Mr. Jason Pelton
Project Manager
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
Tel 631 249 7600
Fax 631 249 7610
www.arcadis.com

Subject:
Second Quarter 2020 Progress Report
Northrop Grumman Systems Corporation
Operable Unit 2, NYSDEC Site ID # 1-30-003A
Bethpage, New York

ENVIRONMENT

Date:
July 9, 2020

Contact:
Art Zahradnik

Phone:
631.391.5208

Email:
art.zahradnik@arcadis.com

Our ref:
30038454.LARA5

Dear Jason:

In accordance with Appendix "A", Section XIII of Administrative Order on Consent (AOC) Index # W1-118-14-12, this letter reports Operable Unit 2 (OU2) activities performed by Northrop Grumman Systems Corporation (Northrop Grumman) during the Second Quarter of 2020 (April through June 2020). Activities planned for the Third Quarter of 2020 (July through September 2020) are also described, as applicable.

This Progress Report provides data that have been received as final and/or validated from the current period that are not included in other routine reports for OU2 (e.g., quarterly reports, as specified in the Groundwater Monitoring Plan).

As this is an ongoing remediation project, Northrop Grumman has transitioned the frequency of these Progress Reports from monthly to quarterly. Therefore, the next report will be submitted following the close of September 2020.

OU2 ACTIVITIES CONDUCTED DURING SECOND QUARTER 2020

OU2 On-Site Containment (ONCT) System

- Continued Operation, Maintenance, and Monitoring (OM&M) of the OU2 ONCT system.
- Completed routine Second Quarter 2020 ONCT system sampling.
- Analytical data associated with Tower 96 Effluent and monthly sampling of ONCT Tower 96 system Remedial Wells 1 and 3R, which are not routinely reported, are provided in Table 1. Well locations are shown on Figure 1.
- Notable shutdown events, excluding brief or short-term maintenance events, during this period are summarized below. In each instance, the system was fully restored following any needed assessments and repairs:
    - The Tower 102 System was shut down from 5/20/20 6:00 AM - 5/21/20 8:45 AM by Northrop Grumman to allow Arcadis staff to take field measurements of the South Recharge Basin flow control structures. After the measurements were taken, the treatment system would not restart. Contractor performed diagnostics and made repairs and the treatment system was restarted.
    - The Tower 102 System shut down from 6/9/20 10:15 PM - 6/11/20 6:45 AM due to a blown fuse on one of the phase legs in the main control panel. Contractor made repairs and the treatment system was restarted.
    - The Tower 96 System shut down from 5/24/20 7:45 PM - 6/2/20 12:15 PM due to a steam isolation valve and blower bearing failure. Treatment system was restarted following repairs.
    - The Tower 96 System was shut down from 6/7/20 10:15 AM - 6/25/20 8:30 AM for repair of a steam actuator valve and blower bearing. It was noted that, following the replacement of the blower bearing, blower motor also required repair. The treatment system also remained shut down for previously scheduled boiler replacements the week of 6/15/20. Treatment system was restarted upon completion of boiler replacements.

Regional Groundwater Monitoring & Outpost Well Monitoring

- Initiated and completed the Second Quarter 2020 routine OU2 groundwater monitoring activities.
- Completed collection of semi-annual water-level measurements from wells in Northrop Grumman's routine monitoring program.
- Prepared and submitted the First Quarter 2020 sampling event data (Form 1 packages) to NYSDEC.
- Data not routinely reported are provided for the current period as follows:
    - Analytical data from the purge water discharged as part of the First Quarter 2020 and Second Quarter 2020 sampling events (Location ID "DISCHARGE") are provided in Table 1.

Northrop Grumman Cooperation with Navy

- Coordinated with Navy and completed Second Quarter 2020 sampling of additional outpost wells (BPOW5 and BPOW6 clusters) and select plume monitoring wells, as highlighted on Figure 1.
- Completed collection of semi-annual water level measurements from select wells in Navy's routine monitoring program. Prepared and submitted the First Quarter 2020 sampling event data (Form 1 packages) and associated data packages including analytical data table, laboratory reports, data validation reports and Electronic Data Deliverables (EDDs) associated with Navy-owned wells to Navy for distribution.

Other

- Prepared and submitted the First Quarter 2020 OU2 Operation, Maintenance and Monitoring Report Prepared and submitted the First Quarter 2020 AOC Quarterly Progress Report.

OU2 ACTIVITIES SCHEDULED FOR THIRD QUARTER 2020

OU2 ONCT System

- Continue OM&M of OU2 ONCT system.
- Conduct the routine Third Quarter 2020 ONCT system sampling.

