

Pelton, Jason M (DEC)

From: Zahradnik, Art <Art.Zahradnik@arcadis.com>
Sent: Friday, August 24, 2018 3:54 PM
To: Pelton, Jason M (DEC)
Cc: Scharf, Steven (DEC); Hesler, Donald (DEC); Hannon, ED [US] (AS); Stern, David; Wolfert, Mike
Subject: DELIVERABLE - Form 1 Data - Northrop Grumman Bethpage - OU2 2Q-2018 Groundwater Sampling
Attachments: Validated Form1s_2Q_OU2NGWells.pdf

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Dear Jason:

On behalf of Northrop Grumman, Arcadis is submitting the attached Form 1 data. As per discussions between Northrop Grumman and NYSDEC, NYSDEC requested that Northrop Grumman submit the validated Form 1s as soon as the information is available.

The attached Form 1's are for the OU2 2Q 2018 routine sampling event (samples collected between 6/5/2018 to 7/2/2018) per the OU2 Groundwater Monitoring Plan (Arcadis 2016).

The remaining Form 1 data associated with the OU2 2Q 2018 routine sampling event will be provided early next week.

Regards,
Art

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Report of Analysis

Client Sample ID:	TB060518PP1	Date Sampled:	06/05/18
Lab Sample ID:	JC67482-1	Date Received:	06/06/18
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4B82626.D	1	06/09/18 17:05	HT	n/a	n/a	V4B3434
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB060518PP1		Date Sampled: 06/05/18
Lab Sample ID: JC67482-1		Date Received: 06/06/18
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		80-120%
17060-07-0	1,2-Dichloroethane-D4	108%		81-124%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	100%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	3.58	7.9	ug/l	J
64-17-5	Ethanol	5.74	19	ug/l	JN
	Total TIC, Volatile		19	ug/l	J N

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
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Report of Analysis

Client Sample ID: GM-73D Lab Sample ID: JC67482-2 Matrix: AQ - Ground Water Method: SW846 8260C Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	Date Sampled: 06/05/18 Date Received: 06/06/18 Percent Solids: n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4B82627.D	1	06/09/18 17:33	HT	n/a	n/a	V4B3434
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: GM-73D	Date Sampled: 06/05/18
Lab Sample ID: JC67482-2	Date Received: 06/06/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	33.4	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		80-120%
17060-07-0	1,2-Dichloroethane-D4	109%		81-124%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	101%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	3.57	23	ug/l	J
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: GM-73D2	Date Sampled: 06/05/18
Lab Sample ID: JC67482-3	Date Received: 06/06/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4B82628.D	1	06/09/18 18:01	HT	n/a	n/a	V4B3434
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	0.36	1.0	0.29	ug/l	J
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	0.29	1.0	0.21	ug/l	J
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	1.5	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: GM-73D2		Date Sampled: 06/05/18
Lab Sample ID: JC67482-3		Date Received: 06/06/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	27.1	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		80-120%
17060-07-0	1,2-Dichloroethane-D4	109%		81-124%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	100%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	3.57	36	ug/l	J
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID: GM-74D		
Lab Sample ID: JC67482-4		Date Sampled: 06/05/18
Matrix: AQ - Ground Water		Date Received: 06/06/18
Method: SW846 8260C		Percent Solids: n/a
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	4B82671.D	1	06/12/18 15:41	HT	n/a	n/a	V4B3436

Run #1	Purge Volume
Run #2	5.0 ml

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound



Report of Analysis

Client Sample ID: GM-74D		Date Sampled: 06/05/18
Lab Sample ID: JC67482-4		Date Received: 06/06/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	1.1	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		80-120%
17060-07-0	1,2-Dichloroethane-D4	110%		81-124%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	100%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	3.55	14	ug/l	J
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.4
4

Report of Analysis

Client Sample ID:	GM-74D2	Date Sampled:	06/05/18
Lab Sample ID:	JC67482-5	Date Received:	06/06/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4B82672.D	1	06/12/18 16:09	HT	n/a	n/a	V4B3436
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	0.46	1.0	0.21	ug/l	J
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	0.80	1.0	0.47	ug/l	J
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	3.3	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: GM-74D2	Date Sampled: 06/05/18
Lab Sample ID: JC67482-5	Date Received: 06/06/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	8.1	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		80-120%
17060-07-0	1,2-Dichloroethane-D4	111%		81-124%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	101%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	3.54	36	ug/l	J
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: GM-74I		Date Sampled: 06/05/18
Lab Sample ID: JC67482-6		Date Received: 06/06/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4B82673.D	1	06/12/18 16:37	HT	n/a	n/a	V4B3436
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.6
4

Report of Analysis

Client Sample ID: GM-74I		Date Sampled: 06/05/18
Lab Sample ID: JC67482-6		Date Received: 06/06/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	1.2	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	110%		80-120%
17060-07-0	1,2-Dichloroethane-D4	119%		81-124%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	101%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	3.54	11	ug/l	J
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5045-1
Client ID: GM-73D
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5045
Lab File ID: G3334.D

Sample Date: 05-JUN-18
Received Date: 06-JUN-18
Extract Date: 08-JUN-18
Extracted By: JMS
Extraction Method: SW846 3520C
Lab Prep Batch: WG230014

Analysis Date: 12-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 18-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		4.9	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		61.4	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5045-2
Client ID: GM-73D2
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5045
Lab File ID: G3335.D

Sample Date: 05-JUN-18
Received Date: 06-JUN-18
Extract Date: 08-JUN-18
Extracted By: JMS
Extraction Method: SW846 3520C
Lab Prep Batch: WG230014

