



Infrastructure, buildings, environment, communications

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



ENVIRONMENTAL

Subject:  
Third Quarter 2001 Groundwater Monitoring Data,  
Northrop Grumman Corporation, Bethpage, New York

Dear Mr. Scharf:

Date:  
21 February 2002

On behalf of Northrop Grumman Corporation, ARCADIS is providing the NYSDEC with groundwater data for the past two quarters (i.e., May/June and September/October of 2001) of outpost monitoring near Bethpage Water District Plants 4, 5, and 6. Table 1 summarizes volatile organic compound (VOC) concentrations detected in groundwater samples. Figures 1 through 3 depict the historical concentrations of total VOCs in groundwater.

Contact:  
Carlo San Giovanni

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(631) 391-5259

Also provided are the results of the past two quarters (i.e., May/June and September/October of 2001) of monitoring for total cadmium and chromium (Cd/Cr). Table 2 summarizes Cd/Cr concentrations detected in groundwater samples during this period.

Email:  
csangiovanni@arcadis-us.com

Our ref:  
NY001321.0001.00004

Please contact us if you have any questions or comments.

Sincerely,

ARCADIS G&M, Inc.

David E. Stern  
Project Scientist

Carlo San Giovanni  
Project Manager

Copies:  
J. Cofman - Northrop Grumman  
J. Molloy - H2M  
R. Krumholz - Bethpage Water District

Part of a bigger picture

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Table 1. Volatile Organic Compound Detected in Outpost Monitoring Groundwater Samples, Second and Third Quarters of 2001, Northrop Grumman Corporation, Bethpage, New York.

	SITE:	GM-35D2	GM-35D2	GM-35D2	GM-35D2					
	SAMPLE ID:	35D2	35D2	35D2	GM-35D2					
CONSTITUENT:	DATE:	06/07/01	06/07/01	9/24/2001	9/24/2001					
(Units in ug/L)	LAB/SAMPLER:	STL/G&M	H2M/H2M	STL/G&M	H2M/H2M					
Chloromethane	<	20	<	0.5	<	20	<	0.5		
Bromomethane	<	20	<	0.5	<	20	<	0.5		
Vinyl Chloride	<	0.4	<	0.5	<	0.4	<	0.5		
Chloroethane	<	20	<	0.5	<	20	<	0.5		
Methylene chloride	<	20	<	0.5	<	20	<	0.5		
Acetone	<	20		NA	<	20	<	0.5		
Carbon disulfide	<	20		NA	<	20	<	0.5		
1,1-Dichloroethene	<	20		<b>3.3</b>		<b>2</b>	<b>J</b>	<b>2.8</b>		
1,1-Dichloroethane	<	20	<	0.5		<b>0.6</b>	<b>J</b>	<b>4</b>		
1,2-Dichloroethene (total)		<b>4</b>	<b>J</b>	<	0.5		<b>4</b>	<b>J</b>	<	0.5
Chloroform	<	20		<b>0.7</b>		<b>0.6</b>	<b>J</b>		<b>1</b>	
1,2-Dichloroethane	<	20		<b>2.8</b>	<	20	<	0.5		
2-Butanone	<	20		NA	<	20	<	0.5		
1,1,1-Trichloroethane	<	20		<b>1.2</b>	<	20		<b>1</b>		
Carbon tetrachloride	<	20		<b>1.4</b>	<	20		<b>0.9</b>		
Bromodichloromethane	<	20	<	0.5	<	20	<	0.5		
1,2-Dichloropropane	<	20	<	0.5	<	20	<	0.5		
cis-1,3-Dichloropropene	<	20	<	0.5	<	20		<b>4.7</b>		
Trichloroethene		<b>200</b>		<b>197</b>		<b>350</b>		<b>304</b>		
Dibromochloromethane	<	20	<	0.5	<	20	<	0.5		
1,1,2-Trichloroethane	<	20	<	0.5	<	20	<	0.5		
Benzene	<	20	<	0.5	<	20	<	0.5		
trans-1,3-Dichloropropene	<	20	<	0.5	<	20	<	0.5		
Bromoform	<	20	<	0.5	<	20	<	0.5		
4-Methyl-2-pentanone	<	20		NA	<	20	<	0.5		
2-Hexanone	<	20		NA	<	20	<	0.5		
Tetrachloroethene		<b>2</b>	<b>J</b>	<b>2</b>		<b>4</b>	<b>J</b>	<b>4</b>		
1,1,2,2-Tetrachloroethane	<	20	<	0.5	<	20	<	0.5		
Toluene	<	20	<	0.5	<	20	<	0.5		
Chlorobenzene	<	20	<	0.5	<	20	<	0.5		
Ethylbenzene	<	20	<	0.5	<	20	<	0.5		
Styrene	<	20	<	0.5	<	20	<	0.5		
Xylene (total)	<	20	<	0.5	<	20	<	0.5		
Vinyl Acetate	<	20		NA	<	20	<	0.5		
2-Chloroethylvinylether	<	20		NA		NA		NA		
Freon-113		<b>7</b>	<b>J</b>	NA		<b>9</b>	<b>J</b>	<	0.5	
Total VOC's		<b>213</b>		<b>208.4</b>		<b>370.2</b>		<b>322.4</b>		

See footnotes on last page.