Regional Groundwater Monitoring & Outpost Well Monitoring

- Conduct Third Quarter 2020 sampling from wells in Northrop Grumman's routine monitoring program (BPOW 2 cluster and GM-21D2).

Northrop Grumman Cooperation with Navy

- Conduct the Third Quarter 2020 sampling of additional outpost wells (BPOW5 and BPOW6 clusters).

Other

- Prepare and submit the Second Quarter 2020 AOC Quarterly Progress Report on July 10, 2020.
- Prepare and submit the Second Quarter 2020 OU2 Operation, Maintenance and Monitoring Report.

Sincerely,

Arcadis of New York, Inc.

Art Zahradnik
Project Manager

Enclosures

Copies:
James Sullivan, NYSDOH
Steven Scharf, NYSDEC
Donald Hesler, NYSDEC
Andrew Guglielmi, NYSDEC
Edward J. Hannon, Northrop Grumman
Jill Palmer, Esq., Northrop Grumman
Daniel Riesel, Esq., Sive, Paget & Riesel, P.C.
Mark A. Chertok, Esq., Sive, Paget & Riesel, P.C.
Brian S. Murray, NAVFAC Mid-Atlantic Environmental
Bethpage Public Library
Carlo San Giovanni, Arcadis
Chris Engler, Arcadis
Mike Wolfert, Arcadis
File, Arcadis

TABLES

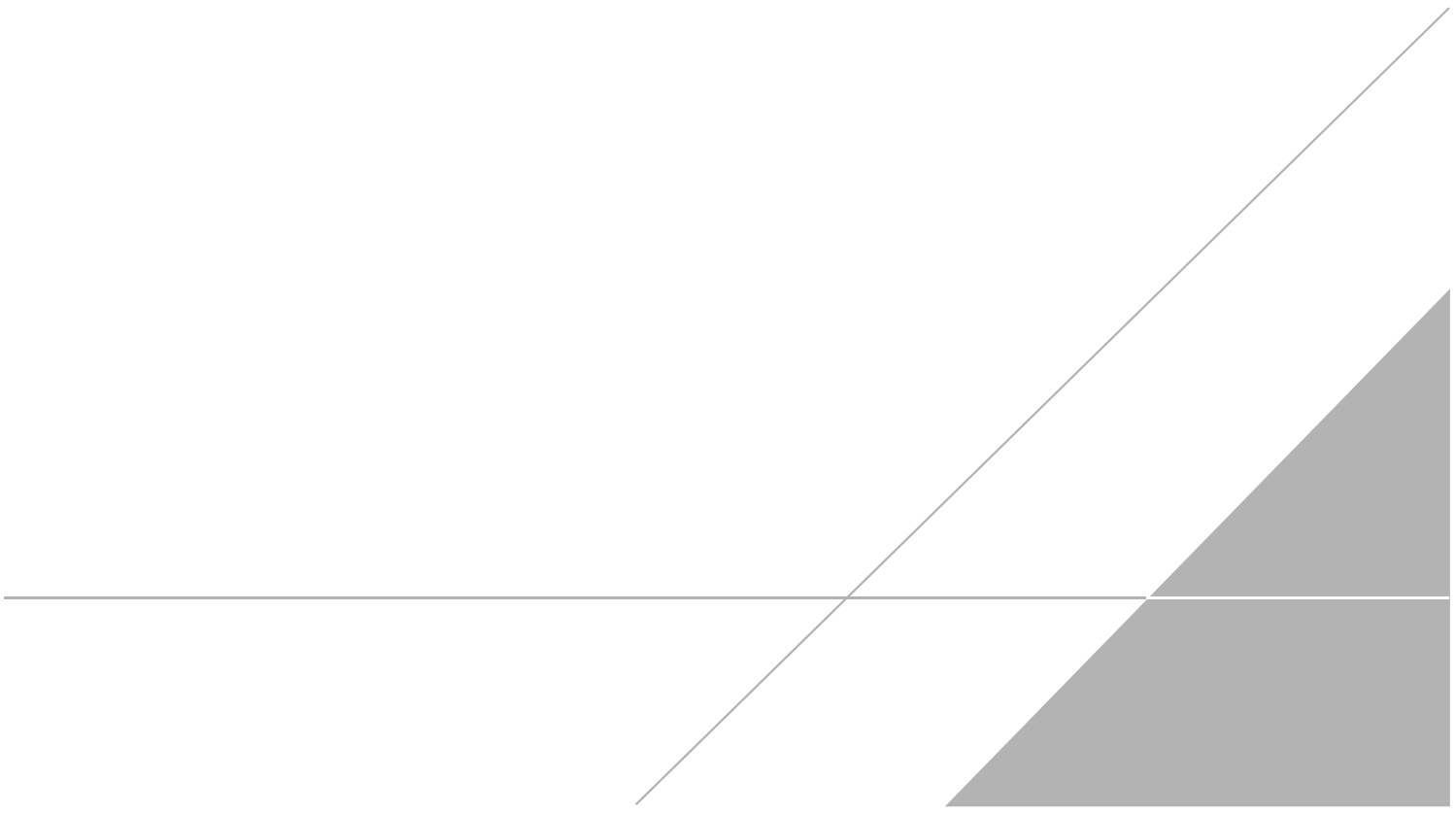

Table 1
Summary of Analytical Data
Operable Unit 2,
Northrop Grumman Systems Corporation