Analysis Date: 12-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 18-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		3.3	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		67.8	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5045-3
Client ID: GM-74D
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5045
Lab File ID: G3336.D

Sample Date: 05-JUN-18
Received Date: 06-JUN-18
Extract Date: 08-JUN-18
Extracted By: JMS
Extraction Method: SW846 3520C
Lab Prep Batch: WG230014

Analysis Date: 12-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 18-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		5.3	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		61.6	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5045-4
Client ID: GM-74D2
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5045
Lab File ID: G3337.D

Sample Date: 05-JUN-18
Received Date: 06-JUN-18
Extract Date: 08-JUN-18
Extracted By: JMS
Extraction Method: SW846 3520C
Lab Prep Batch: WG230014

Analysis Date: 12-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 18-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		3.4	ug/L	1	.25	0.24	0.081
1,4-Dioxane-D8		60.7	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5045-5
Client ID: GM-74I
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5045
Lab File ID: G3338.D

Sample Date: 05-JUN-18
Received Date: 06-JUN-18
Extract Date: 08-JUN-18
Extracted By: JMS
Extraction Method: SW846 3520C
Lab Prep Batch: WG230014

Analysis Date: 12-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 18-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		5.3	ug/L	1	.25	0.24	0.081
1,4-Dioxane-D8		56.4	%				

Report of Analysis

Client Sample ID: GM-15I		Date Sampled: 06/06/18
Lab Sample ID: JC67600-1		Date Received: 06/07/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D88023.D	1	06/09/18 17:46	SS	n/a	n/a	V4D3818
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.4	ug/l	J
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: GM-15I		Date Sampled: 06/06/18
Lab Sample ID: JC67600-1		Date Received: 06/07/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	0.94	1.0	0.27	ug/l	J
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		80-120%
17060-07-0	1,2-Dichloroethane-D4	101%		81-124%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	106%		80-120%

CAS No.	Tentatively Identified Compounds	R. T.	Est. Conc.	Units	Q
	system artifact	4.23	6.7	ug/l	J
75-69-4	Trichloromonofluoromethane	7.13	6.4	ug/l	JN
	Total TIC, Volatile		6.4	ug/l	J N

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: GM-15SR		Date Sampled: 06/06/18
Lab Sample ID: JC67600-2		Date Received: 06/07/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	0.69	1.0	0.27	ug/l	J
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		80-120%
17060-07-0	1,2-Dichloroethane-D4	104%		81-124%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	105%		80-120%

CAS No.	Tentatively Identified Compounds	R. T.	Est. Conc.	Units	Q
	system artifact	4.23	5.7	ug/l	J
75-69-4	Trichloromonofluoromethane	7.13	6.8	ug/l	JN
	Total TIC, Volatile		6.8	ug/l	J N

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: GM-15SR	Date Sampled: 06/06/18
Lab Sample ID: JC67600-2	Date Received: 06/07/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Chromium	615	10	ug/l	1	06/12/18	06/13/18 ND	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA44639

(2) Prep QC Batch: MP7609

RL = Reporting Limit

Report of Analysis

Client Sample ID: GM-15SR		Date Sampled: 06/06/18
Lab Sample ID: JC67600-2F		Date Received: 06/07/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Chromium	596	10	ug/l	1	06/12/18	06/13/18 ND	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA44639

(2) Prep QC Batch: MP7609

RL = Reporting Limit

4.3
4

Report of Analysis

Client Sample ID: GM-15D		Date Sampled: 06/06/18
Lab Sample ID: JC67600-3		Date Received: 06/07/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D88025.D	1	06/09/18 18:44	SS	n/a	n/a	V4D3818
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.4	ug/l	J
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.4
4

Report of Analysis

Client Sample ID: GM-15D	Date Sampled: 06/06/18
Lab Sample ID: JC67600-3	Date Received: 06/07/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	0.39	1.0	0.27	ug/l	J
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		80-120%
17060-07-0	1,2-Dichloroethane-D4	99%		81-124%
2037-26-5	Toluene-D8	104%		80-120%
460-00-4	4-Bromofluorobenzene	107%		80-120%

CAS No.	Tentatively Identified Compounds	R. T.	Est. Conc.	Units	Q
	system artifact	4.23	9.1	ug/l	J
	Total TIC, Volatile		0	ug/l	

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.4
4

Report of Analysis

Client Sample ID: GM-15D2	Date Sampled: 06/06/18
Lab Sample ID: JC67600-4	Date Received: 06/07/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D88026.D	1	06/09/18 19:12	SS	n/a	n/a	V4D3818
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.4	ug/l	J
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	0.31	1.0	0.21	ug/l	J
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	0.64	1.0	0.47	ug/l	J
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	4.3	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.5
4

Report of Analysis

Client Sample ID: GM-15D2		Date Sampled: 06/06/18
Lab Sample ID: JC67600-4		Date Received: 06/07/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	7.1	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		80-120%
17060-07-0	1,2-Dichloroethane-D4	103%		81-124%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	106%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	4.23	5	ug/l	J
	Total TIC, Volatile		0	ug/l	

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB606018PP1		
Lab Sample ID: JC67600-5		Date Sampled: 06/06/18
Matrix: AQ - Field Blank Water		Date Received: 06/07/18
Method: SW846 8260C		Percent Solids: n/a
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2E143781.D	1	06/13/18 00:19	SS	n/a	n/a	V2E6295
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene ^a	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113 ^a	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB606018PP1		Date Sampled: 06/06/18
Lab Sample ID: JC67600-5		Date Received: 06/07/18
Matrix: AQ - Field Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		80-120%
17060-07-0	1,2-Dichloroethane-D4	95%		81-124%
2037-26-5	Toluene-D8	107%		80-120%
460-00-4	4-Bromofluorobenzene	98%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.6
4

