< 13	<b>0.43 J</b>	< 5	< 13	< 5	< 5	< 5
trans-1,3-dichloropropene		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
Trichloroethylene		<b>42</b>	<b>310</b>	<b>200 D</b>	<b>91</b>	<b>440</b>	<b>27</b>	<b>1.1 J</b>	<b>56</b>
Trichlorotrifluoroethane (Freon 113)		<b>17</b>	<b>6.6 J</b>	<b>1.7 J</b>	<b>1.1 J</b>	<b>2.7 J</b>	<b>1.6 J</b>	< 5	< 5
Vinyl Chloride		< 2	< 5	< 2	< 2	< 5	< 2	< 2	< 2
Xylene-o		< 5	< 13	< 5	< 5	< 13	< 5	< 5	< 5
Xylenes - m,p		< 5	< 13	<b>0.23 J</b>	< 5	< 13	< 5	< 5	< 5
		<b>64</b>	<b>340</b>	<b>220</b>	<b>100</b>	<b>470</b>	<b>33</b>	<b>1.1</b>	<b>57</b>

See last page notes and abbreviations.



Table 2. Concentrations of Volatile Organic Compounds Detected in Monitoring Wells and Groundwater Remedial Wells, Third Quarter 2012, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	Well:	GM-73D	GM-73D2	GM-74I	GM-74D	GM-74D2	GM-74D	GM-75D2	GM-79I
	Sample ID:	GM-73D	GM-73D2	GM-74I	GM-74D	GM-74D2	REP082812	GM-75D2	GM-79I
	Date:	8/27/2012	8/27/2012	8/28/2012	8/28/2012	8/28/2012	8/28/2012	9/6/2012	9/5/2012
1,1,1-Trichloroethane	< 5	<b>0.51 J</b>	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,1-Dichloroethane	< 5	<b>0.97 J</b>	< 5	< 5	<b>0.46 J</b>	< 5	< 5	< 5	< 5
1,1-Dichloroethene	< 5	<b>1.9 J</b>	< 5	< 5	<b>0.56 J</b>	< 5	<b>0.31 J</b>	< 5	< 5
1,2-Dichloroethane	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
1,2-Dichloropropane	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
2-Butanone (MEK)	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
2-Hexanone (MBK)	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
4-methyl-2-pentanone (MIK)	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Acetone	< 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
Bromodichloromethane	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromoform	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bromomethane	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Carbon Disulfide	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Carbon Tetrachloride	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chloroethane	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chloroform	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Chloromethane	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
cis-1,2-dichloroethene	< 5	<b>0.95 J</b>	< 5	< 5	<b>0.22 J</b>	< 5	< 5	< 5	< 5
cis-1,3-dichloropropene	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Dibromochloromethane	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Methylene Chloride	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Styrene	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Tetrachloroethene	< 5	<b>2.3 J</b>	< 5	<b>0.31 J</b>	<b>4.1 J</b>	<b>0.32 J</b>	<b>2.1 J</b>	< 5	< 5
Toluene	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,2-dichloroethene	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
trans-1,3-dichloropropene	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Trichloroethylene	<b>8.9</b>	<b>60</b>	<b>0.34 J</b>	<b>1.4 J</b>	<b>6.3</b>	<b>1.5 J</b>	<b>35</b>	< 5	< 5
Trichlorotrifluoroethane (Freon 113)	< 5	<b>0.48 J</b>	< 5	< 5	<b>0.56 J</b>	< 5	<b>0.7 J</b>	< 5	< 5
Vinyl Chloride	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Xylene-o	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Xylenes - m,p	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
	<b>8.9</b>	<b>67</b>	<b>0.34</b>	<b>1.7</b>	<b>12</b>	<b>1.8</b>	<b>38</b>	<b>0</b>	

See last page notes and abbreviations.



