Mr. Jason Pelton
Section Chief
New York State Department of Environmental Conservation
Remedial Bureau D
625 Broadway
Albany, New York 12233-7015

Arcadis of New York, Inc.
Two Huntington
Quadrangle
Suite 1S10
Melville
New York 11747
Phone: 631 249 7600
Fax: 631 249 7610
www.arcadis.com

Date: May 31, 2023
Our Ref: 30169301.RPTI4
30126046.NAVI4

Subject: 2023 First Quarter Operation, Maintenance, and Monitoring Report, Operable Unit 2, Northrop Grumman and Naval Weapons Industrial Reserve Plant (NWIRP) Sites, Bethpage, New York.
(NYSDEC Site #'s 1-30-003A and B)

Dear Jason:

On behalf of Northrop Grumman, Arcadis is providing the NYSDEC with the First Quarter 2023 Operation, Maintenance, and Monitoring Report (Report). This Report was prepared to document the operation, maintenance, and monitoring (OM&M) activities conducted for the Operable Unit 2 (OU2) groundwater remedy and the results of ongoing volatile organic compound (VOC) and inorganic monitoring in groundwater to meet the remedial objectives set forth in the March 2001 OU2 Record of Decision (ROD) and associated December 2019 Amended Record of Decision (AROD).

Table 1 summarizes OU2 remedial system performance operational data, mass removed, and water balance. **Tables 2 and 3A/3B** provide the analytical results for remedial system water and vapor samples, respectively, for this period. **Tables 4A and 4B** provide an air quality impact analysis (under 6 CRR-NY 212 [Rule 212]) for quarterly vapor sample results collected from the Tower 96 and Tower 102 systems, respectively, including air modeling analysis if warranted. As indicated in Table 4A, Tower 96 effluent was elevated and exceeded the "Rule 212-12.2 Table 2 High Toxicity Air Contaminant List annual mass emission preliminary limit for TCE, triggering further evaluation. Subsequent air modeling indicates that the emission rate is below the short-term and annual limits. In addition, vapor-phase granular activated carbon (VPGAC) media was changed out in both vessels and we will continue to monitor closely during subsequent events. **Table 5** provides validated analytical results associated with groundwater monitoring efforts completed during this period. **Figures 1 through 3** show the Locations of Wells and On-site Groundwater Remedy, ONCT Groundwater Extraction and Treatment System Site Plan, and the ONCT Groundwater Extraction and Treatment System Schematic, respectively.

Jason Pelton
NYSDEC
May 31, 2023

Please contact us if you have any questions or comments.

Sincerely,
Arcadis of New York, Inc.

Christopher Engler, P.E.
New York PE-069748
Vice President

Email: christopher.engler@arcadis.com
Direct Line: 315.409.6579

CC. Ed Hannon – Northrop Grumman
Chris Engelhardt – NYSDEC Region 1
Matthew Travis – NYSDEC
James Sullivan – New York State Department of Health
Angela Pettinelli – NCDOH
Robin Putman – NCDOH
Richard Castle – NCDOH
Scott Sokolowski– NAVFAC Mid-Atlantic Environmental
David Brayack – TetraTech NUS, Inc.
Paul Bluestein – Glenn Springs Holdings, Inc.
Manfred Bohms – Steel Equities
Nidal Azzam – USEPA
Alexis Stabulas - USEPA
Matthew Russo – Town of Oyster Bay
Kevin Reilly – Massapequa Water District
Stan Carey – Massapequa Water District
Richard Kern – New York American Water
Frank Koch – South Farmingdale Water District
John Reinhardt – Town of Hempstead Water District
Michael Boufis – Bethpage Water District
Bethpage Public Library
File

Enclosures

Tables

Table 1
Operational Summary for the Treatment System
First Quarter 2023[1] Reporting Period
Operable Unit 2
Northrop Grumman
Bethpage, New York

	Quarterly Flow Rates (gpm)		Quarterly Flow Volumes (MG)			Quarterly VOC Concentrations (µg/L)		VOC Mass Removed (lbs)		First Quarter Remedial Well Uptime (%)
	Current Model Design [2]	Current Operational Flow [3,4]	Design [2]	Actual [3,4]	% of Design	TCE [5]	TVOC [5,6]	Quarterly	Cumulative	
Influent Groundwater[7]										
Well 1	800	796	104	102	98%	484	510	435	57,248	99%
Well 3R	700	819	91	105	115%	142	196	172	94,696	99%
Well 17	1,000	1,009	130	130	100%	119	137	149	56,351	100%
Well 18	800	1,007	104	130	125%	26.6	48.0	52	7,568	100%
Well 19	500	522	65	62	95%	58.6	75.0	39	9,768	92%
Total [8]	**3,800**	**4,153**	**494**	**529**	**107%**	**--**	**--**	**847**	**225,631**	**--**
Effluent Groundwater [9]										
Calpine	100 - 400	229	--	30	--	--	--	--	--	--
OXY Biosparge [10]	2 - 42	0	--	0	--	--	--	--	--	--
West Recharge Basins	1,112 - 1,455	1,245	--	161	--	--	0.54	--	--	--
South Recharge Basins	2,231	2,605	289	338	117%	--	ND	--	--	--
Total	**--**	**4,079**	**--**	**529**	**--**					
Additional Flow to South Recharge Basins										
Storm Water Runoff Contributing to South Recharge Basins Flow Volume [11]	--	--	--	90	--	--	--	--	--	--
Total Flow Volume to South Recharge Basins [10,11,12]			**289**	**428**	**148%**					

Treatment Efficiencies [13]	
Tower 96 System:	>99.9%
Tower 102 System:	>99.9%

See Notes and Abbreviations on last page.

Table 1
Operational Summary for the Treatment System
First Quarter 2023[(1)] Reporting Period
Operable Unit 2
Northrop Grumman
Bethpage, New York

Notes and Abbreviations:

(1) Quarterly reporting period: January 1, 2023 through March 31, 2023.

(2) "Current Model Design" flow rates were determined for the five remedial wells and for the South Recharge Basin based on computer modeling (ARCADIS G&M, Inc. 2002, updated in 2021). Flow rates for Calpine Power Plant (Calpine), Occidental Chemical (OXY) Biosparge, and West Recharge Basin flow rates are typical flow rates and are provided for reader information. "Design" flow volumes represent the volume of water that is expected to be pumped/discharged during the reporting period and is calculated by multiplying the design rate by the reporting period duration.