Report of Analysis

Client Sample ID: FB606018PP1	Date Sampled: 06/06/18
Lab Sample ID: JC67600-5	Date Received: 06/07/18
Matrix: AQ - Field Blank Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	< 3.0	3.0	ug/l	1	06/12/18	06/13/18 ND	SW846 6010C ¹	SW846 3010A ²
Chromium	< 10	10	ug/l	1	06/12/18	06/13/18 ND	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA44639

(2) Prep QC Batch: MP7609

RL = Reporting Limit

Report of Analysis

Client Sample ID: TB606018PC1	Date Sampled: 06/06/18
Lab Sample ID: JC67600-6	Date Received: 06/07/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2E143782.D	1	06/13/18 00:47	SS	n/a	n/a	V2E6295
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene ^a	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113 ^a	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB606018PC1		Date Sampled: 06/06/18
Lab Sample ID: JC67600-6		Date Received: 06/07/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		80-120%
17060-07-0	1,2-Dichloroethane-D4	93%		81-124%
2037-26-5	Toluene-D8	106%		80-120%
460-00-4	4-Bromofluorobenzene	97%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.7
4

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5102-1
Client ID: GM-15D
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5102
Lab File ID: G3367.D

Sample Date: 06-JUN-18
Received Date: 07-JUN-18
Extract Date: 13-JUN-18
Extracted By: WAS/1
Extraction Method: SW846 3520C
Lab Prep Batch: WG230266

Analysis Date: 15-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 19-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane	U	0.24	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		68.8	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5102-2
Client ID: GM-15D2
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5102
Lab File ID: G3368.D

Sample Date: 06-JUN-18
Received Date: 07-JUN-18
Extract Date: 13-JUN-18
Extracted By: WAS/1
Extraction Method: SW846 3520C
Lab Prep Batch: WG230266

Analysis Date: 15-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 19-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		3.8	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		67.8	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5102-3
Client ID: GM-15I
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5102
Lab File ID: G3369.D

Sample Date: 06-JUN-18
Received Date: 07-JUN-18
Extract Date: 13-JUN-18
Extracted By: WAS/1
Extraction Method: SW846 3520C
Lab Prep Batch: WG230266

Analysis Date: 15-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 19-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane	J	0.18	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		65.9	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5102-4
Client ID: FB060618PP1
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5102
Lab File ID: G3370.D

Sample Date: 06-JUN-18
Received Date: 07-JUN-18
Extract Date: 13-JUN-18
Extracted By: WAS/N
Extraction Method: SW846 3520C
Lab Prep Batch: WG230266

Analysis Date: 15-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 19-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane	U	0.24	ug/L	1	.25	0.24	0.082
1,4-Dioxane-D8		40.8	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5102-5
Client ID: GM-15SR
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5102
Lab File ID: G3371.D

Sample Date: 06-JUN-18
Received Date: 07-JUN-18
Extract Date: 13-JUN-18
Extracted By: WAS/1
Extraction Method: SW846 3520C
Lab Prep Batch: WG230266

Analysis Date: 15-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 19-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		0.50	ug/L	1	.25	0.24	0.083
1,4-Dioxane-D8		66.6	%				

Report of Analysis

Client Sample ID: GM-38D		Date Sampled: 06/07/18
Lab Sample ID: JC67680-1		Date Received: 06/08/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V50922.D	1	06/12/18 09:24	JP	n/a	n/a	V2V2033
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	0.43	1.0	0.21	ug/l	J
107-06-2	1,2-Dichloroethane	0.41	1.0	0.20	ug/l	J
75-35-4	1,1-Dichloroethene	0.49	1.0	0.47	ug/l	J
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	3.4	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: GM-38D		Date Sampled: 06/07/18
Lab Sample ID: JC67680-1		Date Received: 06/08/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	80.2	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		80-120%
17060-07-0	1,2-Dichloroethane-D4	94%		81-124%
2037-26-5	Toluene-D8	104%		80-120%
460-00-4	4-Bromofluorobenzene	104%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: GM-38D2		Date Sampled: 06/07/18
Lab Sample ID: JC67680-2		Date Received: 06/08/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V50923.D	1	06/12/18 09:50	JP	n/a	n/a	V2V2033
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	0.30	1.0	0.29	ug/l	J
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	2.5	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	1.6	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	1.8	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	0.89	1.0	0.25	ug/l	J
79-00-5	1,1,2-Trichloroethane	0.33	1.0	0.24	ug/l	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: GM-38D2		Date Sampled: 06/07/18
Lab Sample ID: JC67680-2		Date Received: 06/08/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	117	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		80-120%
17060-07-0	1,2-Dichloroethane-D4	95%		81-124%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	102%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: REP060718MS1	Date Sampled: 06/07/18
Lab Sample ID: JC67680-3	Date Received: 06/08/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V50924.D	1	06/12/18 10:16	JP	n/a	n/a	V2V2033
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	0.32	1.0	0.29	ug/l	J
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	2.4	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	1.6	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	1.8	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	0.86	1.0	0.25	ug/l	J
79-00-5	1,1,2-Trichloroethane	0.31	1.0	0.24	ug/l	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
 4

Report of Analysis

Client Sample ID: REP060718MS1		Date Sampled: 06/07/18
Lab Sample ID: JC67680-3		Date Received: 06/08/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	117	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		80-120%
17060-07-0	1,2-Dichloroethane-D4	92%		81-124%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	103%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: TB060718DC1	Date Sampled: 06/07/18
Lab Sample ID: JC67680-4	Date Received: 06/08/18
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V50929.D	1	06/12/18 12:24	JP	n/a	n/a	V2V2033
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB060718DC1		Date Sampled: 06/07/18
Lab Sample ID: JC67680-4		Date Received: 06/08/18
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		80-120%
17060-07-0	1,2-Dichloroethane-D4	92%		81-124%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	104%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.4
4