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Table 1. Volatile Organic Compound Detected in Outpost Monitoring Groundwater Samples, Second and Third Quarters of 2001, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID: DATE: LAB/SAMPLER:	GM-36D 36D 06/07/01 STL/G&M	GM-36D 36D 06/07/01 H2M/H2M	GM-36D 36D 9/19/2001 STL/G&M	GM-36D GM-36D 9/19/2001 H2M/H2M
Chloromethane		< 10	< 0.5	< 10	< 0.5
Bromomethane		< 10	< 0.5	< 10	< 0.5
Vinyl Chloride		< 0.2	< 0.5	< 0.2	< 0.5
Chloroethane		< 10	< 0.5	< 10	< 0.5
Methylene chloride		< 10	< 0.5	< 10	< 0.5
Acetone		< 10	NA	< 10	J < 0.5
Carbon disulfide		< 10	NA	< 10	< 0.5
1,1-Dichloroethene		< 10	< 0.5	< 10	< 0.5
1,1-Dichloroethane		< 10	< 0.5	< 10	< 0.5
1,2-Dichloroethene (total)		< 10	< 0.5	<b>0.3</b>	J < 0.5
Chloroform		< 10	< 0.5	< 10	< 0.5
1,2-Dichloroethane		< 10	< 0.5	< 10	< 0.5
2-Butanone		< 10	J NA	< 10	< 0.5
1,1,1-Trichloroethane		< 10	< 0.5	< 10	< 0.5
Carbon tetrachloride		< 10	< 0.5	< 10	< 0.5
Bromodichloromethane		< 10	< 0.5	< 10	< 0.5
1,2-Dichloropropane		< 10	< 0.5	< 10	< 0.5
cis-1,3-Dichloropropene		< 10	< 0.5	< 10	< 0.5
Trichloroethene		<b>22</b>	<b>17.6</b>	<b>16</b>	<b>14.9</b>
Dibromochloromethane		< 10	< 0.5	< 10	< 0.5
1,1,2-Trichloroethane		< 10	< 0.5	< 10	< 0.5
Benzene		< 10	< 0.5	< 10	< 0.5
trans-1,3-Dichloropropene		< 10	< 0.5	< 10	< 0.5
Bromoform		< 10	< 0.5	< 10	< 0.5
4-Methyl-2-pentanone		< 10	NA	< 10	< 0.5
2-Hexanone		< 10	J NA	< 10	< 0.5
Tetrachloroethene		<b>1</b>	<b>J 0.8</b>	<b>2</b>	<b>J 7</b>
1,1,2,2-Tetrachloroethane		< 10	< 0.5	< 10	< 0.5
Toluene		< 10	< 0.5	< 10	< 0.5
Chlorobenzene		< 10	< 0.5	< 10	< 0.5
Ethylbenzene		< 10	< 0.5	< 10	< 0.5
Styrene		< 10	< 0.5	< 10	< 0.5
Xylene (total)		< 10	< 0.5	<b>1</b>	J < 0.5
Vinyl Acetate		< 10	NA	< 10	< 0.5
2-Chloroethylvinylether		< 10	NA	NA	NA
Freon-113		< 10	NA	< 10	< 0.5
Total VOC's		<b>23</b>	<b>18.4</b>	<b>19.3</b>	<b>21.9</b>

See footnotes on last page.

# ARCADIS

Table 1. Volatile Organic Compound Detected in Outpost Monitoring Groundwater Samples, Second and Third Quarters of 2001, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID: DATE: LAB/SAMPLER:	GM-36D2 36D2 06/07/01 STL/G&M	GM-36D2 36D2 06/07/01 H2M/H2M	GM-36D2 36D2 09/19/01 STL/G&M	GM-36D2 36D2 09/19/01 H2M/H2M				
Chloromethane	<	10	<	0.5	<	10	<	0.5	
Bromomethane	<	10	<	0.5	<	10	<	0.5	
Vinyl Chloride	<	0.2	<	0.5	<	10	<	0.5	
Chloroethane	<	10	<	0.5	<	10	<	0.5	
Methylene chloride	<	10	<	0.5	<	10	<	0.5	
Acetone		<b>52</b>		NA	<	10	J	<	0.5
Carbon disulfide	<	10		NA	<	10		<	0.5
1,1-Dichloroethene	<	10	<	0.5	<	10		<	0.5
1,1-Dichloroethane	<	10	<	0.5	<	10		<	0.5
1,2-Dichloroethene (total)	<	10	<	0.5	<	10		<	0.5
Chloroform	<	10	<	0.5	<	10		<	0.5
1,2-Dichloroethane	<	10	<	0.5	<	10		<	0.5
2-Butanone	<	10		NA	<	10		<	0.5
1,1,1-Trichloroethane	<	10	<	0.5	<	10		<	0.5
Carbon tetrachloride	<	10	<	0.5	<	10		<	0.5
Bromodichloromethane	<	10	<	0.5	<	10		<	0.5
1,2-Dichloropropane	<	10	<	0.5	<	10		<	0.5
cis-1,3-Dichloropropene	<	10	<	0.5	<	10		<	0.5
Trichloroethene	<	10	<	0.5	<	10		<	0.5
Dibromochloromethane	<	10	<	0.5	<	10		<	0.5
1,1,2-Trichloroethane	<	10	<	0.5	<	10		<	0.5
Benzene	<	10	<	0.5	<	10		<	0.5
trans-1,3-Dichloropropene	<	10	<	0.5	<	10		<	0.5
Bromoform	<	10	<	0.5	<	10		<	0.5
4-Methyl-2-pentanone	<	10		NA	<	10		<	0.5
2-Hexanone	<	10		NA	<	10		<	0.5
Tetrachloroethene	<	10	J	<	0.5	<b>0.3</b>	J	<	0.5
1,1,2,2-Tetrachloroethane	<	10	<	0.5	<	10		<	0.5
Toluene	<	10	<	0.5	<	10		<	0.5
Chlorobenzene	<	10	<	0.5	<	10		<	0.5
Ethylbenzene	<	10	<	0.5	<	10		<	0.5
Styrene	<	10	<	0.5	<	10		<	0.5
Xylene (total)	<	10	<	0.5	<	10		<	0.5
Vinyl Acetate	<	10		NA	<	10		<	0.5
2-Chloroethylvinylether	<	10		NA		NA			NA
Freon-113	<	10		NA	<	10		<	0.5
Total VOC's		<b>52</b>		<b>0</b>		<b>0.3</b>			<b>0</b>

See footnotes on last page.

