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

ENVIRONMENT

Date:
October 9, 2020

Contact:
Art Zahradnik

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Email:
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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 Third Quarter of 2020 (July through September 2020). Activities planned for the Fourth Quarter of 2020 (October through December 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 and the next report will be submitted following the close of December 2020.

## OU2 ACTIVITIES CONDUCTED DURING THIRD QUARTER 2020

### OU2 On-Site Containment (ONCT) System

- Continued Operation, Maintenance, and Monitoring (OM&M) of the OU2 ONCT system.
- Completed routine Third 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 through July 2020. Well locations are shown on Figure 1.
- Given that Remedial Well 3R maintenance activities have been completed and the Tower 96 system has been operating consistently, supplemental monthly monitoring of the Tower 96 Remedial Wells 1 and 3R will no longer be performed, and will revert back to a quarterly basis, in accordance with O&MM Manual monitoring requirements.
- 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:
  - Tower 102 was shut down from approximately 7/27/2020 at 8:30 AM to 7/28/2020 at 9:30 AM to allow for cracks to be welded in both RVPGAC Bed effluent valves.
  - Tower 102 was shut down on 8/4/2020 at 6:00 AM to accommodate the replacement of RVPGAC steam effluent butterfly valves. The system was restarted the same day at 6:45 AM.
  - Tower 102 was shut down on 8/10/2020 at 9:30 AM to accommodate the replacement of the RVPGAC steam condenser. The system was restarted at 10:30 AM.
  - Well 17 (Tower 102) was shut down from 8/19/2020 at 12:00 PM to 8/20/2020 at 4:30 AM due to condensation reducing airflow at the carbon beds. Well 17 was temporarily shut down to reduce water influent to the system, thus, increasing airflow at the carbon beds. This successfully removed the carbon bed condensation and allowed the continued operation of Wells 18 and 19.
  - Tower 102 System was shut down on 8/28/2020 at 6:30 AM to accommodate the replacement of pneumatic solenoids. The system was restarted the same day at 8:45 AM.
  - Tower 102 shut down on 9/27/2020 at 8:30 AM due to a Tank A / B Solenoid Valve out of Sequence Alarm. The valve was reset, and the system was restarted the same day at 9:30 AM.

- The Tower 102 System was shut down on 9/29/2020 at 8:15 AM to accommodate the replacement of a new steam condensate tank meter. The system was restarted the same day at 1:45 PM.

- The Tower 96 System exhibited several intermittent shutdown events between 7/7/2020 and 8/16/2020 due to alarm set point and wet well pump soft starts issues. Both issues were diagnosed and resolved during this reporting period. The cumulative downtime attributable to these specific issues was 11.5 hours in total and did not exceed more than 2.5 hours during any single day.

### Regional Groundwater Monitoring & Outpost Well Monitoring

- Completed Third Quarter 2020 routine OU2 groundwater monitoring activities (sampled former outpost wells BPOW2-1, BPOW2-2 and BPOW2-3 and monitoring well GM-21D2).
- Prepared and submitted the Second 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 Second Quarter 2020 and Third Quarter 2020 sampling events (Location ID “DISCHARGE”) are provided in Table 1.

### Northrop Grumman Cooperation with Navy

- Coordinated with Navy and completed Third Quarter 2020 sampling of additional outpost wells (BPOW5 and BPOW6 clusters).
- Prepared and submitted the Second 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 Second Quarter 2020 OU2 OM&M Report.
- Prepared and submitted the Second Quarter 2020 AOC Quarterly Progress Report.

## OU2 ACTIVITIES SCHEDULED FOR FOURTH QUARTER 2020

### OU2 ONCT System

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

## Regional Groundwater Monitoring & Outpost Well Monitoring

- Conduct Fourth Quarter 2020 routine groundwater monitoring activities including collection of water levels from routine monitoring wells and remedial wells.

## Northrop Grumman Cooperation with Navy

- Coordinate with Navy and collect semiannual water level measurements from select wells in Navy's routine monitoring program.
- Coordinate with Navy and conduct the Fourth Quarter 2020 sampling of additional outpost wells (BPOW5 and BPOW6) and select plume monitoring wells, as highlighted on Figure 1.