Report of Analysis

Client Sample ID: FB060718PP1		Date Sampled: 06/07/18
Lab Sample ID: JC67680-5		Date Received: 06/08/18
Matrix: AQ - Field Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V50930.D	1	06/12/18 12:49	JP	n/a	n/a	V2V2033
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.5
4

Report of Analysis

Client Sample ID: FB060718PP1		Date Sampled: 06/07/18
Lab Sample ID: JC67680-5		Date Received: 06/08/18
Matrix: AQ - Field Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		80-120%
17060-07-0	1,2-Dichloroethane-D4	92%		81-124%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	104%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.5
4

Report of Analysis

Client Sample ID:	GM-34D2	Date Sampled:	06/07/18
Lab Sample ID:	JC67680-6	Date Received:	06/08/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V50925.D	1	06/12/18 10:41	JP	n/a	n/a	V2V2033
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	1.2	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	5.9	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: GM-34D2		Date Sampled: 06/07/18
Lab Sample ID: JC67680-6		Date Received: 06/08/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	80.1	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		80-120%
17060-07-0	1,2-Dichloroethane-D4	95%		81-124%
2037-26-5	Toluene-D8	104%		80-120%
460-00-4	4-Bromofluorobenzene	102%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5162-1
Client ID: GM-38D
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5162
Lab File ID: G3372.D

Sample Date: 07-JUN-18
Received Date: 08-JUN-18
Extract Date: 13-JUN-18
Extracted By: WAS/1
Extraction Method: SW846 3520C
Lab Prep Batch: WG230266

Analysis Date: 15-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 19-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		4.5	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		67.5	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5162-2
Client ID: GM-38D2
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5162
Lab File ID: G3373.D

Sample Date: 07-JUN-18
Received Date: 08-JUN-18
Extract Date: 13-JUN-18
Extracted By: WAS/1
Extraction Method: SW846 3520C
Lab Prep Batch: WG230266

Analysis Date: 15-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 19-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		3.9	ug/L	1	.25	0.24	0.081
1,4-Dioxane-D8		69.1	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5162-3
Client ID: REP060718MS1
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5162
Lab File ID: G3374.D

Sample Date: 07-JUN-18
Received Date: 08-JUN-18
Extract Date: 13-JUN-18
Extracted By: WAS/1
Extraction Method: SW846 3520C
Lab Prep Batch: WG230266

Analysis Date: 15-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 19-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		3.9	ug/L	1	.25	0.24	0.081
1,4-Dioxane-D8		67.2	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5162-4
Client ID: GM-34D2
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5162
Lab File ID: G3375.D

Sample Date: 07-JUN-18
Received Date: 08-JUN-18
Extract Date: 13-JUN-18
Extracted By: WAS/1
Extraction Method: SW846 3520C
Lab Prep Batch: WG230266

Analysis Date: 15-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 19-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		13	ug/L	1	.25	0.24	0.081
1,4-Dioxane-D8		66.3	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5162-5
Client ID: FB060718PP1
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5162
Lab File ID: G3376.D

Sample Date: 07-JUN-18
Received Date: 08-JUN-18
Extract Date: 13-JUN-18
Extracted By: WAS/1
Extraction Method: SW846 3520C
Lab Prep Batch: WG230266

Analysis Date: 15-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 19-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane	U	0.24	ug/L	1	.25	0.24	0.081
1,4-Dioxane-D8		67.5	%				

Report of Analysis

Client Sample ID: GM-17D		Date Sampled: 06/08/18
Lab Sample ID: JC67720-1		Date Received: 06/08/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		80-120%
17060-07-0	1,2-Dichloroethane-D4	94%		81-124%
2037-26-5	Toluene-D8	104%		80-120%
460-00-4	4-Bromofluorobenzene	102%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
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Report of Analysis

Client Sample ID: TB060818DC1		Date Sampled: 06/08/18
Lab Sample ID: JC67720-3		Date Received: 06/08/18
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V50932.D	1	06/12/18 13:41	JP	n/a	n/a	V2V2033
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB060818DC1		Date Sampled: 06/08/18
Lab Sample ID: JC67720-3		Date Received: 06/08/18
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		80-120%
17060-07-0	1,2-Dichloroethane-D4	96%		81-124%
2037-26-5	Toluene-D8	104%		80-120%
460-00-4	4-Bromofluorobenzene	105%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: GM-35D2	Date Sampled: 06/08/18
Lab Sample ID: JC67763-1	Date Received: 06/09/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	2V50935.D	1	06/12/18 14:58	JP	n/a	n/a	V2V2033

Run #1	Purge Volume
Run #2	5.0 ml

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	4.8	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: GM-35D2		Date Sampled: 06/08/18
Lab Sample ID: JC67763-1		Date Received: 06/09/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	30.0	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		80-120%
17060-07-0	1,2-Dichloroethane-D4	94%		81-124%
2037-26-5	Toluene-D8	104%		80-120%
460-00-4	4-Bromofluorobenzene	101%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID:	TB060818PP1	Date Sampled:	06/08/18
Lab Sample ID:	JC67763-2	Date Received:	06/09/18
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V50931.D	1	06/12/18 13:15	JP	n/a	n/a	V2V2033
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB060818PP1		Date Sampled: 06/08/18
Lab Sample ID: JC67763-2		Date Received: 06/09/18
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		80-120%
17060-07-0	1,2-Dichloroethane-D4	94%		81-124%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	106%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5220-1
Client ID: GM-35D2
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5220
Lab File ID: G3386.D