# ARCADIS

Table 1. Volatile Organic Compound Detected in Outpost Monitoring Groundwater Samples, Second and Third Quarters of 2001, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID: DATE: LAB/SAMPLER:	GM-37D 37D 06/01/01 STL/G&M	GM-37D 37D 06/01/01 H2M/H2M	GM-37D 37D 09/26/01 STL/G&M	GM-37D 37D 09/26/01 H2M/H2M					
Chloromethane	<	10	J	<	0.5					
Bromomethane	<	10		<	10					
Vinyl Chloride	<	0.2		<	0.5					
Chloroethane	<	10		<	10					
Methylene chloride	<	10		<	0.5					
Acetone	<	10	J	NA	<	10	J	<	0.5	
Carbon disulfide	<	10		NA	<	10		<	0.5	
1,1-Dichloroethene		<b>3</b>	<b>J</b>	<b>2</b>		<b>3</b>	<b>J</b>		<b>2.4</b>	
1,1-Dichloroethane		<b>7</b>	<b>J</b>	<b>5.3</b>		<b>6</b>	<b>J</b>		<b>5.8</b>	
1,2-Dichloroethene (total)	<	10		<	0.5	<	10		<	0.5
Chloroform		<b>1</b>	<b>J</b>	<b>0.7</b>		<b>1</b>	<b>J</b>		<b>1</b>	
1,2-Dichloroethane	<	10		<	0.5	<	10		<	0.5
2-Butanone	<	10	J	NA	<	10	J	<	0.5	
1,1,1-Trichloroethane		<b>4</b>	<b>J</b>	<b>3.3</b>		<b>3</b>	<b>J</b>		<b>3.8</b>	
Carbon tetrachloride	<	10		<	0.5	<	10		<	0.5
Bromodichloromethane	<	10		<	0.5	<	10		<	0.5
1,2-Dichloropropane	<	10		<	0.5	<	10		<	0.5
cis-1,3-Dichloropropene	<	10		<	0.5	<	10		<	0.5
Trichloroethene		<b>0.8</b>	<b>J</b>	<	0.5	<b>0.5</b>	<b>J</b>		<	0.5
Dibromochloromethane	<	10		<	0.5	<	10		<	0.5
1,1,2-Trichloroethane	<	10		<	0.5	<	10		<	0.5
Benzene	<	10		<	0.5	<	10		<	0.5
trans-1,3-Dichloropropene	<	10		<	0.5	<	10		<	0.5
Bromoform	<	10		<	0.5	<	10		<	0.5
4-Methyl-2-pentanone	<	10		NA	<	10	J	<	0.5	
2-Hexanone	<	10		NA	<	10	J	<	0.5	
Tetrachloroethene		<b>2</b>	<b>J</b>	<b>1</b>		<b>1</b>	<b>J</b>		<b>1</b>	
1,1,2,2-Tetrachloroethane	<	10		<	0.5	<	10	J	<	0.5
Toluene	<	10		<	0.5	<	10		<	0.5
Chlorobenzene	<	10		<	0.5	<	10		<	0.5
Ethylbenzene	<	10		<	0.5	<	10		<	0.5
Styrene	<	10		<	0.5	<	10		<	0.5
Xylene (total)		<b>0.5</b>	<b>J</b>	<	0.5	<	10		<	0.5
Vinyl Acetate	<	10		NA	<	10		<	0.5	
2-Chloroethylvinylether	<	10		NA		NA			NA	
Freon-113	<	10		NA	<	10		<	0.5	
Total VOC's		<b>18.3</b>		<b>12.3</b>		<b>14.5</b>			<b>14</b>	

See footnotes on last page.

# ARCADIS

Table 1. Volatile Organic Compound Detected in Outpost Monitoring Groundwater Samples, Second and Third Quarters of 2001, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID: DATE: LAB/SAMPLER:	GM-37D2 37D2 06/01/01 STL/G&M	GM-37D2 37D2 06/01/01 H2M/H2M	GM-37D2 37D 09/26/01 STL/G&M	GM-37D2 37D 09/26/01 H2M/H2M
Chloromethane	< 10	J	< 0.5	< 10	< 0.5
Bromomethane	< 10		< 0.5	< 10	< 0.5
Vinyl Chloride	< 0.2		< 0.5	< 0.2	< 0.5
Chloroethane	< 10		< 0.5	< 10	< 0.5
Methylene chloride	< 10		< 0.5	< 10	< 0.5
Acetone	< 10	J	NA	< 10	J
Carbon disulfide	< 10		NA	< 10	
1,1-Dichloroethene	<b>2</b>	<b>J</b>	<b>1.2</b>	<b>2</b>	<b>J</b>
1,1-Dichloroethane	<b>9</b>	<b>J</b>	<b>7</b>	<b>9</b>	<b>J</b>
1,2-Dichloroethene (total)	< 10		< 0.5	< 10	< 0.5
Chloroform	<b>0.9</b>	<b>J</b>	<b>0.6</b>	<b>0.8</b>	<b>J</b>
1,2-Dichloroethane	< 10		< 0.5	< 10	< 0.5
2-Butanone	< 10	J	NA	< 10	J
1,1,1-Trichloroethane	<b>2</b>	<b>J</b>	<b>2.1</b>	<b>3</b>	<b>J</b>
Carbon tetrachloride	< 10		< 0.5	< 10	< 0.5
Bromodichloromethane	< 10		< 0.5	< 10	< 0.5
1,2-Dichloropropane	< 10		< 0.5	< 10	< 0.5
cis-1,3-Dichloropropene	< 10		< 0.5	< 10	< 0.5
Trichloroethene	<b>2</b>	<b>J</b>	<b>1.2</b>	<b>2</b>	<b>J</b>
Dibromochloromethane	< 10		< 0.5	< 10	< 0.5
1,1,2-Trichloroethane	< 10		< 0.5	< 10	< 0.5
Benzene	< 10		< 0.5	< 10	< 0.5
trans-1,3-Dichloropropene	< 10		< 0.5	< 10	< 0.5
Bromoform	< 10		< 0.5	< 10	< 0.5
4-Methyl-2-pentanone	< 10		NA	< 10	J
2-Hexanone	< 10		NA	< 10	J
Tetrachloroethene	<b>0.7</b>	<b>J</b>	< 0.5	<b>0.3</b>	<b>J</b>
1,1,2,2-Tetrachloroethane	< 10		< 0.5	< 10	J
Toluene	< 10		< 0.5	< 10	< 0.5
Chlorobenzene	< 10		< 0.5	< 10	< 0.5
Ethylbenzene	< 10		< 0.5	< 10	< 0.5
Styrene	< 10		< 0.5	< 10	< 0.5
Xylene (total)	< 10		< 0.5	< 10	< 0.5
Vinyl Acetate	< 10		NA	< 10	< 0.5
2-Chloroethylvinylether	< 10		NA	NA	NA
Freon-113	< 10		NA	< 10	< 0.5
Total VOC's	<b>16.6</b>		<b>12.1</b>	<b>17.1</b>	<b>16.5</b>