## Other

- Prepare and submit the Fourth Quarter 2020 AOC Quarterly Progress Report by January 10, 2021.
- Prepare and submit the 2020 Annual OU2 OM&M Report (including Fourth Quarter 2020 monitoring and operational results).

Sincerely,

Arcadis of New York, Inc.

Art Zahradnik
Project Manager

Enclosures

Copies:
James Sullivan, NYSDOH
Steven Scharf, NYSDEC
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Andrew Guglielmi, NYSDEC
Edward J. Hannon, Northrop Grumman
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Daniel Riesel, Esq., Sive, Paget & Riesel, P.C.
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Brian S. Murray, NAVFAC Mid-Atlantic Environmental
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Carlo San Giovanni, Arcadis
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# TABLES

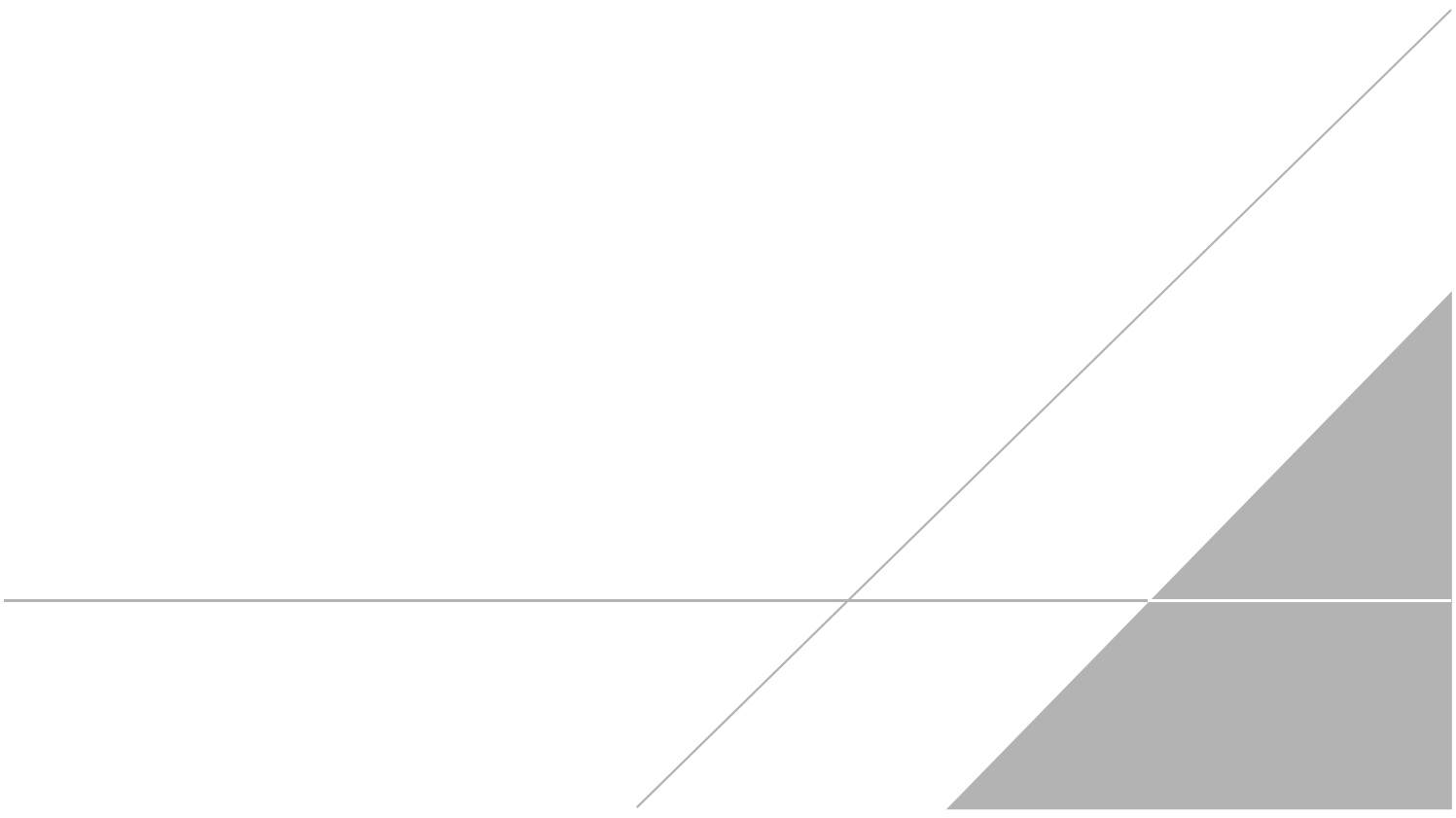

**Table 1**
**Summary of Analytical Data**
**Operable Unit 2,**
**Northrop Grumman Systems Corporation**

| Constituents (units in µg/L) | Sample ID: / Location ID: / Date Sampled: | DISCHARGE (3,4) DISCHARGE 6/18/2020 | DISCHARGE (3,4) DISCHARGE 7/17/2020 | DISCHARGE (3,4) DISCHARGE 9/1/2020 | 96 EFFLUENT 96 EFFLUENT 7/16/2020 | WELL 1 WELL 1 7/16/2020 | WELL 3R WELL 3R 7/16/2020 | TB061820DC1 QAQC 6/18/2020 | TB-071620-SV-1 QAQC 7/16/2020 | TB071720ALH1 QAQC 7/17/2020 | FB071720ALH1 QAQC 7/17/2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organic Compounds (1)** | | | | | | | | | | | |
| 1,1,1-Trichloroethane | | < 1.0 | < 1.0 | < 1.0 | < 0.50 | < 0.50 | **0.56** | < 1.0 | < 0.50 | < 1.0 | < 1.0 |
| 1,1,2,2-Tetrachloroethane | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| 1,1,2-trichloro-1,2,2-trifluoroethane | | < 2.0 | < 2.0 | < 2.0 | < 0.50 | **2.6** | **2.2** | < 2.0 | < 0.50 | < 5.0 | < 5.0 |
| 1,1,2-Trichloroethane | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| 1,1-Dichloroethane | | < 1.0 | **0.64 J** | < 1.0 | < 1.0 | **0.81 J** | **1.4** | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| 1,1-Dichloroethene | | < 1.0 | < 1.0 | < 1.0 | < 0.50 | **2.7** | **3.6** | < 1.0 | < 0.50 | < 1.0 | < 1.0 |
| 1,2-Dichloroethane | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| 1,2-Dichloropropane | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **4.4** | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| 1,3-Butadiene | | -- | -- | -- | -- | -- | -- | -- | -- | < 5.0 | < 5.0 |
| 1-Chloro-1,1-difluoroethane | | -- | -- | -- | -- | -- | -- | -- | -- | < 5.0 | < 5.0 |
| 2-Butanone (MEK) | | < 5.0 | < 5.0 | < 5.0 | < 10 | < 10 | < 10 | < 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 | < 5.0 | < 5.0 |