Sample Date: 08-JUN-18
Received Date: 09-JUN-18
Extract Date: 13-JUN-18
Extracted By: WAS/1
Extraction Method: SW846 3520C
Lab Prep Batch: WG230266

Analysis Date: 15-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 21-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		8.3	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		63.9	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5220-2
Client ID: GM-17D
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5220
Lab File ID: G3387.D

Sample Date: 08-JUN-18
Received Date: 09-JUN-18
Extract Date: 13-JUN-18
Extracted By: WAS/1
Extraction Method: SW846 3520C
Lab Prep Batch: WG230266

Analysis Date: 15-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 21-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		7.8	ug/L	1	.25	0.24	0.081
1,4-Dioxane-D8		66.8	%				

Report of Analysis

Client Sample ID: FB061118AD1		
Lab Sample ID: JC67875-1		Date Sampled: 06/11/18
Matrix: AQ - Field Blank Water		Date Received: 06/12/18
Method: SW846 8260C		Percent Solids: n/a
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B161102.D	1	06/14/18 13:48	SS	n/a	n/a	V2B7198
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB061118AD1		Date Sampled: 06/11/18
Lab Sample ID: JC67875-1		Date Received: 06/12/18
Matrix: AQ - Field Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		80-120%
17060-07-0	1,2-Dichloroethane-D4	106%		81-124%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	98%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: TB061118AD1	Date Sampled: 06/11/18
Lab Sample ID: JC67875-2	Date Received: 06/12/18
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B161103.D	1	06/14/18 14:17	SS	n/a	n/a	V2B7198
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB061118AD1		Date Sampled: 06/11/18
Lab Sample ID: JC67875-2		Date Received: 06/12/18
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		80-120%
17060-07-0	1,2-Dichloroethane-D4	106%		81-124%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	98%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: MW 3-1		Date Sampled: 06/11/18
Lab Sample ID: JC67875-3		Date Received: 06/12/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B161108.D	1	06/14/18 16:44	SS	n/a	n/a	V2B7198
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	0.46	1.0	0.29	ug/l	J
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	2.7	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	2.6	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	15.6	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	1.8	5.0	1.2	ug/l	J
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	19.0	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	0.60	1.0	0.25	ug/l	J
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: MW 3-1		Date Sampled: 06/11/18
Lab Sample ID: JC67875-3		Date Received: 06/12/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	139	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	36.0	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		80-120%
17060-07-0	1,2-Dichloroethane-D4	108%		81-124%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	99%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5276-1DL
Client ID: MW 3-1
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5276
Lab File ID: G3404.D

Sample Date: 11-JUN-18
Received Date: 11-JUN-18
Extract Date: 15-JUN-18
Extracted By: DP/AC
Extraction Method: SW846 3520C
Lab Prep Batch: WG230433

Analysis Date: 19-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 26-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		17	ug/L	2	.25	0.47	0.16
1,4-Dioxane-D8		63.9	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5276-2
Client ID: FB061118AD1
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5276
Lab File ID: G3398.D

Sample Date: 11-JUN-18
Received Date: 11-JUN-18
Extract Date: 15-JUN-18
Extracted By: DP/AC
Extraction Method: SW846 3520C
Lab Prep Batch: WG230433

Analysis Date: 19-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 26-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane	U	0.24	ug/L	1	.25	0.24	0.081
1,4-Dioxane-D8		48.1	%				

Report of Analysis

Client Sample ID: GM-13D	Date Sampled: 06/13/18
Lab Sample ID: JC68059-1	Date Received: 06/14/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B161192.D	1	06/18/18 10:11	SS	n/a	n/a	V2B7203
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	3.7	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	2.4	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	2.7	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	27.7	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	0.42	1.0	0.25	ug/l	J
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: GM-13D	Date Sampled: 06/13/18
Lab Sample ID: JC68059-1	Date Received: 06/14/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	13.4	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	110%		80-120%
17060-07-0	1,2-Dichloroethane-D4	99%		81-124%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	100%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: GM-33D2		Date Sampled: 06/13/18
Lab Sample ID: JC68059-2		Date Received: 06/14/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B161193.D	1	06/18/18 10:40	SS	n/a	n/a	V2B7203
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	7.5	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	3.5	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: GM-33D2		Date Sampled: 06/13/18
Lab Sample ID: JC68059-2		Date Received: 06/14/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	18.0	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	113%		80-120%
17060-07-0	1,2-Dichloroethane-D4	101%		81-124%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	101%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: GM-75D2		Date Sampled: 06/13/18
Lab Sample ID: JC68059-3		Date Received: 06/14/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B161194.D	1	06/18/18 11:10	SS	n/a	n/a	V2B7203
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	0.86	1.0	0.50	ug/l	J
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: GM-75D2		Date Sampled: 06/13/18
Lab Sample ID: JC68059-3		Date Received: 06/14/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	26.0	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	115%		80-120%
17060-07-0	1,2-Dichloroethane-D4	103%		81-124%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	101%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: TB061318AR1	Date Sampled: 06/13/18
Lab Sample ID: JC68059-4	Date Received: 06/14/18
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B161200.D	1	06/18/18 14:09	SS	n/a	n/a	V2B7203
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB061318AR1		Date Sampled: 06/13/18
Lab Sample ID: JC68059-4		Date Received: 06/14/18
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	113%		80-120%
17060-07-0	1,2-Dichloroethane-D4	102%		81-124%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	103%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.4
4

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5381-1
Client ID: GM-13D
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5381
Lab File ID: G3399.D