(3) Actual flow rates for the remedial wells represent the average actual pumping rates when the pumps are operational and do not take into account the time that a well is not operational. Actual flow volumes are collated from the monthly SPDES reports, which are calculated using the SCADA instantaneous flow rates transmitted from local flow meters.

(4) “Actual” flow rates for the system discharges represent the average flow rate during the reporting period and are determined by dividing the total flow recorded during the reporting period by the reporting period duration.

(5) The TCE and TVOC concentrations are from the quarterly sampling events performed during this reporting period on February 7, 2023.

(6) The TVOC concentrations for the West Recharge Basin (Outfall 006 of the Tower 96 System) and the South Recharge Basin (Outfall 005 of the Tower 102 System) are their respective average monthly Outfall SPDES concentrations for the current quarter.

(7) Tower 96 (Wells 1 and 3R) was shut down this reporting period to accommodate the replacement of vapor-phase granular activated carbon (VPGAC) in the lead and lag exterior VPGAC emissions control units, and other small-scale repairs. As such, the system was shut down approximately 1 day in March.
Tower 102 System was shut down this reporting period for small-scale repairs only. As such, the system was shut down for less than 1 day in January.

(8) Total pumpage/recharge rates are accurate to ±15% based on available information and expected or typical precision/accuracy factors for the gauges and meters.

(9) There are four possible discharges for the effluent groundwater: South Recharge Basins, West Recharge Basins, Calpine, and the OXY Biosparge system. Treated water is continuously discharged to the south and west recharge basins during routine operation, and is available "on-demand" to both Calpine for use as make-up water, and the OXY Biosparge remediation system. For this quarter, the quarterly flow rates to the south and west recharge basins (SRB and WRB, respectively) were calculated using the remedial well flow rates and available additional information and assumptions provided by Northrop Grumman regarding flow distribution, as follows: the Tower 96 system (Remedial Wells 1 and 3R) discharges effluent water to the WRB, less Calpine usage and less 119 gpm of Tower 102 steam condenser usage (15.8 MG); the Tower 102 System (Remedial Wells 17 through 19), including the Tower 102 steam condenser usage (15.8 MG), discharges effluent water to the SRB.

(10) Oxy has not reported any water usage for the OXY Biosparge system since May 2016.

(11) Storm water runoff volume is calculated by multiplying the adjusted tributary area and NOAA precipitation data for the reporting periods. The tributary area is adjusted by the runoff coefficient to exclude the infiltration volume from the total rainfall volume. The tributary area, runoff coefficient, and adjusted tributary area are from Dvirka and Bartilucci Consulting Engineers' Storm Water Permit Evaluation Report (January, 28, 2010). The NOAA precipitation data are calculated as a sum of NOAA daily precipitation data for the reporting period. NOAA precipitation data are retrieved from Station GHCND:USW00054787 - FARMINGDALE REPUBLIC AIRPORT, NY US for January, February, and March 2023.

(12) Total flow volume to South Recharge Basins is estimated as a sum of flow volumes contributed by the effluent groundwater to South Recharge Basins and from storm water runoff to South Recharge Basins. First Quarter 2023 calculated South Recharge Basin flow volume is within historical operating range.

(13) Treatment system efficiencies are calculated by dividing the difference between the remedial well flow weighted influent and effluent TVOC concentrations by the remedial well flow weighted influent concentration.

-- Not Applicable
µg/L micrograms per liter
gpm gallons per minute
lbs pounds
MG million gallons
NOAA National Oceanic and Atmospheric Administration
SCADA Supervisory Controls and Data Acquisition
SPDES State Pollution Discharge Elimination System
TCE trichloroethene
TVOC total volatile organic compounds
VOC volatile organic compounds

Table 2
Concentrations of Constituents in Remedial Wells and Treatment System Effluents
First Quarter 2023[1] Reporting Period
Operable Unit 2
Northrop Grumman
Bethpage, New York

Constituents[2] (Units in µg/L)	Location ID: Sample ID: Sample Date:	WELL 1 WELL 1 2/7/2023	WELL 3R WELL 3R 2/7/2023	WELL 3R REP-020723-PD-1 2/7/2023	96 EFFLUENT 96 EFFLUENT 2/7/2023
Volatile Organic Compounds (VOCs)[3]					
1,1,1-Trichloroethane	00071-55-6	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	00079-34-5	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	00079-00-5	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	00075-34-3	**0.61**	**1.4**	**1.4**	< 1.0
1,1-Dichloroethene	00075-35-4	**1.9**	**4.4**	**4.6**	< 0.50
1,2-Dichloroethane	00107-06-2	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	00078-87-5	**2.5**	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	00078-93-3	< 10	< 10	< 10	< 10
2-Hexanone (MBK)	00591-78-6	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-Pentanone (MIK)	00108-10-1	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	00067-64-1	< 10	< 10	< 10	< 10
Benzene	00071-43-2	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	00075-27-4	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	00075-25-2	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	00074-83-9	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Disulfide	00075-15-0	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	00056-23-5	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	00108-90-7	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	00075-00-3	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	00067-66-3	< 0.50	< 0.50	< 0.50	< 0.50
Chloromethane	00074-87-3	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	00156-59-2	**5.6**	**3.2**	**3.4**	< 0.50
cis-1,3-Dichloropropene	10061-01-5	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	00124-48-1	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	00100-41-4	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	00075-09-2	< 0.50	< 0.50	< 0.50	< 0.50
Styrene	00100-42-5	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	00127-18-4	**13.5**	**41.8**	**44.3**	< 0.50
Toluene	00108-88-3	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	00156-60-5	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	10061-02-6	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	00079-01-6	**484**	**142**	**149**	**0.54**
Trichlorotrifluoroethane (Freon 113)	00076-13-1	**1.5**	**1.9**	**1.8**	< 0.50
Vinyl Chloride	00075-01-4	< 0.50	**1.7**	**1.9**	< 0.50
Xylene-o	00095-47-6	< 1.0	< 1.0	< 1.0	< 1.0
Xylene-m,p	179601-23-1	< 1.0	< 1.0	< 1.0	< 1.0
Total VOCs[4]		**510**	**196**	**206**	**0.54**
1,4-Dioxane[3]		**7.4**	**7.4**	**9.3**	**7.6**

Notes and abbreviations on last page.