See footnotes on last page.

# ARCADIS

Table 1. Volatile Organic Compound Detected in Outpost Monitoring Groundwater Samples, Second and Third Quarters of 2001, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID: DATE: LAB/SAMPLER:	GM-38D 38D 05/11/01 STL/G&M	GM-38D 38D 05/11/01 H2M/H2M	GM-38D 38D 09/18/01 STL/G&M	GM-38D 38D 09/18/01 H2M/H2M				
Chloromethane	<	50	<	1	<	50	<	0.5	
Bromomethane	<	50	<	1	<	50	<	0.5	
Vinyl Chloride	<	1	<	1	<	1	<	0.5	
Chloroethane	<	50	J	<	1	<	50	<	0.5
Methylene chloride	<	50	<	1	<	50	<	0.5	
Acetone	<	50		NA	<	50	J	<	0.5
Carbon disulfide	<	50		NA	<	50		<	0.5
1,1-Dichloroethene	<	6	J	2.9	6	J		6.6	
1,1-Dichloroethane	<	50		1.4	2	J		2.9	
1,2-Dichloroethene (total)		3	J	<	1	<	50	1.7	
Chloroform		1	J	<	1	<	50	0.8	
1,2-Dichloroethane	<	50		1.3	<	50		0.7	
2-Butanone	<	50		NA	<	50		<	0.5
1,1,1-Trichloroethane		4	J	2.9	<	50		5.2	
Carbon tetrachloride	<	50		<	1	<	50	0.6	
Bromodichloromethane	<	50		<	1	<	50	<	0.5
1,2-Dichloropropane	<	50		<	1	<	50	<	0.5
cis-1,3-Dichloropropene	<	50		<	1	<	50	<	0.5
Trichloroethene		660		503	810			670	
Dibromochloromethane	<	50		<	1	<	50	<	0.5
1,1,2-Trichloroethane	<	50		<	1	<	50	0.5	
Benzene	<	50		<	1	<	50	<	0.5
trans-1,3-Dichloropropene	<	50		<	1	<	50	<	0.5
Bromoform	<	50		<	1	<	50	<	0.5
4-Methyl-2-pentanone	<	50		NA	<	50		<	0.5
2-Hexanone	<	50		NA	<	50		<	0.5
Tetrachloroethene		1	J	<	1	2	J	1.2	
1,1,2,2-Tetrachloroethane	<	50		<	1	<	50	<	0.5
Toluene	<	50		<	1	<	50	<	0.5
Chlorobenzene	<	50		<	1	7	J	<	0.5
Ethylbenzene	<	50		<	1	<	50	<	0.5
Styrene	<	50		<	1	<	50	<	0.5
Xylene (total)	<	50		<	1	<	50	<	0.5
Vinyl Acetate	<	50		NA	<	50		<	0.5
2-Chloroethylvinylether	<	50		NA		NA		NA	
Freon-113	<	50		NA	<	50		<	0.5
Total VOC's		675		511.5	827			690.2	

See footnotes on last page.

Table 1. Volatile Organic Compound Detected in Outpost Monitoring Groundwater Samples, Second and Third Quarters of 2001, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID: DATE: LAB/SAMPLER:	GM-38D2 38D2 05/11/01 STL/G&M	GM-38D2 38D2 05/11/01 H2M/H2M	GM-38D2 38D2 09/18/01 STL/G&M	GM-38D2 38D2 09/18/01 H2M/H2M				
Chloromethane	<	100	<	1	<	100	<	0.5	
Bromomethane	<	100	<	1	<	100	<	0.5	
Vinyl Chloride	<	2	<	1	<	2	<	0.5	
Chloroethane	<	100	J	<	1	<	100	<	0.5
Methylene chloride	<	100	<	1	<	100	<	0.5	
Acetone	<	100		NA	<	100	J	<	0.5
Carbon disulfide	<	100		NA	<	100	<	0.5	
1,1-Dichloroethene	<	100	<	1	<	100		1.4	
1,1-Dichloroethane	<	100	<	1	<	100	<	0.5	
1,2-Dichloroethene (total)		10	J	<	1	9	J	11.6	
Chloroform	<	100		1.4		1	J	2.1	
1,2-Dichloroethane	<	100		7	<	100	<	0.5	
2-Butanone	<	100		NA	<	100	<	0.5	
1,1,1-Trichloroethane	<	100	<	1	<	100		1.2	
Carbon tetrachloride	<	100	<	1	<	100	<	0.5	
Bromodichloromethane	<	100	<	1	<	100	<	0.5	
1,2-Dichloropropane	<	100	<	1	<	100	<	0.5	
cis-1,3-Dichloropropene	<	100	<	1	<	100	<	0.5	
Trichloroethene		1100		784		1500		1,210	
Dibromochloromethane	<	100	<	1	<	100	<	0.5	
1,1,2-Trichloroethane		2	J	1.4	<	100		2.2	
Benzene	<	100	<	1	<	100	<	0.5	
trans-1,3-Dichloropropene	<	100	<	1	<	100	<	0.5	
Bromoform	<	100	<	1	<	100	<	0.5	
4-Methyl-2-pentanone	<	100		NA	<	100	<	0.5	
2-Hexanone	<	100		NA	<	100	<	0.5	
Tetrachloroethene	<	100	<	1		2	J	<	0.5
1,1,2,2-Tetrachloroethane	<	100	<	1	<	100	<	0.5	
Toluene	<	100	<	1	<	100	<	0.5	
Chlorobenzene	<	100	<	1		3	J	<	0.5
Ethylbenzene	<	100	<	1	<	100	<	0.5	
Styrene	<	100	<	1	<	100	<	0.5	
Xylene (total)	<	100	<	1	<	100	<	0.5	
Vinyl Acetate	<	100		NA	<	100	<	0.5	
2-Chloroethylvinylether	<	100		NA		NA		NA	
Freon-113	<	100		NA	<	100	<	0.5	
Total VOC's		1,112		793.8		1,515		1,228.5	