Sample Date: 13-JUN-18
Received Date: 14-JUN-18
Extract Date: 15-JUN-18
Extracted By: DP/AC
Extraction Method: SW846 3520C
Lab Prep Batch: WG230433

Analysis Date: 19-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 28-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		3.0	ug/L	1	.25	0.25	0.085
1,4-Dioxane-D8		71.6	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5381-2
Client ID: GM-33D2
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5381
Lab File ID: G3400.D

Sample Date: 13-JUN-18
Received Date: 14-JUN-18
Extract Date: 15-JUN-18
Extracted By: DP/AC
Extraction Method: SW846 3520C
Lab Prep Batch: WG230433

Analysis Date: 19-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 28-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		14	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		70.5	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5381-3
Client ID: GM-75D2
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5381
Lab File ID: G3401.D

Sample Date: 13-JUN-18
Received Date: 14-JUN-18
Extract Date: 15-JUN-18
Extracted By: DP/AC
Extraction Method: SW846 3520C
Lab Prep Batch: WG230433

Analysis Date: 19-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 28-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		8.8	ug/L	1	.25	0.24	0.081
1,4-Dioxane-D8		65.9	%				

Report of Analysis

Client Sample ID: TB061418CK1	
Lab Sample ID: JC68182-1	Date Sampled: 06/14/18
Matrix: AQ - Trip Blank Water	Date Received: 06/15/18
Method: SW846 8260C	Percent Solids: n/a
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
	4B83171.D	1	06/27/18 14:49	HT	n/a	n/a	V4B3460
Run #2							

Run #1	Purge Volume
	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB061418CK1		Date Sampled: 06/14/18
Lab Sample ID: JC68182-1		Date Received: 06/15/18
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		80-120%
17060-07-0	1,2-Dichloroethane-D4	102%		81-124%
2037-26-5	Toluene-D8	95%		80-120%
460-00-4	4-Bromofluorobenzene	107%		80-120%

CAS No.	Tentatively Identified Compounds	R. T.	Est. Conc.	Units	Q
	system artifact	3.57	14	ug/l	J
	Total TIC, Volatile		0	ug/l	

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: GM-21D2		Date Sampled: 06/14/18
Lab Sample ID: JC68182-2		Date Received: 06/15/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4B83172.D	1	06/27/18 15:17	HT	n/a	n/a	V4B3460
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	3.2	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: GM-21D2		Date Sampled: 06/14/18
Lab Sample ID: JC68182-2		Date Received: 06/15/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	11.6	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		80-120%
17060-07-0	1,2-Dichloroethane-D4	107%		81-124%
2037-26-5	Toluene-D8	95%		80-120%
460-00-4	4-Bromofluorobenzene	108%		80-120%

CAS No.	Tentatively Identified Compounds	R. T.	Est. Conc.	Units	Q
	system artifact	3.58	6.5	ug/l	J
	Total TIC, Volatile		0	ug/l	

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: FB061418CK1	Date Sampled: 06/14/18
Lab Sample ID: JC68182-3	Date Received: 06/15/18
Matrix: AQ - Field Blank Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4B83170.D	1	06/27/18 14:15	HT	n/a	n/a	V4B3460
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB061418CK1	Date Sampled: 06/14/18
Lab Sample ID: JC68182-3	Date Received: 06/15/18
Matrix: AQ - Field Blank Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		80-120%
17060-07-0	1,2-Dichloroethane-D4	105%		81-124%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	107%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5425-1
Client ID: FB061418CK1
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5425
Lab File ID: G3474.D

Sample Date: 14-JUN-18
Received Date: 15-JUN-18
Extract Date: 20-JUN-18
Extracted By: MP+KI
Extraction Method: SW846 3520C
Lab Prep Batch: WG230705

Analysis Date: 26-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 02-JUL-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane	U	0.24	ug/L	1	.25	0.24	0.081
1,4-Dioxane-D8		70.0	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5425-2
Client ID: GM-21D2
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5425
Lab File ID: G3475.D

Sample Date: 14-JUN-18
Received Date: 15-JUN-18
Extract Date: 20-JUN-18
Extracted By: MP+KI
Extraction Method: SW846 3520C
Lab Prep Batch: WG230705

Analysis Date: 26-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 02-JUL-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		5.2	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		68.6	%				

Report of Analysis

Client Sample ID: GM-71D2		Date Sampled: 06/15/18
Lab Sample ID: JC68174-1		Date Received: 06/15/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D176860.D	1	06/28/18 02:09	JP	n/a	n/a	V2D7467
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	0.48	1.0	0.29	ug/l	J
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	4.8	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	2.7	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	0.63	1.0	0.50	ug/l	J
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	1.4	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: GM-71D2		Date Sampled: 06/15/18
Lab Sample ID: JC68174-1		Date Received: 06/15/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	11.7	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		80-120%
17060-07-0	1,2-Dichloroethane-D4	89%		81-124%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	111%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: MW-2GF	Date Sampled: 06/15/18
Lab Sample ID: JC68174-2	Date Received: 06/15/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	< 3.0	3.0	ug/l	1	06/20/18	06/20/18 ND	SW846 6010C ¹	SW846 3010A ²
Chromium	241	10	ug/l	1	06/20/18	06/20/18 ND	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA44684

(2) Prep QC Batch: MP7730

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-2GF	Date Sampled: 06/15/18
Lab Sample ID: JC68174-2F	Date Received: 06/15/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	< 3.0	3.0	ug/l	1	06/20/18	06/20/18 ND	SW846 6010C ¹	SW846 3010A ²
Chromium	229	10	ug/l	1	06/20/18	06/20/18 ND	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA44684