Table 2
Concentrations of Constituents in Remedial Wells and Treatment System Effluents
First Quarter 2023[1] Reporting Period
Operable Unit 2
Northrop Grumman
Bethpage, New York

Constituents[2] (Units in µg/L)	Location ID: Sample ID: Sample Date:	WELL 17 WELL 17 2/7/2023	WELL 18 WELL 18 2/7/2023	WELL 19 WELL 19 2/7/2023	102 EFFLUENT 102 EFFLUENT 2/7/2023
Volatile Organic Compounds (VOCs)[3]					
1,1,1-Trichloroethane	00071-55-6	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	00079-34-5	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	00079-00-5	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	00075-34-3	< 1.0	**1.2**	< 1.0	< 1.0
1,1-Dichloroethene	00075-35-4	**1**	**1.1**	**0.89**	< 0.50
1,2-Dichloroethane	00107-06-2	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	00078-87-5	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	00078-93-3	< 10	< 10	< 10	< 10
2-Hexanone (MBK)	00591-78-6	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-Pentanone (MIK)	00108-10-1	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	00067-64-1	< 10	< 10	< 10	< 10
Benzene	00071-43-2	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	00075-27-4	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	00075-25-2	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	00074-83-9	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Disulfide	00075-15-0	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	00056-23-5	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	00108-90-7	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	00075-00-3	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	00067-66-3	< 0.50	< 0.50	< 0.50	< 0.50
Chloromethane	00074-87-3	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	00156-59-2	**2.4**	**2.4**	**8.8**	< 0.50
cis-1,3-Dichloropropene	10061-01-5	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	00124-48-1	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	00100-41-4	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	00075-09-2	< 0.50	< 0.50	< 0.50	< 0.50
Styrene	00100-42-5	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	00127-18-4	**13.4**	**15.6**	**5.8**	< 0.50
Toluene	00108-88-3	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	00156-60-5	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	10061-02-6	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	00079-01-6	**119**	**26.6**	**58.6**	< 0.50
Trichlorotrifluoroethane (Freon 113)	00076-13-1	**1.5**	**0.94**	**0.85**	< 0.50
Vinyl Chloride	00075-01-4	< 0.50	< 0.50	< 0.50	< 0.50
Xylene-o	00095-47-6	< 1.0	< 1.0	< 1.0	< 1.0
Xylene-m,p	179601-23-1	< 1.0	< 1.0	< 1.0	< 1.0
Total VOCs[4]		**137**	**48**	**75**	**ND**
1,4-Dioxane[3]		**7.6**	**4.6**	**3.5**	**6.6**

Notes and abbreviations on last page.

Table 2
Concentrations of Constituents in Remedial Wells and Treatment System Effluents
First Quarter 2023[(1)] Reporting Period
Operable Unit 2
Northrop Grumman
Bethpage, New York

Notes and Abbreviations:

(1) Quarterly reporting period: January 1, 2023 through March 31, 2023.

(2) Results for the program are validated at 20% frequency, per protocols specified in OU2 Groundwater Monitoring Plan (Arcadis 2016).

(3) VOC samples analyzed using USEPA Method 8260C. 1,4-Dioxane samples analyzed using USEPA Method 8270D-SIM.

(4) TVOC concentrations are rounded to the number of decimal places of the individual VOC with the least numerical precision (decimal place), including whole numbers with no decimal place.

5.5	Bold value indicates a detection
< 0.5	Compound is not detected above its laboratory quantification limit
µg/L	micrograms per liter
J	Compound detected below its reporting limit; value is estimated
ND	Not detected
OU2	Operable Unit 2
REP	Blind Replicate Sample
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

Table 3A
Vapor Sample Analytical Results,
Tower 96 Treatment System,
First Quarter 2023[1] Reporting Period
Operable Unit 2
Northrop Grumman
Bethpage, New York

Constituents (units in µg/m3)	Location ID: Sample ID: Sample Date:	96 INFLUENT T96 INFLUENT 2/7/2023	96 MID-EFFLUENT T96 MIDTRAIN 2/7/2023	96 EFFLUENT T96 EFFLUENT 2/7/2023
Volatile Organic Compounds (VOCs)[2]	**CAS #**			
1,1,1-Trichloroethane	00071-55-6	< 22	< 44	< 44
1,1,2,2-Tetrachloroethane	00079-34-5	< 27	< 55	< 55
1,1,2-Trichloroethane	00079-00-5	< 22	< 44	< 44
1,1-Dichloroethane	00075-34-3	**45.7**	**52.6**	**55.9**
1,1-Dichloroethene	00075-35-4	**117**	**136**	**141**
1,2-Dichloroethane	00107-06-2	< 32	< 65	< 65
1,2-Dichloropropane	00078-87-5	**61.5**	**71.6**	**43**
Benzene	00071-43-2	< 26	< 51	< 51
Bromodichloromethane	00075-27-4	< 27	< 54	< 54
Bromoform	00075-25-2	< 17	< 33	< 33
Bromomethane	00074-83-9	< 31	< 62	< 62
Carbon Disulfide	00075-15-0	< 25	< 50	< 50
Carbon Tetrachloride	00056-23-5	< 10	< 20	< 20
Chlorobenzene	00108-90-7	< 37	< 74	< 74
Chloroethane	00075-00-3	< 21	< 42	< 42
Chloroform	00067-66-3	< 39	< 78	< 78
Chloromethane	00074-87-3	< 17	< 33	< 33
cis-1,2-Dichloroethene	00156-59-2	**160**	**184**	**195**
cis-1,3-Dichloropropene	10061-01-5	< 36	< 73	< 73
Dibromochloromethane	00124-48-1	< 34	< 68	< 68
Ethylbenzene	00100-41-4	< 35	< 69	< 69
Dichloromethane	00075-09-2	< 28	< 56	< 56
Styrene	00100-42-5	< 34	< 68	< 68
Tetrachloroethene	00127-18-4	**990**	< 22	< 22
Toluene	00108-88-3	< 30	< 60	< 60
trans-1,2-Dichloroethene	00156-60-5	< 32	< 63	< 63
trans-1,3-Dichloropropene	10061-02-6	< 36	< 73	< 73
Trichloroethylene	00079-01-6	**11,500**	**14,700**	**15,300**
Trichlorotrifluoroethane (Freon 113)	00076-13-1	**82.8**	**96.6**	**101**
Vinyl Chloride	00075-01-4	**37.1**	**41.2**	**45.8**
Xylene-o	00095-47-6	< 35	< 69	< 69
Xylene-m,p	179601-23-1	< 35	< 69	< 69
Total VOCs [3,4]		**12,994**	**15,282 [5]**	**15,882 [5]**

Notes and abbreviations on last page.