Constituents (units in µg/L)	Sample ID: / Location ID: / Date Sampled:	WELL 1 / WELL 1 / 4/23/2020	WELL 3R / WELL 3R / 4/23/2020	T96 EFFLUENT / T96 EFFLUENT / 4/23/2020	DISCHARGE (3,4) / DISCHARGE / 3/18/2020	DISCHARGE (3,4) / DISCHARGE / 5/20/2020	TB031820BW1 / QAQC / 3/18/2020	TB-042320-JJC-2 / QAQC / 4/23/2020	TB052020ARH1 / QAQC / 5/20/2020
Volatile Organic Compounds (1)									
1,1,1-Trichloroethane		< 0.50	**0.57**	< 0.50	< 1.0	< 1.0	< 1.0	< 0.50	< 1.0
1,1,2,2-Tetrachloroethane		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-trichloro-1,2,2-trifluoroethane		**3.3**	**2.2**	< 0.50	< 2.0	< 2.0	< 5.0	< 0.50	< 5.0
1,1,2-Trichloroethane		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane		**0.79 J**	**1.6**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene		**2.7**	**3.6**	< 0.50	< 1.0	< 1.0	< 1.0	< 0.50	< 1.0
1,2-Dichloroethane		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane		**4.3**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)		< 10	< 10	< 10	< 5.0	< 5.0	< 10	< 10	< 10
4-Methyl-2-Pentanone		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acetone		< 10	< 10	< 10	< 5.0	**6.8**	< 10	< 10	< 10
Benzene		< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 0.50	< 0.50
Bromodichloromethane		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane		< 2.0	< 2.0	< 2.0	< 1.0	< 1.0	< 2.0 J	< 2.0	< 2.0
Carbon Disulfide		< 2.0	< 2.0	< 2.0	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
CFC-11		--	--	--	< 2.0	< 2.0	--	--	--
CFC-12		--	--	--	< 2.0	< 2.0	--	--	--
Chlorobenzene		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorodibromomethane		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform		**0.50**	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 0.50	< 1.0
Chloromethane		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene		**5.6**	**3.6**	< 0.50	< 1.0	< 1.0	< 1.0	< 0.50	< 1.0
cis-1,3-Dichloropropene		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane		< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 2.0	< 0.50	< 2.0
Ethylbenzene		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m&p-Xylenes		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl N-Butyl Ketone (2-Hexanone)		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Methyl-tert-butylether		--	--	--	< 1.0	< 1.0	--	--	--
o-Xylene		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene (Monomer)		< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene		**15.3**	**28.5**	< 0.50	< 1.0	< 1.0	< 1.0	< 0.50	< 1.0
Toluene		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene		< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 0.50	< 1.0
trans-1,3-Dichloropropene		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene		**597**	**205**	< 0.50	**0.68 J**	**2.3**	< 1.0	< 0.50	< 1.0
Vinyl chloride		< 0.50	**1.4**	< 0.50	< 1.0	< 1.0	< 1.0	< 0.50	< 1.0
Total VOCs (2)		**630**	**250**	0.0	**0.68**	**9.1**	0.0	0.0	0.0

Notes and abbreviations on Last Page

Table 1
Summary of Analytical Data
Operable Unit 2,
Northrop Grumman Systems Corporation
Bethpage, New York

Notes and Abbreviations:

(1) Sample analysis by VOC Method 8260C unless otherwise noted.
(2) Results rounded to two significant figures.
(3) The sample is collected from monitoring well purge water discharged as part of the First Quarter or Second Quarter 2020 sampling events.
(4) Monitoring well purge water discharge sample analysis by VOC Method 624.1.

Results validated following protocols specified in OU2 Groundwater Monitoring Plan (ARCADIS 2016), or as received as final from the laboratory as of the end of the AOC reporting period.