Table 2. Concentrations of Volatile Organic Compounds Detected in Monitoring Wells and Groundwater Remedial Wells, Third Quarter 2012, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	Well:	GM-79D	N-10631	96 EFFLUENT	WELL 1	WELL 3	102 EFFLUENT	WELL 17
	Sample ID:	GM-79D	N-10631	96 EFFLUENT	WELL 1	WELL 3	102 EFFLUENT	WELL 17
	Date:	9/5/2012	9/6/2012	8/27/2012	8/27/2012	8/27/2012	8/27/2012	8/27/2012
1,1,1-Trichloroethane	< 5	< 5	< 5	<b>0.53 J</b>	< 50	< 5	<b>0.52 J</b>	
1,1,1,2,2-Tetrachloroethane	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
1,1,2-Trichloroethane	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
1,1-Dichloroethane	< 5	< 5	< 5	<b>0.68 J</b>	< 50	< 5	<b>1.1 J</b>	
1,1-Dichloroethene	< 5	< 5	< 5	<b>0.93 J</b>	<b>8.9 J</b>	< 5	<b>2.1 J</b>	
1,2-Dichloroethane	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
1,2-Dichloropropane	< 5	< 5	<b>0.2 J</b>	<b>5.6 J</b>	< 50	< 5	< 10	
2-Butanone (MEK)	< 50	< 50	< 50	< 130	< 500	< 50	< 100	
2-Hexanone (MBK)	< 50	< 50	< 50	< 130	< 500	< 50	< 100	
4-methyl-2-pentanone (MIK)	< 50	< 50	< 50	< 130	< 500	< 50	< 100	
Acetone	< 50	< 50	< 50	< 130	< 500	< 50	< 100	
Benzene	< 0.7	< 0.7	< 0.7	< 1.8	< 7	< 0.7	< 1.4	
Bromodichloromethane	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
Bromoform	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
Bromomethane	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
Carbon Disulfide	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
Carbon Tetrachloride	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
Chlorobenzene	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
Chloroethane	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
Chloroform	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
Chloromethane	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
cis-1,2-dichloroethene	< 5	<b>0.23 J</b>	< 5	<b>3.6 J</b>	<b>9.6 J</b>	< 5	<b>4.4 J</b>	
cis-1,3-dichloropropene	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
Dibromochloromethane	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
Ethylbenzene	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
Methylene Chloride	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
Styrene	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
Tetrachloroethene	<b>0.6 J</b>	< 5	< 5	<b>46</b>	<b>53</b>	< 5	<b>31</b>	
Toluene	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
trans-1,2-dichloroethene	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
trans-1,3-dichloropropene	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
Trichloroethylene	<b>18</b>	<b>0.59 J</b>	<b>0.98 J</b>	<b>350</b>	<b>1500</b>	<b>0.99 J</b>	<b>210</b>	
Trichlorotrifluoroethane (Freon 113)	< 5	< 5	< 5	<b>2.9 J</b>	<b>8.1 J</b>	< 5	<b>4.6 J</b>	
Vinyl Chloride	< 2	< 2	< 2	< 5	<b>110</b>	< 2	< 4	
Xylene-o	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
Xylenes - m,p	< 5	< 5	< 5	< 13	< 50	< 5	< 10	
	<b>19</b>	<b>0.82</b>	<b>1.2</b>	<b>410</b>	<b>1700</b>	<b>0.99</b>	<b>250</b>	

See last page notes and abbreviations.