Table 3A
Vapor Sample Analytical Results,
Tower 96 Treatment System,
First Quarter 2023(1) Reporting Period
Operable Unit 2
Northrop Grumman
Bethpage, New York

Notes and Abbreviations:

(1) Quarterly reporting period: January 1, 2023 through March 31, 2023.

(2) Vapor samples collected by Arcadis on the dates shown and submitted to a NYSDOH ELAP certified laboratory for VOC analyses per Modified USEPA Method TO-15.

(3) TVOC concentrations are rounded to the number of decimal places of the individual VOC with the least numerical precision (decimal place), including whole numbers with no decimal place.

(4) The system was reconfigured to bypass the regenerative vapor-phase GAC components and treat air stripper effluent directly through the exterior VPGAC emission control units on 3/15/22.

(5) As the elevated concentration was likely caused by breakthrough of the carbon in the exterior VPGAC units, the VPGAC in the lead and lag exterior units were changed out on 3/1/23. Although the mass emission rate of Trichloroethylene was higher than the Rule 212 preliminary limit triggering further evaluation for the reporting period, the subsequent modeling in Table 4A displays that the emission rate is below the short-term and annual emission limits. The concentrations will be closely monitored during the next quarterly sampling event.

141 Bold value indicates a detection

< 44 Compound is not detected above its laboratory quantification limit

$\mu g/m^3$ micrograms per cubic meter

J Compound detected below its reporting limit; value is estimated

ELAP Environmental Laboratory Approval Program

NYSDOH New York State Department of Health

USEPA United States Environmental Protection Agency

VOC Volatile Organic Compound

Table 3B
Vapor Sample Analytical Results
Tower 102 Treatment System
First Quarter 2023[1] Reporting Period
Operable Unit 2
Northrop Grumman
Bethpage, New York

Constitents (units in µg/m3)	Location ID: Sample ID: Sample Date:	102 INFLUENT T102 INFLUENT 2/7/2023	102 EFFLUENT T102 EFFLUENT 2/7/2023
Volatile Organic Componds (VOCs) [2]	**CAS #**		
1,1,1-Trichloroethane	00071-55-6	< 5.5	**1.4**
1,1,2,2-Tetrachloroethane	00079-34-5	< 6.9	< 0.55
1,1,2-Trichloroethane	00079-00-5	< 5.5	< 0.44
1,1-Dichloroethane	00075-34-3	**20**	**20**
1,1-Dichloroethene	00075-35-4	**33**	**32**
1,2-Dichloroethane	00107-06-2	< 8.1	**0.57**
1,2-Dichloropropane	00078-87-5	**10**	**0.83**
Benzene	00071-43-2	< 6.4	< 0.51
Bromodichloromethane	00075-27-4	< 6.7	< 0.54
Bromoform	00075-25-2	< 4.1	< 0.33
Bromomethane	00074-83-9	< 7.8	< 0.62
Carbon Dislfide	00075-15-0	< 6.2	< 0.50
Carbon Tetrachloride	00056-23-5	< 2.5	**1.1**
Chlorobenzene	00108-90-7	< 9.2	< 0.74
Chloroethane	00075-00-3	< 5.3	< 0.42
Chloroform	00067-66-3	< 9.8	**3.2**
Chloromethane	00074-87-3	< 4.1	**1.1**
cis-1,2 Dichloroethene	00156-59-2	**72.2**	**48.4**
cis-1,3-Dichloropropene	10061-01-5	< 9.1	< 0.73
Dibromochloromethane	00124-48-1	< 8.5	< 0.68
Ethylbenzene	00100-41-4	< 8.7	< 0.69
Dichloromethane	00075-09-2	< 6.9	**0.66**
Styrene	00100-42-5	< 8.5	< 0.68
Tetrachloroethene	00127-18-4	**237**	**10**
Toluene	00108-88-3	< 7.5	**0.45**
trans-1,2-Dichloroethene	00156-60-5	< 7.9	**0.59**
trans-1,3-Dichloropropene	10061-02-6	< 9.1	< 0.73
Trichloroethylene	00079-01-6	**1,850**	**154**
Trichlorotrifloroethane (Freon 113)	00076-13-1	**25**	**19**
Vinyl Chloride	00075-01-4	< 1.0	**0.2**
Xylene-o	00095-47-6	< 8.7	< 0.69
Xylene-m,p	179601-23-1	< 8.7	< 0.69
Total VOCs [3]		**2,247**	**294**

Notes and abbreviations on last page.

Table 3B
Vapor Sample Analytical Results
Tower 102 Treatment System
First Quarter 2023(1) Reporting Period
Operable Unit 2
Northrop Grumman
Bethpage, New York

Notes and Abbreviations:

(1) Quarterly reporting period: January 1, 2023 through March 31, 2023.

(2) Vapor samples collected by Arcadis on the dates shown and submitted to a NYSDOH ELAP certified laboratory for VOC analyses per Modified USEPA Method TO-15.

(3) TVOC concentrations are rounded to the number of decimal places of the individual VOC with the least numerical precision (decimal place), including whole numbers with no decimal place.

1.4	Bold value indicates a detection
< 0.55	Compound is not detected above its laboratory quantification limit
µg/m^3	micrograms per cubic meter
J	Compound detected below its reporting limit; value is estimated
ELAP	Environmental Laboratory Approval Program
NYSDOH	New York State Department of Health
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

Table 4A
Rule 212 Evaluation
Tower 96 Treatment System
First Quarter 2023[1] Reporting Period
Operable Unit 2
Northrop Grumman
Bethpage, New York

Project VOCs	CAS#	HTAC[2]	Tower 96 Treatment System Effluent Conc. (ug/m3)[3,11]	Tower 96 Emissions (lb/yr)[4]	Rule 212 Limit (lb/yr)[5]	Rule 212 Evaluation[6]	Further Evaluation Required?[6]	Tower 96 Emissions (g/s)[7]	Total Scaled Impact - Short-Term (Hourly) (µg/m3)[8]	Total Scaled Impact - Annual (µg/m3)[8]	SGC (µg/m3)[9]	AGC (µg/m3)[9]
1,1-Dichloroethane	75-34-3	No	55.9	8.054	100	Less than limit, Rule 212 compliant	N	--	--	--	--	0.63
1,1-Dichloroethene	75-35-4	No	141	20.314	100	Less than limit, Rule 212 compliant	N	--	--	--	--	200
1,2-Dichloropropane	78-87-5	No	43	6.195	100	Less than limit, Rule 212 compliant	N	--	--	--	--	4
cis-1,2 Dichloroethene	156-59-2	No	195	28.094	100	Less than limit, Rule 212 compliant	N	--	--	--	--	63
Trichloroethylene [11]	79-01-6	Yes	15,300	2204.279	500	Subject to Rule 212 Requirement	Y	3.2E-02	4.69	0.138	20	0.2
Trichlorotrifluoroethane (Freon 113)	76-13-1	No	101	14.551	100	Less than limit, Rule 212 compliant	N	--	--	--	960,000	180,000
Vinyl Chloride	75-01-4	Yes	45.8	6.598	100	Less than limit, Rule 212 compliant	N	--	--	--	180,000	0.11