<1.0	Constituent not detected above its laboratory quantification limit.
--	Not analyzed
4.3	Bold value indicates a detection
µg/L	Micrograms per liter
J	Value is estimated concentration
OU2	Operable Unit 2
QAQC	Quality Assurance/Quality Control sample
TB	Trip Blank
VOC	Volatile Organic Compound

FIGURES

CITY:SYRACUSE-NY DIV/GROUP:ENV DB:A.SANCHEZ LD:ALS PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
C:\Users\gstowell\BIM 360\Arcadis\ANA - Northrop Grumman\Project Files\OU2 ONCT OM&M Program\2019\01-DWG\OU2-GWMWN-A1.dwg LAYOUT: 1 SAVED: 9/3/2019 1:14 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 9/3/2019 1:15 PM BY: STOWELL, GARY

XREFS: IMAGES: PROJECTNAME: ----
X-1496X01
X-BDR-DP
X-LI-NY_RD&ST

HN-24I HN-24S FW-03 HN-42S HN-42I GM-13D HN-40I HN-40S GM-16I GM-16SR N-10597 MW-3-1 WELL 3R MW-1GF WELL 3 GM-17I GM-17SR GM-17D WELL 1 MW-2GF GM-18D GM-18I GM-18S GM-39DB GM-39DA GM-33D2 N-10631 WELL 17 GM-20I GM-21D2 GM-20D GM-21S GM-21I GM-21D N-10633 GM-73D3 WELL 18 GM-73D GM-73D2 GM-74D3 GM-74D2 GM-74I GM-74D WELL 19 PLT1MW-05 PLT1MW-06 PLT1MW-04 GM-19SR GM-19I GM-15D2 GM-15D GM-15SR GM-15I GM-79I GM-79S GM-79D GM-37D GM-37D2 GM-71D2 RE106D2 GM-78D2 GM-78D N-10600 RE106D1 GM-78S RE106D3 GM-78I N-9921 RE107D1 RE107D2 RE107D3 N-10624 GM-75D2 N-10627 N-10634 RE109D1 RE109D2 RE109D3 GM-70D2 GM-35D2 GM-36D GM-36D2 N-10821 GM-34D GM-34D2 GM-38D GM-38D2 RE121D1 RE121D2 RE124D1 RE124D2 RE116D1 RE114D1 RE114D3 RE114D2 RE115D1 RE115D2 BPOW 4-2R BPOW 4-1R BPOW 2-2 BPOW 2-3 BPOW 2-1 BPOW 3-4 BPOW 3-3 BPOW 3-2 BPOW 3-1 RE128D1 RE128D2 RE127D1 RE127D2 BPOW 5-1 BPOW 5-2 BPOW 5-3 RE130D2 RE130D1 BPOW 5-6 RE118D1 BPOW 5-5 BPOW 5-7 RE119D1 BPOW 5-4 RE129D2 RE129D1 TT102D2 TT102D RE133D2 RE133D1 BPOW 6-4 BPOW 6-3 BPOW 6-5 BPOW 6-6 BPOW 6-2 BPOW 6-1 BPOW 1-4 BPOW 1-5 BPOW 1-6 BPOW 1-1 BPOW 1-2 BPOW 1-3

PLANT 3 PLANT 25 PLANT 5 PLANT 2 PLANT 1 FUEL DEPOT AREA
OU2 MAIN FACILITY REMEDIAL SYSTEM (TOWER 66)
OU2 MAIN FACILITY REMEDIAL SYSTEM (TOWER 102)
EXISTING OU2 TREATMENT SYSTEMS
GRUMMAN ROAD
CENTRAL AVENUE
BROADWAY
BETHPAGE STATE PARKWAY
SEAFORD-OYSTER BAY EXPRESSWAY
LONG ISLAND RAILROAD
BLOOMINGDALE ROAD
(GARDINER'S AVENUE)
MALLARD ROAD
LOWLAND ROAD
NORTH WANTAGH AVE.
HICKSVILLE ROAD
STEWART AVENUE
HEMPSTEAD TURNPIKE
RANCH LANE
BOUNDARY AVENUE
SOUTHERN STATE PARKWAY
NORTH BROADWAY

LEGEND:

- PROPERTY BOUNDARY OF THE FORMER GRUMMAN AEROSPACE SITE
- PROPERTY BOUNDARY OF THE FORMER NAVY SITE
- LONG ISLAND RAILROAD
- DENOTES NORTHROP GRUMMAN OWNED PROPERTY (AS OF 2009)
- DENOTES NAVY OWNED PROPERTY (AS OF 2014)
- RECHARGE BASIN
- WELL LOCATION
- GREEN HIGHLIGHT INDICATES WELLS SAMPLED BY ARCADIS ON BEHALF OF NAVY

0 800' 1600'
APPROXIMATE SCALE IN FEET

NORTHROP GRUMMAN SYSTEMS CORPORATION
BETHPAGE, NEW YORK

WELL LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1