See footnotes on last page.



# ARCADIS

Table 1. Volatile Organic Compound Detected in Outpost Monitoring Groundwater Samples, Second and Third Quarters of 2001, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID: DATE: LAB/SAMPLER:	GM-70D2 70D2 05/10/01 STL/G&M	GM-70D2 70D2 05/10/01 H2M/H2M	GM-70D2 70D2 9/24/2001 STL/G&M	GM-70D2 70D2 9/24/2001 H2M/H2M				
Chloromethane	<	10	<	0.5	<	10	<	0.5	
Bromomethane	<	10	<	0.5	<	10	<	0.5	
Vinyl Chloride	<	0.2	<	0.5	<	0.2	<	0.5	
Chloroethane	<	10	<	0.5	<	10	<	0.5	
Methylene chloride	<	10	<	0.5	<	10	<	0.5	
Acetone	<	10		NA	<	10	<	0.5	
Carbon disulfide	<	10		NA	<	10	<	0.5	
1,1-Dichloroethene	<	10	<	0.5	<	10	<	0.5	
1,1-Dichloroethane	<	10	<	0.5	<	10	<	0.5	
1,2-Dichloroethene (total)		<b>1</b>	<b>J</b>	<	0.5	<b>1</b>	<b>J</b>	<b>0.6</b>	
Chloroform	<	10	<	0.5	<	10	<	0.5	
1,2-Dichloroethane	<	10	<	0.5	<	10	<	0.5	
2-Butanone	<	10		NA	<	10	<	0.5	
1,1,1-Trichloroethane	<	10	<	0.5	<	10	<	0.5	
Carbon tetrachloride	<	10	<	0.5	<	10	<	0.5	
Bromodichloromethane	<	10	<	0.5	<	10	<	0.5	
1,2-Dichloropropane	<	10	<	0.5	<	10	<	0.5	
cis-1,3-Dichloropropene	<	10	<	0.5	<	10	<	0.5	
Trichloroethene		<b>49</b>		<b>28</b>		<b>56</b>		<b>42.3</b>	
Dibromochloromethane	<	10	<	0.5	<	10	<	0.5	
1,1,2-Trichloroethane	<	10	<	0.5	<	10	<	0.5	
Benzene	<	10	<	0.5	<	10	<	0.5	
trans-1,3-Dichloropropene	<	10	<	0.5	<	10	<	0.5	
Bromoform	<	10	<	0.5	<	10	<	0.5	
4-Methyl-2-pentanone	<	10		NA	<	10	<	0.5	
2-Hexanone	<	10		NA	<	10	<	0.5	
Tetrachloroethene		<b>3</b>	<b>J</b>	<b>1.8</b>		<b>2</b>		<b>1.6</b>	
1,1,2,2-Tetrachloroethane	<	10	<	0.5	<	10	<	0.5	
Toluene	<	10	<	0.5	<	10	<	0.5	
Chlorobenzene	<	10	<	0.5	<	10	<	0.5	
Ethylbenzene	<	10	<	0.5	<	10	<	0.5	
Styrene	<	10	<	0.5	<	10	<	0.5	
Xylene (total)	<	10	<	0.5	<	10	<	0.5	
Vinyl Acetate	<	10	<b>J</b>	NA	<	10	<	0.5	
2-Chloroethylvinylether	<	10		NA		NA		NA	
Freon-113		<b>0.7</b>	<b>J</b>	NA		<	10	<	0.5
Total VOC's		<b>53.7</b>		<b>29.8</b>		<b>59</b>		<b>44.5</b>	

See footnotes on last page.