Table 2. Concentrations of Volatile Organic Compounds Detected in Monitoring Wells and Groundwater Remedial Wells, Third Quarter 2012, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	Well:	WELL 18	WELL 19
	Sample ID:	WELL 18	WELL 19
	Date:	8/27/2012	8/27/2012
1,1,1-Trichloroethane		<b>0.96 J</b>	<b>0.55 J</b>
1,1,2,2-Tetrachloroethane		< 5	< 5
1,1,2-Trichloroethane		< 5	< 5
1,1-Dichloroethane		<b>1.2 J</b>	<b>0.94 J</b>
1,1-Dichloroethene		<b>3.8 J</b>	<b>1.4 J</b>
1,2-Dichloroethane		< 5	<b>0.64 J</b>
1,2-Dichloropropane		< 5	< 5
2-Butanone (MEK)		< 50	< 50
2-Hexanone (MBK)		< 50	< 50
4-methyl-2-pentanone (MIK)		< 50	< 50
Acetone		< 50	< 50
Benzene		< 0.7	< 0.7
Bromodichloromethane		< 5	< 5
Bromoform		< 5	< 5
Bromomethane		< 5	< 5
Carbon Disulfide		< 5	< 5
Carbon Tetrachloride		< 5	< 5
Chlorobenzene		< 5	< 5
Chloroethane		< 5	< 5
Chloroform		<b>0.27 J</b>	<b>0.53 J</b>
Chloromethane		< 5	< 5
cis-1,2-dichloroethene		<b>1.8 J</b>	<b>21</b>
cis-1,3-dichloropropene		< 5	< 5
Dibromochloromethane		< 5	< 5
Ethylbenzene		< 5	< 5
Methylene Chloride		< 5	< 5
Styrene		< 5	< 5
Tetrachloroethene		<b>13</b>	<b>6.6</b>
Toluene		< 5	< 5
trans-1,2-dichloroethene		< 5	<b>0.31 J</b>
trans-1,3-dichloropropene		< 5	< 5
Trichloroethylene		<b>62</b>	<b>170</b>
Trichlorotrifluoroethane (Freon 113)		<b>1.2 J</b>	<b>0.84 J</b>
Vinyl Chloride		< 2	< 2
Xylene-o		< 5	< 5
Xylenes - m,p		< 5	< 5
		<b>84</b>	<b>200</b>

**Note:** Results rounded to two significant figures.

<b>Bold</b>	Constituent detected
VOCs	Volatile Organic Compounds
ug/L	Micrograms per liter
J	Constituent value is estimated
B	Constituent also detected in an associated blank sample
D	Result from secondary dilution

Table 3. Concentrations of Site-Related Volatile Organic Compounds Detected in Outpost Wells, Third Quarter 2012, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	Well:	BPOW 1-1	BPOW 1-2	BPOW 1-3	BPOW 1-4	BPOW 1-5	BPOW 1-6	BPOW 2-1	BPOW 2-3	BPOW 3-1	BPOW 3-2	BPOW 3-3
	Sample ID:	BPOW 1-1	BPOW 1-2	BPOW 1-3	BPOW 1-4	BPOW 1-5	BPOW 1-6	BPOW 2-1	BPOW 2-3	BPOW 3-1	BPOW 3-2	BPOW 3-3
	Date:	8/20/2012	8/20/2012	8/21/2012	8/29/2012	8/29/2012	8/31/2012	8/21/2012	8/31/2012	8/23/2012	8/23/2012	9/4/2012
1,1,1-Trichloroethane	<b>0.2 J</b>	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	< 0.5	< 0.5	< 0.5	< 0.5	< 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	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethane	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 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	< 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	< 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	< 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	< 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	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorotrifluoroethane (Freon 113)	< 0.5	< 0.5	< 0.5	< 0.5	< 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	< 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	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	<b>0.95</b>	<b>0.3 J</b>	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
<b>Total Site-Related VOCs <sup>(1)</sup> :</b>	<b>1.6<sup>(3)</sup></b>	<b>0.3<sup>(3)</sup></b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>TVOC Trigger Value <sup>(2)</sup>:</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>1.5</b>	<b>1.5</b>	<b>NE</b>

See last page for notes and abbreviations.