Flowrates and Normalized Modeling Impacts

Description	Flow (cfm)	AERMOD Normalized Ambient Impact at 1 g/s	
		Hourly ([µg/m^3]/[g/s])	Annual ([µg/m^3]/[g/s])
Tower 96	4,400	148.1	4.3

Notes and Abbreviations:

(1) Quarterly reporting period: January 1, 2023 through March 31, 2023.

(2) High toxicity air contaminant (HTAC) based on 6 CRR-NY Rule 212-2.2, Table 2 – High Toxicity Air Contaminant List.

(3) Effluent concentrations based on sampling performed in the quarterly reporting period. Compounds not detected above the laboratory reporting limit are excluded from the air quality impact analysis

(4) Emission rate calculated based on maximum effluent concentration and maximum air flow rates measured during the sampling events. Emission rate standardized at 70 ^{o}F and 1 atm.

Trichloroethylene (lb/yr) = Trichloroethylene [µg/m^3] x Air Flow Rate [ft^3/min] x (1 m^3/35.3147 ft^3) x (60 min/hr) x (0.000001 g/1 µg) x (0.0022 lb/g) x 8,760

(5) 100 lb/yr for non-HTACs, and mass emission limits based on Rule 212-2.2, Table 2 for HTACs.

(6) For HTACs, no further demonstration is required if the actual emissions are less than mass emission limit. For non-HTACs, no further demonstration is required if the actual emissions are less than 100 lbs/yr.

7. g/s = Concentration [µg/m3] x Air Flow Rate [ft3/min] x (1 m3/35.3147 ft3) x (60 min/hr) x (0.000001 g/1 µg) x (0.0022 lb/g) x hr/3,600 sec x 453.59 g/lb

8. Ambient impact based on AERMOD modeling using normalized rate of 1 g/s is scaled to the actual emission rate of the pollutant. Modeling was performed using the representative meteorological data from the nearest station (Farmingdale, NY) for the years 2011 through 2015. The maximum impact from all the years was used for the calculations.

Scaled hourly impact (µg/m^3) = AERMOD predicted hourly ambient impact at 1 g/s ([µg/m^3]/[g/s]) x Actual emission rate (g/s)

Scaled annual impact (µg/m^3) = AERMOD predicted annual ambient impact at 1 g/s ([µg/m^3]/[g/s]) x Actual emission rate (g/s)

Example for total scaled hourly for Trichloroethylene:

Trichloroethylene scaled hourly impact (µg/m^3) = (T96 hourly ambient impact at 1 g/s ([µg/m^3]/[g/s]) x Actual emission rate (g/s))

Trichloroethylene scaled hourly impact (µg/m^3) = 148.1 (µg/m3)/(g/s) x 1.2E-02 (g/s)

9. Short-term and annual guideline concentrations specified in the NYSDEC DAR-1 AGC/SGC tables revised February 12, 2(

10. The default AGC -0.1 ug/m3 to be used if the air contaminant does not have a published SGC/AGC. Medium toxicity was assumed.

11. Although the mass emission rate of Trichloroethylene was higher than the Rule 212 preliminary limit triggering further evaluation for the reporting period, the subsequent modeling displays that the emission rate is below the short-term and annual emission limits. As the elevated concentration was likely caused by breakthrough of the carbon in the exterior VPGAC units, the VPGAC in the lead and lag exterior units were changed out on 3/1/23. The concentrations will be closely monitored during the next quarterly sampling event.

SGC Short-Term Guideline Concentrations
AGC Annual Guideline Concentrations

Table 4B
Rule 212 Evaluation
Tower 102 Treatment System
First Quarter 2023[1] Reporting Period
Operable Unit 2
Northrop Grumman
Bethpage, New York

Project VOCs	CAS#	HTAC[2]	Tower 102 Treatment System Effluent Conc. (ug/m3)[3]	Tower 102 Emissions (lb/yr)[4]	Rule 212 Limit (lb/yr)[5]	Rule 212 Evaluation[6]	Further Evaluation Required?[6]
1,1,1-Trichloroethane	71-55-6	No	1.4	0.380	100	Less than limit, Rule 212 compliant	N
1,1-Dichloroethane	75-34-3	No	20	5.435	100	Less than limit, Rule 212 compliant	N
1,1-Dichloroethene	75-35-4	No	32	8.697	100	Less than limit, Rule 212 compliant	N
1,2-Dichloroethane	107-06-2	Yes	0.57	0.155	100	Less than limit, Rule 212 compliant	N
1,2-Dichloropropane	78-87-5	No	0.83	0.226	100	Less than limit, Rule 212 compliant	N
Carbon Tetrachloride	56-23-5	Yes	1.1	0.299	100	Less than limit, Rule 212 compliant	N
Chloroform	67-66-3	Yes	3.2	0.870	100	Less than limit, Rule 212 compliant	N
Chloromethane	74-87-3	No	1.1	0.299	100	Less than limit, Rule 212 compliant	N
cis-1,2 Dichloroethene	156-59-2	No	48.4	13.154	100	Less than limit, Rule 212 compliant	N
Methylene Chloride	75-09-2	No	0.66	0.179	100	Less than limit, Rule 212 compliant	N
Tetrachloroethene	127-18-4	Yes	10	2.718	1,000	Less than limit, Rule 212 compliant	N
Toluene	108-88-3	No	0.45	0.122	100	Less than limit, Rule 212 compliant	N
trans-1,2-Dichloroethene	156-60-5	No	0.59	0.160	100	Less than limit, Rule 212 compliant	N
Trichloroethylene	79-01-6	Yes	154	41.852	500	Less than limit, Rule 212 compliant	N
Trichlorotrifluoroethane (Freon 113)	76-13-1	No	19	5.164	100	Less than limit, Rule 212 compliant	N
Vinyl Chloride	75-01-4	Yes	0.2	0.054	100	Less than limit, Rule 212 compliant	N

Flowrates and Normalized Modeling Impacts			
Description	Flow (cfm)	AERMOD Normalized Ambient Impact at 1 g/s	
		Hourly ([µg/m^3]/[g/s])	Annual ([µg/m^3]/[g/s])
Tower 102	8,300	348.9	2.3

Notes and Abbreviations:

(1) Quarterly reporting period: January 1, 2023 through March 31, 2023.