(2) Prep QC Batch: MP7730

RL = Reporting Limit

Report of Analysis

Client Sample ID: FB061518CK1	Date Sampled: 06/15/18
Lab Sample ID: JC68174-3	Date Received: 06/15/18
Matrix: AQ - Field Blank Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Cadmium	< 3.0	3.0	ug/l	1	06/20/18	06/20/18 ND	SW846 6010C ¹	SW846 3010A ²
Chromium	< 10	10	ug/l	1	06/20/18	06/20/18 ND	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA44684

(2) Prep QC Batch: MP7730

RL = Reporting Limit

4.4
4

Report of Analysis

Client Sample ID: TB061518AR1	Date Sampled: 06/15/18
Lab Sample ID: JC68174-4	Date Received: 06/15/18
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D176861.D	1	06/28/18 02:39	JP	n/a	n/a	V2D7467
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

4.5
4

Report of Analysis

Client Sample ID: TB061518AR1		Date Sampled: 06/15/18
Lab Sample ID: JC68174-4		Date Received: 06/15/18
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		80-120%
17060-07-0	1,2-Dichloroethane-D4	89%		81-124%
2037-26-5	Toluene-D8	104%		80-120%
460-00-4	4-Bromofluorobenzene	111%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.5
4

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5485-1
Client ID: GM-71D2
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5485
Lab File ID: G3476.D

Sample Date: 15-JUN-18
Received Date: 16-JUN-18
Extract Date: 20-JUN-18
Extracted By: MP+KI
Extraction Method: SW846 3520C
Lab Prep Batch: WG230705

Analysis Date: 26-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 28-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		2.2	ug/L	1	.25	0.24	0.081
1,4-Dioxane-D8		61.9	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5485-2DL
Client ID: NW-26F
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5485
Lab File ID: G3483.D

Sample Date: 15-JUN-18
Received Date: 16-JUN-18
Extract Date: 20-JUN-18
Extracted By: MP+KI
Extraction Method: SW846 3520C
Lab Prep Batch: WG230705

Analysis Date: 26-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 28-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		38	ug/L	4	.25	0.97	0.33
1,4-Dioxane-D8		57.0	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5485-3
Client ID: FB061518CK1
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5485
Lab File ID: G3478.D

Sample Date: 15-JUN-18
Received Date: 16-JUN-18
Extract Date: 20-JUN-18
Extracted By: MP+KI
Extraction Method: SW846 3520C
Lab Prep Batch: WG230705

Analysis Date: 26-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 28-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane	U	0.24	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		43.6	%				

Report of Analysis

Client Sample ID: GM-21D		Date Sampled: 06/18/18
Lab Sample ID: JC68315-1		Date Received: 06/19/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2A188006.D	1	06/22/18 09:36	DG	n/a	n/a	V2A7995
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: GM-21D		Date Sampled: 06/18/18
Lab Sample ID: JC68315-1		Date Received: 06/19/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	1.1	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		80-120%
17060-07-0	1,2-Dichloroethane-D4	95%		81-124%
2037-26-5	Toluene-D8	93%		80-120%
460-00-4	4-Bromofluorobenzene	99%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: GM-79D		Date Sampled: 06/18/18
Lab Sample ID: JC68315-2		Date Received: 06/19/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2A188005.D	1	06/22/18 09:07	DG	n/a	n/a	V2A7995
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	0.50	1.0	0.50	ug/l	J
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: GM-79D		Date Sampled: 06/18/18
Lab Sample ID: JC68315-2		Date Received: 06/19/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	29.8	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		80-120%
17060-07-0	1,2-Dichloroethane-D4	96%		81-124%
2037-26-5	Toluene-D8	92%		80-120%
460-00-4	4-Bromofluorobenzene	95%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: TB061818PP1	Date Sampled: 06/18/18
Lab Sample ID: JC68315-3	Date Received: 06/19/18
Matrix: AQ - Trip Blank Water	Percent Solids: n/a
Method: SW846 8260C	
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2A188020.D	1	06/22/18 16:31	DG	n/a	n/a	V2A7995
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB061818PP1		Date Sampled: 06/18/18
Lab Sample ID: JC68315-3		Date Received: 06/19/18
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		80-120%
17060-07-0	1,2-Dichloroethane-D4	96%		81-124%
2037-26-5	Toluene-D8	93%		80-120%
460-00-4	4-Bromofluorobenzene	97%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5537-1
Client ID: GM-21D
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5537
Lab File ID: G3481.D

Sample Date: 18-JUN-18
Received Date: 19-JUN-18
Extract Date: 20-JUN-18
Extracted By: MP+KI
Extraction Method: SW846 3520C
Lab Prep Batch: WG230705

Analysis Date: 26-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 28-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		4.6	ug/L	1	.25	0.24	0.082
1,4-Dioxane-D8		67.9	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL5537-2
Client ID: GM-79D
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: SL5537
Lab File ID: G3482.D

Sample Date: 18-JUN-18
Received Date: 19-JUN-18
Extract Date: 20-JUN-18
Extracted By: MP+KI
Extraction Method: SW846 3520C
Lab Prep Batch: WG230705

Analysis Date: 26-JUN-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 28-JUN-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		6.2	ug/L	1	.25	0.24	0.081
1,4-Dioxane-D8		73.4	%				

Report of Analysis

Client Sample ID: GM-34D		Date Sampled: 07/02/18
Lab Sample ID: JC69238-1		Date Received: 07/03/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4B83593.D	1	07/12/18 15:36	HT	n/a	n/a	V4B3478
Run #2	4B83594.D	10	07/12/18 16:04	HT	n/a	n/a	V4B3478

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane ^b	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	0.38	1.0	0.21	ug/l	J
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	1.2	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	6.1	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	1.5	5.0	1.2	ug/l	J
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	6.1	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
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Report of Analysis