| Acetone | | < 5.0 | < 5.0 | **7.9** | < 10 | < 10 | < 10 | < 5.0 | < 10 | < 10 | < 10 |
| Benzene | | < 1.0 | < 1.0 | < 1.0 | < 0.50 | < 0.50 | < 0.50 | < 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 | < 1.0 | < 1.0 |
| Bromoform | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Bromomethane | | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 2.0 | < 2.0 | < 1.0 | < 2.0 | < 2.0 | < 2.0 |
| Carbon Disulfide | | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 2.0 | < 2.0 | < 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 | < 1.0 | < 1.0 |
| CFC-11 | | < 2.0 | < 2.0 | < 2.0 | -- | -- | -- | < 2.0 | -- | < 2.0 | < 2.0 |
| CFC-12 | | < 2.0 | < 2.0 | < 2.0 | -- | -- | -- | < 2.0 | -- | < 2.0 | < 2.0 |
| Chlorobenzene | | < 1.0 | < 1.0 | < 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 | < 1.0 | < 1.0 |
| Chlorodifluoromethane | | -- | -- | -- | -- | -- | -- | -- | -- | < 5.0 | < 5.0 |
| Chloroethane | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Chloroform | | < 1.0 | < 1.0 | < 1.0 | < 0.50 | **0.60** | **0.37 J** | < 1.0 | < 0.50 | < 1.0 | < 1.0 |
| Chloromethane | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| cis-1,2-Dichloroethene | | < 1.0 | < 1.0 | < 1.0 | < 0.50 | **5.9** | **3.7** | < 1.0 | < 0.50 | < 1.0 | < 1.0 |
| cis-1,3-Dichloropropene | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Dichloromethane | | < 1.0 | < 1.0 | < 1.0 | < 0.50 | < 0.50 | < 0.50 | < 1.0 | < 0.50 | < 2.0 | < 2.0 |
| Ethylbenzene | | < 1.0 | < 1.0 | < 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 | < 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 | < 5.0 | < 5.0 |
| Methyl-tert-butylether | | < 1.0 | < 1.0 | < 1.0 | -- | -- | -- | < 1.0 | -- | < 1.0 | < 1.0 |
| o-Xylene | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Styrene (Monomer) | | < 2.0 | < 2.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 | < 2.0 | < 1.0 | < 1.0 | < 1.0 |
| Tetrachloroethene | | < 1.0 | **1.1** | < 1.0 | < 0.50 | **15.9** | **32.2** | < 1.0 | < 0.50 | < 1.0 | < 1.0 |
| Toluene | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| trans-1,2-Dichloroethene | | < 1.0 | < 1.0 | < 1.0 | < 0.50 | < 0.50 | < 0.50 | < 1.0 | < 0.50 | < 1.0 | < 1.0 |
| trans-1,3-Dichloropropene | | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Trichloroethene | | **0.63 J** | **0.77 J** | **0.43 J** | < 0.50 | **668** | **211** | < 1.0 | < 0.50 | < 1.0 | < 1.0 |
| Vinyl chloride | | < 1.0 | < 1.0 | < 1.0 | < 0.50 | < 0.50 | **1.6** | < 1.0 | < 0.50 | < 1.0 | < 1.0 |
| **Total VOCs (2)** | | **0.63** | **2.5** | **8.3** | **ND** | **701** | **257** | **ND** | **ND** | **ND** | **ND** |