Table 3. Concentrations of Site-Related Volatile Organic Compounds Detected in Outpost Wells, Third Quarter 2012, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	Well:	BPOW 3-4	BPOW 4-1	BPOW 4-2
	Sample ID:	BPOW 3-4	BPOW 4-1	BPOW 4-2
	Date:	9/4/2012	8/24/2012	8/24/2012
1,1,1-Trichloroethane		< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane		< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane		<b>0.48 J</b>	< 0.5	< 0.5
1,1-Dichloroethane		< 0.5	< 0.5	< 0.5
1,1-Dichloroethene		< 0.5	< 0.5	< 0.5
1,2-Dichloroethane		< 0.5	< 0.5	< 0.5
Carbon tetrachloride		<b>1</b>	< 0.5	< 0.5
Chlorobenzene		< 0.5	< 0.5	< 0.5
Chloroform		<b>0.98</b>	< 0.5	< 0.5
cis-1,2-dichloroethene		<b>0.67</b>	< 0.5	< 0.5
Trichlorotrifluoroethane (Freon 113)		<b>0.23 J</b>	<b>1.7</b>	<b>0.87</b>
Tetrachloroethene		< 0.5	< 0.5	< 0.5
trans-1,2-dichloroethene		< 0.5	< 0.5	< 0.5
Trichloroethylene		<b>58 D</b>	< 0.5	< 0.5
<b>Total Site-Related VOCs <sup>(1)</sup> :</b>		<b>61</b>	<b>1.7 <sup>(4)</sup></b>	<b>0.87</b>
<b>TVOC Trigger Value <sup>(2)</sup>:</b>		<b>NE</b>	<b>1.5</b>	<b>1.5</b>

**Note:** Outpost wells OW2-2 was not sampled by Northrop Grumman this round, due to significant drawdown during purging indicating possible well fouling.

Wells BPOW1-4, BPOW1-5, BPOW1-6, BPOW3-3, and BPOW3-4 are currently monitored by Northrop Grumman on a voluntary basis. The screen intervals for these wells were selected by the Navy based on data obtained from vertical profile borings VP-127 (BPOW-1 cluster) and VP-128 (BPOW-3 cluster).

<sup>(1)</sup> Site-related VOCs were established for the wells identified above in the Public Water Supply Contingency Plan (PWSCP) (ARCADIS G&M, Inc. 2003).

<sup>(2)</sup> TVOC Trigger Values were established for Wells BPOW1-1, BPOW1-2, BPOW1-3, BPOW3-1, BPOW3-2, BPOW4-1, and BPOW4-2 in the PWSCP (ARCADIS G&M, Inc. 2003).

<sup>(3)</sup> 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. 2003).

<sup>(4)</sup> The TVOC Trigger Value for BPOW 4-1 was initially exceeded on March 1, 2012; confirmatory sampling and reporting was conducted as per the PWSCP (ARCADIS G&M, Inc. 2003).

**Bold** Constituent detected  
 TVOC Total Volatile Organic Compounds  
 NE Trigger Value Not Established  
 J Value is estimated  
 D Result from secondary dilution



Table 4. Concentrations of Total and Dissolved Cadmium and Chromium Detected in Monitoring Wells, Third Quarter 2012, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	Well:	GM-15SR	MW-01GF	MW-02GF	N-10631	PT1 MW-04	PT1 MW-05	PT1 MW-06
	Sample ID:	GM-15SR	MW-01GF	MW-02GF	N-10631	PT1 MW-04	PT1 MW-05	PT1 MW-06
	Date:	9/11/2012	9/12/2012	9/12/2012	9/6/2012	9/12/2012	9/12/2012	9/12/2012
Cadmium	--	< 5 U	< 5 U	< 5 U	--	--	--	--
Cadmium (Dissolved)	--	< 5 U	< 5 U	< 5 U	--	--	--	--
Chromium	<b>603</b>	<b>208</b>	<b>167</b>	<b>16</b>	< 10 U	<b>382</b>	< 10 U	
Chromium (Dissolved)	--	< 10 U	<b>171</b>	<b>12</b>	--	--	--	--

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