(2) High toxicity air contaminant (HTAC) based on 6 CRR-NY Rule 212-2.2, Table 2 – High Toxicity Air Contaminant List.

(3) Effluent concentrations based on sampling performed in the quarterly reporting period. Compounds not detected above the laboratory reporting limit are excluded from the air quality impact analysis summary.

(4) Emission rate calculated based on maximum effluent concentration and maximum air flow rates measured during the sampling events. Emission rate standardized at 70 ^{o}F and 1 atm.

Trichloroethylene (lb/yr) = Trichloroethylene [µg/m^3] x Air Flow Rate [ft^3/min] x (1 m^3/35.3147 ft^3) x (60 min/hr) x (0.000001 g/1 µg) x (0.0022 lb/g) x 8,760 hrs/yr

(5) 100 lb/yr for non-HTACs, and mass emission limits based on Rule 212-2.2, Table 2 for HTACs.

(6) For HTACs, no further demonstration is required if the actual emissions are less than mass emission limit. For non-HTACs, no further demonstration is required if the actual emissions are less than 100 lbs/yr.

Table 5
Concentrations of Volatile Organic Compounds and 1,4-Dioxane in Monitoring Wells
First Quarter 2023[1] Reporting Peroid
Operable Unit 2
Northrop Grumman
Bethpage, New York

Constituents units (µg/L)	Location ID: Sample ID: Sample Date:	BPOW 2-1[2] BPOW 2-1 2/21/2023	BPOW 2-2 [2] BPOW 2-2 2/21/2023	BPOW 2-3 [2] BPOW 2-3 2/21/2023	GM-21D2 GM-21D2 2/21/2023
Volatile Organic Compounds (VOCs)					
1,1,1-Trichloroethane		< 0.50	< 0.50	< 0.50	< 1.0
1,1,2,2-Tetrachloroethane		< 0.50	< 0.50	< 0.50	< 1.0
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)		< 1.0	< 1.0	< 1.0	< 5.0
1,1,2-Trichloroethane		< 0.50	< 0.50	< 0.50	< 1.0
1,1-Dichloroethane		< 0.50	< 0.50	< 0.50	< 1.0
1,1-Dichloroethene		< 0.50	< 0.50	< 0.50	< 1.0
1,2-Dichloroethane		< 0.50	< 0.50	< 0.50	< 1.0
1,2-Dichloropropane		< 0.50	< 0.50	< 0.50	< 1.0
2-Butanone (MEK)		< 5.0	< 5.0	< 5.0	< 10
4-Methyl-2-Pentanone		< 2.0	< 2.0	< 2.0	< 5.0
Acetone		< 5.0	< 5.0	< 5.0	< 10
Benzene		< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane		< 0.50	< 0.50	< 0.50	< 1.0
Bromoform		< 0.50	< 0.50	< 0.50	< 1.0
Bromomethane		< 0.50	< 0.50	< 0.50	< 2.0
Carbon Disulfide		< 0.50	< 0.50	< 0.50	< 2.0
Carbon Tetrachloride		< 0.50	< 0.50	< 0.50	< 1.0
Chlorobenzene		< 0.50	< 0.50	< 0.50	< 1.0
Chlorodibromomethane		< 0.50	< 0.50	< 0.50	< 1.0
Chloroethane		< 0.50	< 0.50	< 0.50	< 1.0
Chloroform		< 0.50	< 0.50	< 0.50	< 1.0
Chloromethane		< 0.50	< 0.50	< 0.50	< 1.0
cis-1,2-Dichloroethene		< 0.50	< 0.50	< 0.50	< 1.0
cis-1,3-Dichloropropene		< 0.50	< 0.50	< 0.50	< 1.0
Dichloromethane		< 0.50	< 0.50	< 0.50	< 2.0
Ethylbenzene		< 0.50	< 0.50	< 0.50	< 1.0
m&p-Xylenes		< 0.50	< 0.50	< 0.50	< 1.0
Methyl N-Butyl Ketone (2-Hexanone)		< 2.0	< 2.0	< 2.0	< 5.0
o-Xylene		< 0.50	< 0.50	< 0.50	< 1.0
Styrene (Monomer)		< 0.50	< 0.50	< 0.50	< 1.0
Tetrachloroethene		< 0.50	< 0.50	< 0.50	**0.59 J**
Toluene		< 0.50	< 0.50	< 0.50	**< 1.0**
trans-1,2-Dichloroethene		< 0.50	< 0.50	< 0.50	< 1.0
trans-1,3-Dichloropropene		< 0.50	< 0.50	< 0.50	< 1.0
Trichloroethene		< 0.50	< 0.50	< 0.50	**4.3**
Vinyl chloride		< 0.50	< 0.50	< 0.50	< 1.0
Total VOCs [3,4,5]		ND	ND	ND	**4.9**
1,4-Dioxane [4,5]		**0.323**	**0.596**	**3.29**	**2.7**

See last page for Notes and Abbreviations.

Table 5
Concentrations of Volatile Organic Compounds and 1,4-Dioxane in Monitoring Wells
First Quarter 2023[(1)] Reporting Peroid
Operable Unit 2
Northrop Grumman
Bethpage, New York

Notes and Abbreviations:

(1)	Quarterly reporting period: January 1, 2023 through March 31, 2023.
(2)	These outpost wells have been repurposed for use as plume monitoring wells per the June 2015 Groundwater Monitoring Plan Addendum (ARCADIS of New York, Inc., 2015), as conditionally approved by the NYSDEC (August 25, 2015). Therefore, TVOC trigger levels that may have been previously established are no longer shown.
(3)	TVOC concentrations are rounded to the number of decimal places of the individual VOC with the least numerical precision (decimal place), including whole numbers with no decimal place.
(4)	BPOW samples were analyzed for VOCs using USEPA Method 524.2, and 1,4-dioxane using USEPA Method 522. The GM-21D2 sample was analyzed for VOCs by USEPA Method 8260C and 1,4-dioxane using USEPA Method 8270D SIM.
(5)	Results for the program are validated at 20% frequency, per protocols specified in the OU2 Groundwater Monitoring Plan (Arcadis 2016).
4.3	Bold value indicates a detection
VOC	Volatile Organic Compound
ND	Not detected
µg/L	micrograms per liter
J	Compound detected below its reporting limit; value is estimated
<0.5	Compound not detected above its laboratory quantification limit