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

(3) The sample is collected from monitoring well purge water discharged as part of the Second Quarter or Third 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 |
| ND | Not Detected |

# 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 GM-73D3 GM-73D GM-73D2 WELL 18 GM-74D3 GM-74D2 GM-74I WELL 19 GM-74D GM-20I GM-21D2 GM-21S GM-21I GM-20D GM-21D N-10633 RE106D2 GM-78D2 GM-78D N-10600 RE106D1 GM-78S RE106D3 GM-78I WELL 17 N-9921 CENTRAL AVENUE RE107D1 RE107D2 RE107D3 N-10624 GM-75D2 N-10627 N-10634 GM-70D2 GM-35D2 GM-34D GM-34D2 GM-36D GM-36D2 N-10821 GM-38D GM-38D2 GM-37D GM-37D2 GM-71D2 GM-79I GM-79S GM-79D RE109D1 RE109D2 RE109D3 PLT1MW-05 PLT1MW-06 PLT1MW-04 GM-19S GM-19I GM-15D2 GM-15D GM-15SR GM-15I

RE121D1 RE121D2 RE124D1 RE124D2 RE116D1 RE114D1 RE114D3 RE114D2 RE115D1 RE115D2 BPOW 4-2R BPOW 4-1R RE128D1 RE128D2 BPOW 2-2 BPOW 2-3 BPOW 2-1 BPOW 3-4 BPOW 3-3 BPOW 3-2 BPOW 3-1 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 1-2 BPOW 1-1 BPOW 1-3

PLANT 3 PLANT 25 PLANT 5 PLANT 2 OU2 MAIN FACILITY REMEDIAL SYSTEM (TOWER 96) OU2 MAIN FACILITY REMEDIAL SYSTEM (TOWER 102) EXISTING OU2 TREATMENT SYSTEMS PLANT 1 FUEL DEPOT AREA GRUMMAN BLVD

BROADWAY BETHPAGE STATE PARKWAY LONG ISLAND RAILROAD SEAFORD-OYSTER BAY EXPRESSWAY BLOOMINGDALE ROAD (GARDINER'S AVENUE) MALLARD ROAD LOWLAND ROAD NORTH WANTAGH AVE. HICKSVILLE ROAD STEWART AVENUE HEMPSTEAD TURNPIKE RANCH LANE SOUTHERN STATE PARKWAY BOUNDARY AVENUE 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