Table 1. Volatile Organic Compound Detected in Outpost Monitoring Groundwater Samples, Second and Third Quarters of 2001, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID: DATE: LAB/SAMPLER:	GM-71D2 71D2 05/10/01 STL/G&M	GM-71D2 71D2 05/10/01 H2M/H2M	GM-71D2 71D2 09/20/01 STL/G&M	GM-71D2 71D2 09/20/01 H2M/H2M				
Chloromethane	<	10	<	0.5	<	10	<	0.5	
Bromomethane	<	10	<	0.5	<	10	<	0.5	
Vinyl Chloride	<	0.2	<	0.5	<	0.2	<	0.5	
Chloroethane	<	10	<	0.5	<	10	<	0.5	
Methylene chloride	<	10	<	0.5	<	10	<	0.5	
Acetone	<	10		NA	<	10	<	0.5	
Carbon disulfide	<	10		NA	<	10	<	0.5	
1,1-Dichloroethene		<b>0.6</b>	<b>J</b>	<	0.5	<	10	<	0.5
1,1-Dichloroethane		<b>0.5</b>	<b>J</b>	<	0.5	<b>0.7</b>	<b>J</b>	<	0.5
1,2-Dichloroethene (total)	<	10	<	0.5	<	10	<	0.5	
Chloroform		<b>1</b>	<b>J</b>	<b>0.6</b>	<b>0.9</b>	<b>J</b>	<b>0.8</b>		
1,2-Dichloroethane	<	10	<	0.5	<	10	<	0.5	
2-Butanone	<	10		NA	<	10	<	0.5	
1,1,1-Trichloroethane	<	10	<	0.5	<	10	<	0.5	
Carbon tetrachloride	<	10		<b>1.7</b>	<b>1</b>	<b>J</b>	<b>2</b>		
Bromodichloromethane	<	10	<	0.5	<	10	<	0.5	
1,2-Dichloropropane	<	10	<	0.5	<	10	<	0.5	
cis-1,3-Dichloropropene	<	10	<	0.5	<	10	<	0.5	
Trichloroethene		<b>5</b>	<b>J</b>	<b>2.8</b>	<b>4</b>	<b>J</b>	<b>3.6</b>		
Dibromochloromethane	<	10	<	0.5	<	10	<	0.5	
1,1,2-Trichloroethane	<	10	<	0.5	<	10	<	0.5	
Benzene	<	10	<	0.5	<	10	<	0.5	
trans-1,3-Dichloropropene	<	10	<	0.5	<	10	<	0.5	
Bromoform	<	10	<	0.5	<	10	<	0.5	
4-Methyl-2-pentanone	<	10		NA	<	10	<	0.5	
2-Hexanone	<	10		NA	<	10	<	0.5	
Tetrachloroethene	<	10	<	0.5	<	10	<	0.5	
1,1,2,2-Tetrachloroethane	<	10	<	0.5	<	10	<	0.5	
Toluene	<	10	<	0.5	<	10	<	0.5	
Chlorobenzene	<	10	<	0.5	<	10	<	0.5	
Ethylbenzene	<	10	<	0.5	<	10	<	0.5	
Styrene	<	10	<	0.5	<	10	<	0.5	
Xylene (total)	<	10	<	0.5	<	10	<	0.5	
Vinyl Acetate	<	10	<b>J</b>	NA	<	10	<	0.5	
2-Chloroethylvinylether	<	10		NA		NA		NA	
Freon-113	<	10		NA	<	10	<	0.5	
Total VOC's		<b>7.1</b>		<b>5.1</b>	<b>6.6</b>		<b>6.4</b>		

See footnotes on last page.

# ARCADIS

Table 1. Volatile Organic Compound Detected in Outpost Monitoring Groundwater Samples, Second and Third Quarters of 2001, Northrop Grumman Corporation, Bethpage, New York.

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H2M	Holzmacher, McClendon & Murrell, P.C., Melville, NY.
G&M	ARCADIS G&M, Inc.
STL	Severn Trent Laboratories, Inc., Shelton, Connecticut.
ug/L	Micrograms per liter.
J	Estimated value.
NA	Not analyzed.
Bold	Constituent detected above Method Detection Limit.

# ARCADIS

Table 2. Total Cadmium and Chromium Detected in Groundwater Samples, Second and Third Quarters 2001, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC SCGs <sup>(1)</sup>	SITE: SAMPLE ID: DATE:	10631 N-10631 05/08/01	10631 N-10631 09/27/01	GM-16SR GM-16SR 05/08/01	GM-16SR GM-16SR 10/03/01	GM-37D GM-37D 09/26/01	GM-37D2 GM-37D2 09/26/01	GM-78S 78S 06/04/01	GM-78S GM-78S 09/27/01	GM-78I 78I 06/04/01	GM-78I GM-78I 09/27/01	MW-03R MW-3R 05/08/01	MW-03R MW-3R 09/27/01
Cadmium	5			<b>4.4</b>	<0.80	<1.6	<0.80	<0.80	<0.90	1.3	<0.90	<0.80	27.6	25.0
Chromium	50		<b>50.0</b>	<b>46.4</b>	<1.6	<2.5	<1.1	<b>0.80 B</b>	<b>7.4</b>	<b>2.6 B</b>	<3.4	<b>69.7</b>	<b>53.4</b>	

(1) Standards, Criteria, and Guidance Values.

ug/L Micrograms per liter.

B Detected between the IDL and CRDL.

IDL Instrument detection limit.

CRDL Contract required detection limit.

J Estimated value.

NYSDEC New York State Department of Environmental Conservation.

EQ Equipment.

\* Value exceeds associated SCG value.

Replicate sample.

**Bold** Constituent Detected above CRDL

# ARCADIS

Table 2. Total Cadmium and Chromium Detected in Groundwater Samples, Second and Third Quarters 2001, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC SCGs <sup>(1)</sup>	SITE: WATER EQ.BLANK SAMPLE ID: FB092701 DATE: 09/27/01	WATER EQ.BLANK SAMPLE ID: FB100301 DATE: 10/03/01
Cadmium	5	<0.80	<0.80
Chromium	50	1.1	1.8

(1) Standards, Criteria, and Guidance Values.

ug/L Micrograms per liter.

B Detected between the IDL and CRDL.

IDL Instrument detection limit.

CRDL Contract required detection limit.

J Estimated value.