Client Sample ID: GM-34D		Date Sampled: 07/02/18
Lab Sample ID: JC69238-1		Date Received: 07/03/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	236 ^c	10	2.7	ug/l	D
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%	102%	80-120%
17060-07-0	1,2-Dichloroethane-D4	108%	108%	81-124%
2037-26-5	Toluene-D8	93%	93%	80-120%
460-00-4	4-Bromofluorobenzene	106%	108%	80-120%

CAS No.	Tentatively Identified Compounds	R. T.	Est. Conc.	Units	Q
	system artifact	3.57	18	ug/l	J
	Total TIC, Volatile		0	ug/l	

- (a) Associated CCV and BS outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high, sample was ND.
- (c) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID:	REP070218AD1	Date Sampled:	07/02/18
Lab Sample ID:	JC69238-2	Date Received:	07/03/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4B83595.D	1	07/12/18 16:32	HT	n/a	n/a	V4B3478
Run #2	4B83596.D	10	07/12/18 17:00	HT	n/a	n/a	V4B3478

Run #	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	0.33	1.0	0.29	ug/l	J
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane ^b	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	0.34	1.0	0.21	ug/l	J
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	1.2	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	6.2	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	1.5	5.0	1.2	ug/l	J
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	5.9	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: REP070218AD1		Date Sampled: 07/02/18
Lab Sample ID: JC69238-2		Date Received: 07/03/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	237 ^c	10	2.7	ug/l	D
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%	104%	80-120%
17060-07-0	1,2-Dichloroethane-D4	108%	109%	81-124%
2037-26-5	Toluene-D8	93%	93%	80-120%
460-00-4	4-Bromofluorobenzene	108%	107%	80-120%

CAS No.	Tentatively Identified Compounds	R. T.	Est. Conc.	Units	Q
	system artifact	3.55	22	ug/l	J
	Total TIC, Volatile		0	ug/l	

- (a) Associated CCV and BS outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high, sample was ND.
- (c) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: TB070218AD1		Date Sampled: 07/02/18
Lab Sample ID: JC69238-3		Date Received: 07/03/18
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2C160598.D	1	07/11/18 01:14	DG	n/a	n/a	V2C7131
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113 ^a	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB070218AD1		Date Sampled: 07/02/18
Lab Sample ID: JC69238-3		Date Received: 07/03/18
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		80-120%
17060-07-0	1,2-Dichloroethane-D4	112%		81-124%
2037-26-5	Toluene-D8	91%		80-120%
460-00-4	4-Bromofluorobenzene	104%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analytical Results

Client: ARCADIS
Lab ID: SL6121-1DL
Client ID: GM-34D
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: OU2-NORTHROP-4
Lab File ID: G3611.D

Sample Date: 02-JUL-18
Received Date: 03-JUL-18
Extract Date: 05-JUL-18
Extracted By: KF
Extraction Method: SW846 3520C
Lab Prep Batch: WG231574

Analysis Date: 11-JUL-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 18-JUL-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		18	ug/L	2	.25	0.47	0.16
1,4-Dioxane-D8		77.4	%				

Report of Analytical Results

Client: ARCADIS
Lab ID: SL6121-2DL
Client ID: REP070218AD1
Project: OU2-Northrop Grumman, Bethpage, NY
SDG: OU2-NORTHROP-4
Lab File ID: G3612.D

Sample Date: 02-JUL-18
Received Date: 03-JUL-18
Extract Date: 05-JUL-18
Extracted By: KF
Extraction Method: SW846 3520C
Lab Prep Batch: WG231574

Analysis Date: 11-JUL-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 18-JUL-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		19	ug/L	2	.25	0.48	0.16
1,4-Dioxane-D8		84.4	%				

Report of Analysis

Client Sample ID:	GM-17I	Date Sampled:	07/13/18
Lab Sample ID:	JC69909-6	Date Received:	07/13/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	Northrop Grumman, OU2 Hydro, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2E144953.D	1	07/20/18 15:01	SS	n/a	n/a	V2E6356
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	6.0	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.58	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.5	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	6.9	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.95	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.55	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.56	ug/l	
75-00-3	Chloroethane	ND	1.0	0.73	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	1.0	0.76	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.57	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.60	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.59	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.51	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.47	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.43	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
76-13-1	Freon 113	ND	5.0	1.9	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.70	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.90	ug/l	
108-88-3	Toluene	ND	1.0	0.53	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.54	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.53	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: GM-17I		Date Sampled: 07/13/18
Lab Sample ID: JC69909-6		Date Received: 07/13/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: Northrop Grumman, OU2 Hydro, Bethpage, NY		

VOA OU2 GW List

CAS No.	Compound	Result	RL	MDL	Units	Q
79-01-6	Trichloroethene	0.55	1.0	0.53	ug/l	J
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	
	m,p-Xylene	ND	1.0	0.78	ug/l	
95-47-6	o-Xylene	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		80-120%
17060-07-0	1,2-Dichloroethane-D4	119%		81-124%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	106%		80-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.1
4

Report of Analytical Results

Client: ARCADIS
Lab ID: SL6597-1
Client ID: GM-17I
Project: Program 2:OU2 NG Wells
SDG: SL6597
Lab File ID: G3776.D

Sample Date: 13-JUL-18
Received Date: 14-JUL-18
Extract Date: 17-JUL-18
Extracted By: DP/MP
Extraction Method: SW846 3520C
Lab Prep Batch: WG232259

Analysis Date: 23-JUL-18
Analyst: JCG
Analysis Method: SW846 8270D SIM
Matrix: AQ
% Solids: NA
Report Date: 25-JUL-18

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		7.7	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		73.5	%				