Figures

HWD 10208
HWD 8779
BWD 8768
BWD 8767
BWD 9591
HAYPATH ROAD
FARMERS AVENUE
(PLAINVIEW ROAD)
(107)
FORMER U.S. NAVY SITE
PLANT 111
PLANT 35
PLANT 116
PLANT 115
PLANT 21
PLANT 37
PLANT 15
PLANT 14
PLANT 26
PLANT 30
PLANT 12
PLANT 12A
PLANT 3
PLANT 10
FW-03
BETHPAGE HIGH SCHOOL
HN-24I
HN-24S
HN-42S
HN-42I
PLANT 25
PLANT 5
GM-13D
GM-16I
GM-16SR
HN-40S
HN-40I
UPGRADIENT OF OU2 ONCT SYSTEM
BROADWAY
MW-3-1
WELL 3R
10597
WELL 3
GM-17SR
GM-17I
GM-17D
OU2 MAIN FACILITY REMEDIAL SYSTEM (TOWER 96)
OU2 MAIN FACILITY REMEDIAL SYSTEM (TOWER 102)
MW-1GF
GM-32S
PLANT 2
GRUMMAN ROAD
WELL 1
GM-19S
GM-19I
PLANT 1
MW-5
MW-6
MW-4
GM-15SR
GM-15I
GM-15D
GM-15D2
GM-39DA
GM-39DB
MW-2GF
GM-18S
GM-18I
GM-18D
GM-73D3
GM-73D2
GM-73D
GM-74I
GM-74D
GM-74D2
GM-74D3
WELL-18
WELL-19
GM-33D2
10631
WELL-17
MW-3R
RE123
PROXIMATE TO OU2 ONCT SYSTEM
LONG ISLAND RAILROAD
10600
GM-78S
GM-78I
GM-78D
GM-78D2
RE106
GM-20I
GM-20D
GM-21D2
10633
CENTRAL AVENUE
9921
RE107
GM-75D2
10624
GM-21S
GM-21I
GM-21D
RE126
GM-79I
GM-79D
10628
RE109
10627
10634
RE122
GM-71D2
GM-37D
GM-37D2
NEAR CENTRAL DOWNGRADIENT OF OU2 ONCT SYSTEM
BLOOMINGDALE ROAD
NORTH WANTAGH AVE.
RE108
GM-70D2
GM-35D2
GM-36D
GM-36D2
N-10821
BWD 6915
6916
FAR CENTRAL DOWNGRADIENT OF OU2 ONCT SYSTEM
MALLARD ROAD
BWD 8941
3876
GM-38D
GM-38D2
GM-34D
GM-34D2
HICKSVILLE ROAD
STEWART AVENUE
BWD 8004
(GARDINER'S AVENUE)
LOWLAND ROAD
SEAFORD - OYSTER BAY EXPRESSWAY
STHPAGE STATE PARKWAY
TOH(LWD) 7076
PIKE
BPOW 1-4
BPOW 1-5
BPOW 1-6
BPOW 1-3
BPOW 1-1
BPOW 1-2
SFWD 7377
SFWD 5148
SFWD 4043
BOUNDARY AVENUE
BPOW 4-2R
BPOW 4-1R
TOH(LWD) 5303
BPOW 2-2
BPOW 2-3
BPOW 2-1
SFWD 6150
BPOW 3-3
BPOW 3-4
BPOW 3-2
BPOW 3-1
NYAW 9338
NYAW 8480
HICKSVILLE

0 1000' 2000'
APPROXIMATE SCALE IN FEET

EXPLANATION

- PROPERTY BOUNDARY OF THE FORMER GRUMMAN AEROSPACE SITE
- PROPERTY BOUNDARY OF THE FORMER NAVY SITE
- PROPERTY BOUNDARY OF THE FORMER OXY/RUCO SITE
- LONG ISLAND RAILROAD
- DENOTES NORTHROP GRUMMAN OWNED PROPERTY (AS OF 2022)
- DENOTES NAVY OWNED PROPERTY (AS OF 2014)
- DENOTES FORMER NAVY OWNED PROPERTY
- RECHARGE BASIN
- 10592 OBSERVATION/MONITORING/OUTPOST WELL (1)
- 9591 PUBLIC SUPPLY WELL (2)
- WELL-17 NORTHROP GRUMMAN REMEDIAL WELL
- RE108 SUPPLEMENTAL NAVY MONITORING WELL
- PART OF ON-SITE REMEDY
- NWIRP NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
- TOH (LWD) TOWN OF HEMPSTEAD LEVITOWN WATER DISTRICT
- HWD HICKSVILLE WATER DISTRICT
- SFWD SOUTH FARMINGDALE WATER DISTRICT
- BWD BETHPAGE WATER DISTRICT
- NYAW NEW YORK AMERICAN WATER

NOTE:

(1) THIS FIGURE DEPICTS OBSERVATION/MONITORING/OUTPOST WELLS INCLUDED IN THE OU-2 GROUNDWATER MONITORING PROGRAM.

(2) PUBLIC SUPPLY WELLS ARE NOT SAMPLED AS A PART OF THE OU2 GROUNDWATER MONITORING PROGRAM AND ARE ONLY FOR REFERENCE.

NORTHROP GRUMMAN SYSTEMS CORPORATION
BETHPAGE, NEW YORK
OPERABLE UNIT 2

LOCATIONS OF OF WELLS AND ON-SITE GROUNDWATER REMEDY

ARCADIS

FIGURE 1

PLANT 25

PLANT 23

PLANT 5

PLANT 2

PLANT 1

TOWER 102 TREATMENT SYSTEM

TOWER 96 TREATMENT SYSTEM

WELL 3R

WELL 3

WELL 1

WELL 17

WELL 18

WELL 19

WEST RECHARGE BASINS (OUTFALL 006)

SOUTH RECHARGE BASINS (OUTFALL 005)

AERATION BASIN

LIRR

LONG ISLAND RAILROAD

GRUMMAN ROAD WEST

GRUMMAN ROAD EAST

SUN–SITE

LEGEND:

- FORMER NORTHROP GRUMMAN PROPERTY LINE
- INFLUENT LINE
- BYPASS
- STORM DRAIN (EFFLUENT)
- NON POTABLE WATER DISTRIBUTION LINE (EFFLUENT)
- RAILROAD TRACKS
- FENCE
- WELL 18 — REMEDIAL WELL
- BASIN
- ONCT — ON–SITE CONTAMINANT

NOTES:

1. DRAWING IS NOT TO BE USED FOR DESIGN PURPOSES. LAYOUT OF PIPING IS FOR REPRESENTATION ONLY (LOCATIONS ARE APPROXIMATE).
2. THE PIPING REPRESENTED IN THIS DRAWING MAY BE CONSTRUCTED OF CAST IRON PIPE (CIP), DUCTILE IRON PIPE (DIP), ASBESTOS CEMENT PIPE (ACP) OR TRANSITE, OR A COMBINATION OF THESE PIPE TYPES.