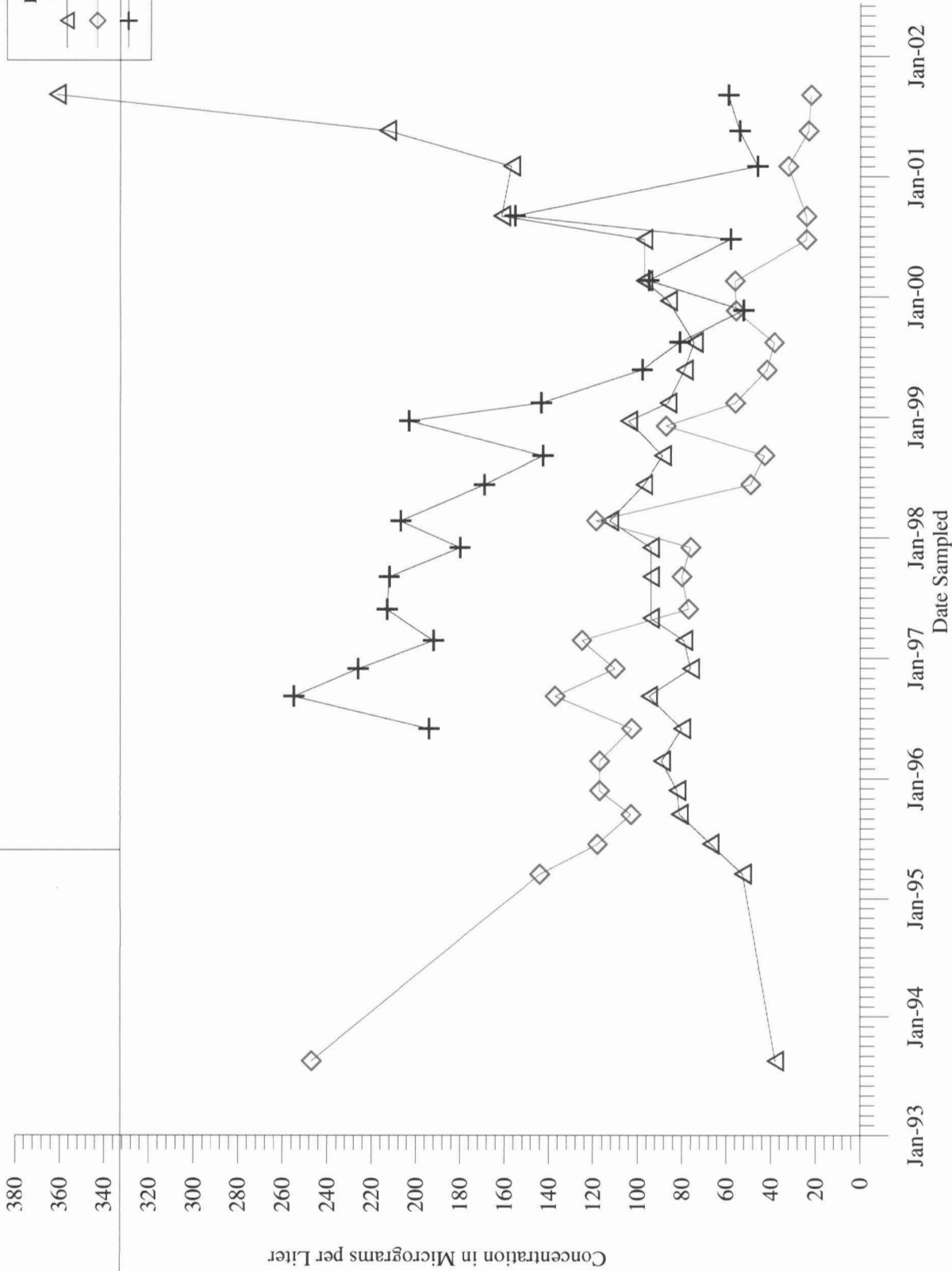
NYSDEC New York State Department of Environmental Conservation.

EQ Equipment.

\* Value exceeds associated SCG value.

Replicate sample.

**Constituent Detected above CRDL**



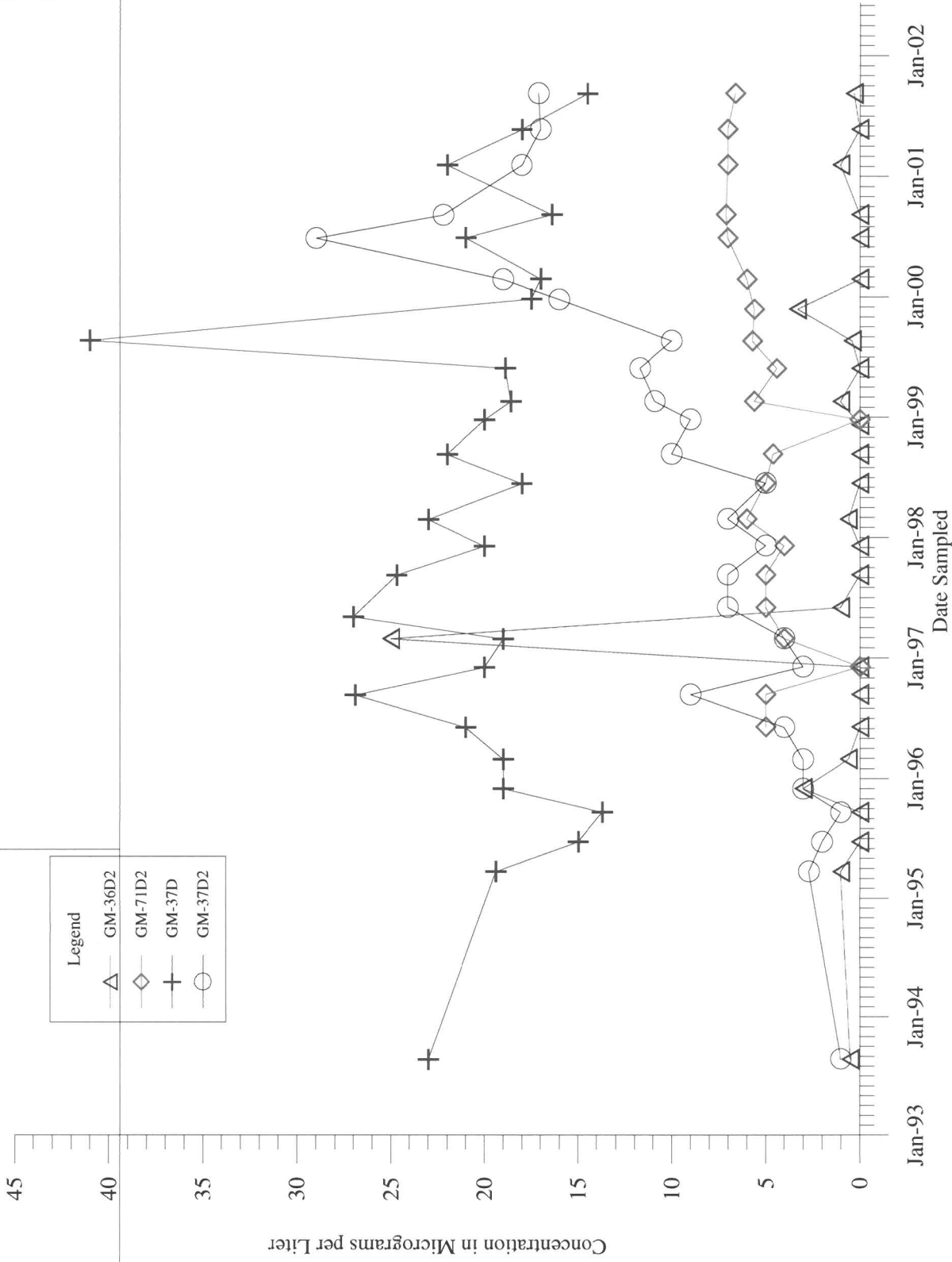
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**FIGURE 1**