NORTHROP GRUMMAN
BETHPAGE, NEW YORK
OPERABLE UNIT 2

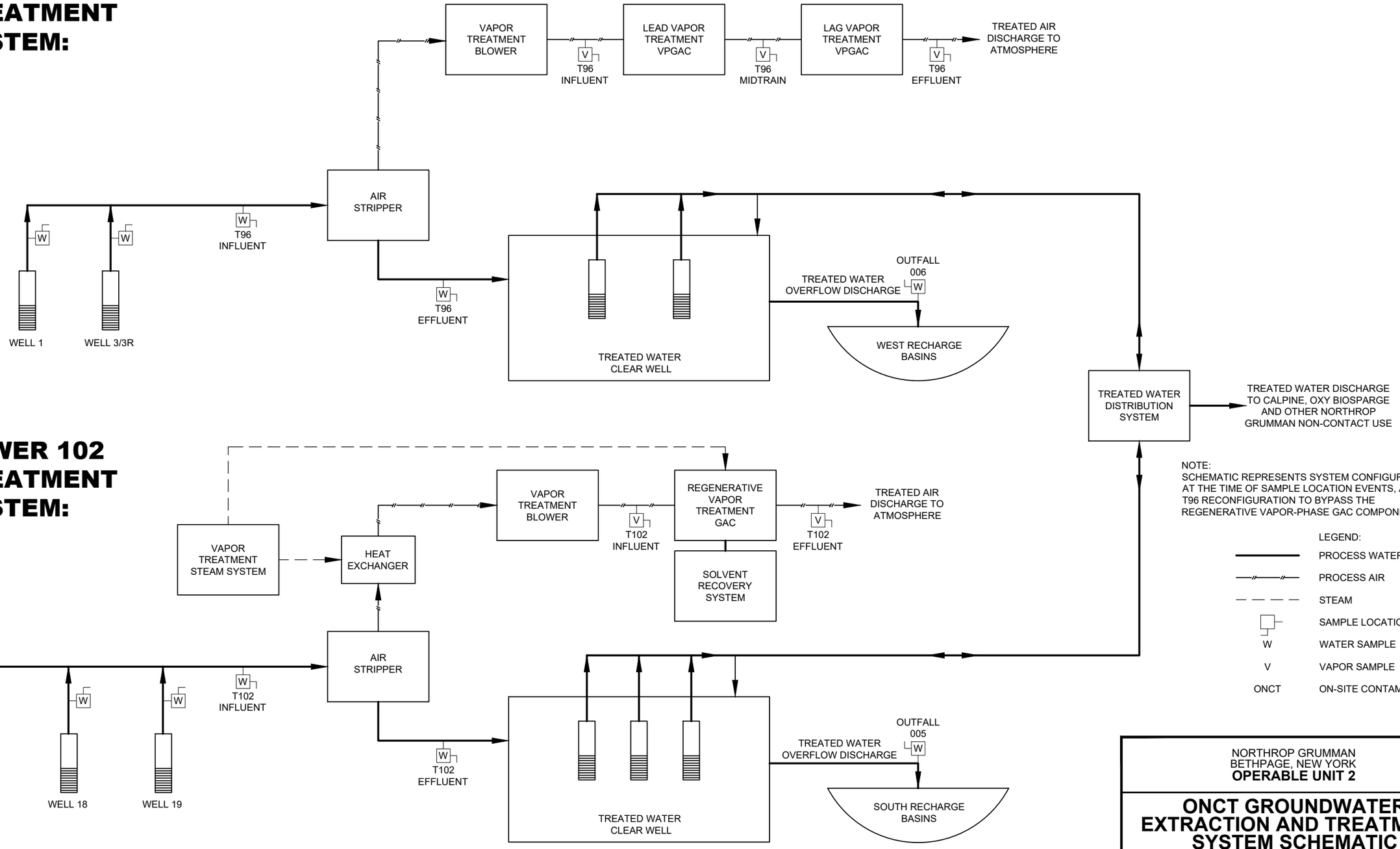
ONCT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM SITE PLAN

ARCADIS

FIGURE
2

CITY: SYRACUSE-NY DIV/GROUP: ENV DB: A.SANCHEZ LD: ALS PIC: (Opt) PM: (Reqd) TM: (Opt) LYR: (Opt)ON=*;OFF=*REF*
C:\Users\BSSmall\ACCDocs\Arcadis\AUS-NORTHROP GRUMMAN-BETHPAGE-BETHPAGE New York\Project Files\2022\01-In Progress\01-DWG\GEN-ONCT-GW-ETS-SITEPLAN.dwg LAYOUT: 2 SAVED: 8/12/2022 9:31 AM ACADVER: 24.2S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 8/12/2022 9:33 AM BY: SMALL, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X:BDR-BL
X-1498-01
X-LI-NY_RD&ST
X-GW-SYS-PIPE

TOWER 96 TREATMENT SYSTEM:



NORTHROP GRUMMAN
BETHPAGE, NEW YORK
OPERABLE UNIT 2

ONCT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM SCHEMATIC

ARCADIS

FIGURE
3

CITY: MANCHESTER DIV/GROUP: ENVCAD DB: B.SMALL PM: TM:
C:\Users\BSSmall\ACCDocs\ArcadisAUS-NORTHROP GRUMMAN-BETHPAGE-BETHPAGE New York\Project Files\2022\01-In Progress\01-DWG\OU2-F03-GWE SYSTEM.dwg LAYOUT: 3 SAVED: 8/8/2022 5:00 PM ACADVER: 24.2S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 8/8/2022 5:01 PM BY: SMALL, BRIAN
XREFS: IMAGES: PROJECTNAME: ----