Total Volatile Organic Compound Concentrations in Selected Deep and D2 Monitoring Wells  
Operable Unit 2 Groundwater Monitoring Program  
Northrop Grumman Corporation, Bethpage, New York



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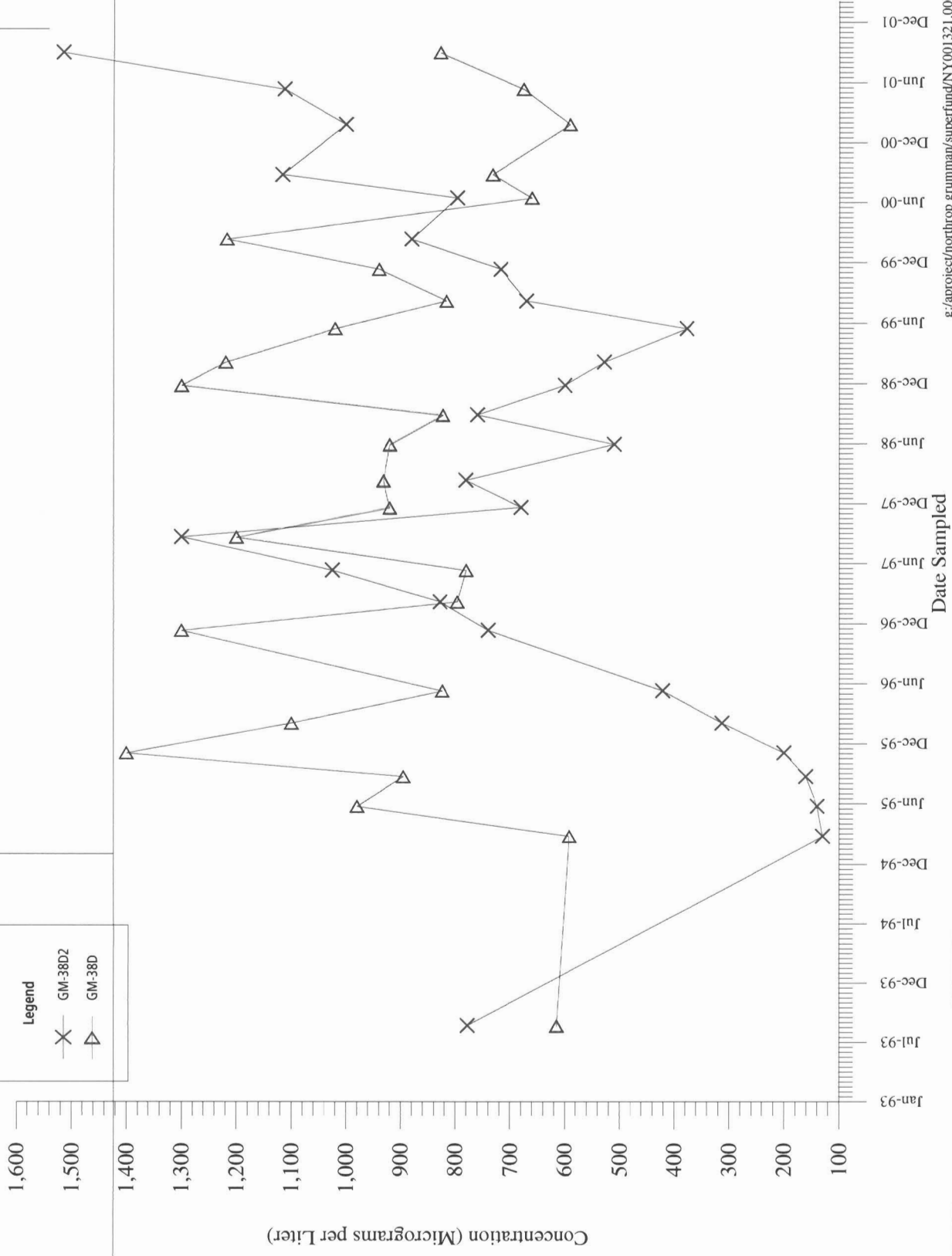


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**FIGURE 2**  
 Total Volatile Organic Compound Concentrations in Selected D2 Monitoring Wells  
 Operable Unit 2 Groundwater Monitoring Program  
 Northrop Grumman Corporation, Bethpage, New York



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**FIGURE 3**

**Total Volatile Organic Compound Concentrations in Selected Deep and D2 Monitoring Wells  
Operable Unit 2 Groundwater Monitoring Program  
Northrop Grumman Corporation, Bethpage, New York**



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